PAPERS IN CHADIC LINGUISTICS

Papers from the Leiden Colloquium on the Chadic Language Family

Edited by
Paul Newman & Roxana Ma Newman

Leiden Afrika-Studiecentrum 1977
Orders should be sent to: Afrika-Studiecentrum, Stationsplein 10, Postbus 9507, 2300 RA Leiden, The Netherlands.

Payment to be made through Amro-Bank, Leiden, account no. 45 17.29.404; Postgiro account no. 531031; or by bank draft, international money order, or personal cheque.

Price: Dutch f8.00 + f5.00 postage or U.S. $3.50 + $2.00 postage.
CONTENTS

Preface v

DAUDA BAGARI
Reanalyzing the Hausa causative morpheme 1

W. E. A. VAN BEEK
Color terms in Kapsiki 13

JACK CARNOCHAN
Bachama and Semito-Hamitic 21

KAREN H. EBERT
Definiteness in Kera 25

ZYGMUNT FRAJZYNGIER
The plural in Chadic 37

PHILIP JAGGAR
The nature and function of auxiliary verbs in Hausa 57

WILLIAM R. LEBEN
Parsing Hausa plurals 89

PAUL NEWMAN
Lateral fricatives ("laterals") in Chadic 107

ROXANA MA NEWMAN
Y-prosody as a morphological process in Ga'anda 121

BELLO AHMAD SALIM
Phonemic vowel neutralization in Hausa 131

RUSSELL G. SCHUH
West Chadic verb classes 143

MARGARET G. SKINNER
Gender in Pa'a 167

NEIL SKINNER
Domestic animals in Chadic 175

EKKEHARD WOLFF
Patterns in Chadic (and Afroasiatic?) verb base formations 199
Preface

This volume consists of a collection of papers originally presented at the Leiden Colloquium on the Chadic Language Family, held in Leiden, The Netherlands, September 15-17, 1976. All of the papers presented at the Colloquium are included here. The volume is nevertheless not a "proceedings" in the strict sense of the term, and this designation has purposely been avoided in the title.

The purpose of the Colloquium—the first meeting ever to be devoted exclusively to Chadic linguistics—was to stimulate the exchange of ideas and data on Chadic languages by providing scholars from all over the world the opportunity to establish personal contact with one another and to learn about work being carried out elsewhere. Consistent with these aims, all of the Colloquium papers were viewed as preliminary versions. Some were written up in full and distributed at the meeting, some were simply presented orally; but in either case, it was understood that the authors welcomed comments, criticism, and suggestions by the other participants. The final versions of the papers, revised to incorporate the various modifications arising from discussions at the Colloquium and subsequent communication between the authors and the editors, were completed during the six months following the Colloquium.

The Leiden Colloquium was an informal meeting open to all interested scholars. Some thirty-five participants from six countries attended: England, France, West Germany, The Netherlands, Nigeria, and the United States. In terms of the research interests of the participants, all four countries bordering on Lake Chad where Chadic languages are spoken were represented, namely, Cameroon, Chad, Niger, and Nigeria.

The papers in this volume are a good reflection of the nature and range of work being done in Chadic linguistics as a whole. About half the papers are comparative/historical, the other half descriptive. The focus in the historical papers is generally on problems within Chadic, although comparisons involving the broader Afroasiatic phylum are also touched on. In the descriptive papers, a half dozen different languages
are treated, these all having been the subject of original field research by the authors. Not surprisingly, Hausa is the only language to which more than one descriptive study is devoted.

The Colloquium was sponsored and organized by the Department of African Linguistics, Leiden University. We would like to thank our colleagues Jan Voorhoeve, Thilo Schadeberg, Thomas Cook, and Nora Dontchev-Lambrechts for their help in hosting the meeting. We also gratefully acknowledge the support of the Faculty of Letters of the University, and of the Afrika-Studiecentrum.

P.N.
R.M.N.
Participants at the Leiden Colloquium  
on the Chadic Language Family  
September 15-17, 1976

Contributors

Dauda Bagari, Dept. of Nigerian Languages, Bayero University College,  
Kano, Nigeria.

W. E. A. van Beek, Instituut voor Culturele Antropologie, Universiteit  
Utrecht, Utrecht, Netherlands.

Jack Carnochan, Dept. of Phonetics, School of Oriental and African  

Karen H. Ebert, Institut für Englische und Amerikanische Philologie,  
Philips-Universität, Marburg, W. Germany.

Zygmunt Frajzyngier, Dept. of Linguistics, University of Colorado,  
Boulder, Colorado, U.S.A.

Philip Jaggar, Seminar für Afrikanische Sprachen und Kulturen, Universi-  
ität Hamburg, Hamburg, W. Germany.

William R. Leben, Dept. of Linguistics, Stanford University, Stanford,  
California, U.S.A.

Paul Newman, Afrikaanse Taalkunde, Universiteit te Leiden, Leiden,  
Netherlands.

Roxana Ma Newman, Afrikaanse Taalkunde, Universiteit te Leiden, Leiden,  
Netherlands.

Bello Ahmad Salim, Dept. of Nigerian Languages, Bayero University  
College, Kano, Nigeria.

Russell G. Schuh, Dept. of Linguistics, University of California, Los  
Angeles, California, U.S.A.

Margaret G. Skinner, Dept. of African Languages and Literature, Universi-  
ytät Wisconsin, Madison, Wisconsin, U.S.A.

Neil Skinner, Dept. of African Languages and Literature, University of  
Wisconsin, Madison, Wisconsin, U.S.A.

Ekkehard Wolff, Seminar für Afrikanische Sprachen und Kulturen, Universi-  
ität Hamburg, Hamburg, W. Germany.

Other Participants

J. C. Anceaux (Leiden)  
D. Barreteau (Paris)  
P. Boyeldieu (Paris)  
T. L. Cook (Leiden)  
G. Dimmendaal (Leiden)  
A. J. Drewes (Leiden)  
L. Gerhardt (Hamburg)  
C. Hoffmann (Ibadan)  
H. Jockers (Hamburg)  
M. Konter-Katani (Leiden)  

H. Van Leynseele (Leiden)  
H. Meyer-Bahlburg (Hamburg)  
M. Rossing (Madison)  
M. Sachnine (Paris)  
D. Saxon (Los Angeles)  
T. Schadeberg (Leiden)  
T. Schumann (Hamburg)  
K. Stallcup (Stanford)  
J. Voorhoeve (Leiden)
REANALYZING THE HAUSA CAUSATIVE MORPHEME

Dauda M. Bagari

1. Introduction

In 1960, F. W. Parsons presented a comprehensive classification of Hausa verbs, which has since been generally accepted and is known as the Hausa Verbal Grade System. The grade system is essentially a classification of Hausa verbs into seven morphologically distinct forms on the basis of final vowel and tone pattern, and on syntactic and semantic correlation.

(1) Grade Examples
1 duubaa 'to look for (something)'
2 duubaa 'to look at'
3 zuba 'to spill'
4 zubee 'to pour/spill out'
5 zubař 'to pour away'
6 zuboo 'to pour (in this direction)'
7 zubu 'to be all poured out'

1.1. Surface forms of verbs

The actual surface forms of verbs are described with reference to three syntactically determined forms: an "A-Form", which is used if no object immediately follows the verb; a "B-Form", which is used if a direct object personal pronoun follows the verb; and a "C-Form", used before a direct object other than a personal pronoun. The following diagram exemplifies the surface realizations of all the occurring forms of all seven grades.

---

1 Double vowels indicate length, H indicates a high tone, and L a low tone.
### Table 1.2. The "causative" Grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>A-Form</th>
<th>B-Form</th>
<th>C-Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-aa</td>
<td>-aa</td>
<td>-a</td>
</tr>
<tr>
<td></td>
<td>HL(H)</td>
<td>HL(H)</td>
<td>HL(L)</td>
</tr>
<tr>
<td>2</td>
<td>-aa</td>
<td>-ee</td>
<td>-i</td>
</tr>
<tr>
<td></td>
<td>LH(L)</td>
<td>(L)LH</td>
<td>(L)LH</td>
</tr>
<tr>
<td>3</td>
<td>-a</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>LH(L)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>-ee</td>
<td>-ee</td>
<td>-e(e)</td>
</tr>
<tr>
<td></td>
<td>HL(H)</td>
<td>HL(H)</td>
<td>HL(H)</td>
</tr>
<tr>
<td>5</td>
<td>-ař</td>
<td>-ař (da)</td>
<td>-ař (da)</td>
</tr>
<tr>
<td></td>
<td>HH(H)</td>
<td>HH(H)</td>
<td>HH(H)</td>
</tr>
<tr>
<td>6</td>
<td>-oo</td>
<td>-oo</td>
<td>-oo</td>
</tr>
<tr>
<td></td>
<td>HH(H)</td>
<td>HH(H)</td>
<td>HH(H)</td>
</tr>
<tr>
<td>7</td>
<td>-u</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>(L)LH</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

1.2. The "causative" grade

Grade 5 verbs are usually called "causative" grade verbs because their meaning almost always implies causation. In the analysis of Parsons (1960/61) and of Newman (1973), the causative morpheme/marker is taken to be the suffix -ař, which is attached to verbal roots (i.e. verb minus final vowel). Thus, according to Parsons, the so-called "causative" verb is characterized by "(a) the termination -ař/-as² and (b) a high tone on each syllable". Parsons also observed some idiosyncrasies of the causative grade that are not found with other grades, such as (i) "the potentiality of dropping its termination and appearing simply as a verbal base under certain syntactical contexts and under certain phonologically and lexically determined conditions, (ii) a completely synonymous by-form in which an extra high toned syllable or suffix -shee is added, either to the full form in -as, or to the "apocopated" form represented by the verbal base..." (cf. Parsons 1971/72). However, Newman seems to have a better insight into the so-called by-form when he identifies it with the causative marker -(a)s, saying "it is

---

²Historically the -ř is derived from an -s, which is still pronounced in some northern dialects of Hausa. Henceforth, I will be writing the causative marker as -as.
evident on closer analysis that the putative -shee suffix is nothing but the underlying causative marker -(a)s plus the pre-pronoun /ee/", and I agree with Newman in this respect.

1.3. **The aims of this paper**

In this paper, I will first of all question the validity of the (traditional) analysis of Hausa causative verbs according to which Grade 5 verbs are analyzed as consisting of a verbal root (i.e. verb minus final vowel) and a causative marker -as. I will bring forward evidence from within Hausa to demonstrate that the causative marker is actually only -s and not -as or -(a)s. I will further show that there are in fact two ways of attaching this suffix to a verb in order to turn it into a causative verb, one way using the verbal root (just like the other grades) and a second way in which the suffix is attached to verbal stems. Secondly, I will demonstrate how a causative verb can drop its termination by using a phonological rule which I have recently discovered in Hausa.

2. **Deriving the causative verb**

There are two different ways by which a causative verb can be derived in Hausa: (1) by suffixing the causative marker -s to verbal roots (i.e. verb minus final vowel); (2) by suffixing the marker to verbal stems (i.e. verb plus final vowel). I call the two methods the "root-method" and the "stem-method".

2.1. **The root-method**

Using the root-method, one can derive causative verbs by suffixing the causative marker -s to verbal roots, just in the same way as other grades are derived. For example:
<table>
<thead>
<tr>
<th>Citation Form</th>
<th>Root</th>
<th>Causative Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>koomaa 'go back'</td>
<td>*koom-</td>
<td>*koom-s → kwan-s → 'take back'</td>
</tr>
<tr>
<td>fita 'go out'</td>
<td>*fit-</td>
<td>*fit-s → fis-s 'take (sth.) out'</td>
</tr>
<tr>
<td>zuba(a) 'spill'</td>
<td>*zub-</td>
<td>*zub-s/zuu-s 'pour/throw away'</td>
</tr>
<tr>
<td>rawaa 'dance'</td>
<td>*raw-</td>
<td>*raw-s → rau-s 'shake'</td>
</tr>
<tr>
<td>gayaa 'tell'</td>
<td>*gay-</td>
<td>*gay-s → gai-s 'greet'</td>
</tr>
</tbody>
</table>

Historically, all Chadic languages had (and some still have) two classes of verbs: a-ending and i-ending (cf. Newman 1973). Causative verbs formed through the root-method behave (historically) like i-ending verbs in Hausa. Almost all Hausa dialects have stopped using this method of deriving causatives. However, I happen to know one dialect, the Guddiri dialect (which is in fact my native dialect, but which I don't speak anymore), that still uses the root-method in deriving causative verbs (and in other derivations too).

2.1.1. The Guddiri dialect. The Guddiri dialect is geographically remote from the "core-Hausa" dialects of Kano, Katsina, Sokoto, etc., and is usually regarded (together with other eastern dialects) as a very conservative form of Hausa. In this dialect, causative verbs are still consistently derived through the root-method, and are not restricted to the B-Form only. It is therefore not uncommon to hear village people in Azare market,\(^6\) especially women, saying:

---

\(^3\)The citation form of a verb is the form found in dictionaries (e.g. Abraham 1962), which is traditionally taken to be the base form from which other forms are derived.

\(^4\)Hausa does not allow long vowels in closed syllables. Thus the long oo in koom- is shortened to *kom-,* and another (optional) rule changes $velar-o-N$ to $labialized velar-a-N$.

\(^5\)The word rawaa is a noun derived from the verb root *raw-. The verbal base *rawa does not occur. The root *raw- from which the causative form is derived is also used in other derivations based on verbs, such as agential and locative nouns, e.g. marayii 'dancer' and marayaa 'place for dancing'.

\(^6\)Azare is the administrative and commercial centre of Guddiri land. There is a big market in the city to which people from all parts of Guddiri land come on Sundays. The people living in Azare (and other larger towns of Guddiri) do not speak the Guddiri dialect anymore.
(4) you naa sai-s-i⁷ kaayaanaa da wuri  
Today I-comp. buy-cause goods-my with earliness  
'Today I have sold my goods early'

(5) naa sai-sh-ee su da wuri  
I-comp. buy-cause them with earliness  
'I sold them early'

(6) wannan nee riiga-ŋ da Audu ya sai-s-ii (maka)  
this cop. shirt-the rel. Audu he-comp. buy-cause (you)  
'Is this the shirt that Audu sold you?'

Compare these to standard Hausa:

(7) you naa saya-s/ŋ (da) kaayaanaa da wuri  
Today I-comp. buy-cause (marker) goods-my early  
'Today I sold my goods early'

(8) naa saya-s/ŋ (da) suu/sai-sh-ee su da wuri  
I-comp. buy-cause them/buy-cause them early  
'I sold them early'

(9) wannan cee riiga-ŋ da Audu ya saya-s/ŋ maka  
this cop. shirt-the rel. Audu he-comp. buy-cause you  
'Is this the shirt that Audu sold you?'

2.2. The stem-method

In this method, causative verbs are formed by suffixing the causative marker -s to verbal stems (i.e. verb plus final vowel), e.g.

<table>
<thead>
<tr>
<th>Verbal stem</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td>koomaa</td>
<td>'go back'</td>
</tr>
<tr>
<td>zub(a)</td>
<td>'spill'</td>
</tr>
<tr>
<td>fita</td>
<td>'go out'</td>
</tr>
<tr>
<td>rawaa</td>
<td>'dance' (n.)</td>
</tr>
<tr>
<td>gayaa</td>
<td>'tell'</td>
</tr>
<tr>
<td></td>
<td>kooma-s 'take back'</td>
</tr>
<tr>
<td></td>
<td>zuba-s 'pour/throw away'</td>
</tr>
<tr>
<td></td>
<td>fita-s 'take out'</td>
</tr>
<tr>
<td></td>
<td>rawa-s 'shake'</td>
</tr>
<tr>
<td></td>
<td>gaya-s 'greet'</td>
</tr>
</tbody>
</table>

Causative verbs formed through the stem-method can optionally be augmented with the preposition da, whose numerous (semantic) functions

⁷Note that in the Guddiri dialect the palatalization of s to sh takes place only before e and not before i.
include the marking of causation, e.g.

(11) yaaro-n yaa fita-\(\text{-}\)da\(\text{8}\) kare-n
    boy-the he-comp. take-out (prep.) dog-the
    'The boy took the dog out'

(12) yaarinya-\(\text{-}\)taa saya-\(\text{-}\)da (da) zanen-\(\text{-}\)ta
    girl-the she-comp. buy-cause (prep.) dress-her
    'The girl sold her dress'

Now, Parsons has observed that the Grade 5 verb differs from all other grades not only in having a "phonetic(ally) -VC termination, but also in having the potentiality of dropping its termination and appearing simply as a verbal base in certain syntactical contexts and under certain phonologically and lexically determined conditions". What Parsons refers to here is the occurrence of causative verbs such as:

(13) rau-da  'shake'          sai-da  'sell'
gai-da  'greet'          kwan-da  'take back'

I agree with Parsons that the forms in (13) are derived from longer (underlying) forms through the deletion of the causative marker \(-s\) and the vowel that precedes it. That is to say, the forms in (13) are derived from those in (14) below.

(14) rawa-\(\text{-}\)da \(\rightarrow\) rau-da
    gaya-\(\text{-}\)da \(\rightarrow\) gai-da
    saya-\(\text{-}\)da \(\rightarrow\) sai-da
    koma-\(\text{-}\)da \(\rightarrow\) kwan-da

However, Parsons does not account for this kind of deletion. He simply states that such deletion is possible only when "the verbal base consists of or---in the case of polysyllabic verbs---ends in a structure \(C_1VC_2\) where \(C_2\) is one of the following consonants.../y/, /w/, /t/, /l/, /r/, /b/, /m/".

---

\(\text{8All descriptions of Hausa, as far as I know, would make da obligatory in sentences like (11) and (12); but this is not true. In many dialects, these sentences are perfectly acceptable without the da.}\)
Now, I would suggest that Hausa has the following optional rule:

\[(15) \quad VC \rightarrow \emptyset / C_{[+sonorant]} \]  

This rule deletes a sequence of vowel and consonant in word-final position if the sequence is preceded by a sonorant consonant. It is this rule that operates on those Hausa causative verbs that are derived through the stem-method and deletes the causative marker -s plus the final vowel of the verbal stem. When the causative marker is thus deleted, the preposition da must be used together with the "apocopated" causative verb. This rule is not restricted to causative verbs alone—it also works elsewhere in the language, e.g.

\[(16) \quad \text{wani-n da} \rightarrow \text{wanda } '(the one) who/which/that'\]
\quad \text{one-the rel.}
\quad \text{doomi-n} \rightarrow \text{don } 'because'
\quad \text{reason-of}
\quad \text{sha}ř\text{ab } 'green' \rightarrow \text{sha}ř \ 'green'
\quad \text{wul}luk \ 'black' \rightarrow \text{wul } 'black'
\quad \text{sitik } 'black' \n\quad \text{shat\text{ab } 'green' } \n\quad *\text{sit}
\quad *\text{shat}

It should be noted, however, that although all roots that have a final sonorant will obey this deletion rule not all causative verbs that obey the rule have a final sonorant. For example, \text{fit-a-ř} \rightarrow /fit-da/ \rightarrow [fid-da] 'take out' and \text{zub-a-ř} da \rightarrow \text{zub-da/zuu-da } 'pour/throw away'. Such causative verbs should be considered as exceptions, especially when we consider that these two examples are about the only causative verbs in Hausa that do not have a final sonorant and yet obey this rule.

---

9Russell Schuh pointed out to me that some Chadic languages (e.g. Ngizim, Kanakuru, Bade) use da to mark causation. Therefore, it is likely that this da in Hausa, which is used to augment the -s, was historically the only means of marking causation in Hausa (Newman 1971); -s was probably a later innovation.
3. Discussion

I have shown above that there are two different ways of deriving the causative verb in Hausa, a root-method and a stem-method. In this section, I will compare the process(es) of deriving causative verb with other derivational processes in Hausa that also use either the roots or the stems of words in derivations.

3.1. The phenomenon of using two different bases for deriving words in Hausa is not restricted to the formation of causative verbs alone. For example, nouns meaning "native of" can be derived from place nouns (i.e. names of cities, towns, countries, etc.) by using the compound morpheme ba...ee (masculine) or ba...aa (feminine). When the compound morpheme is added to a place noun to derive a "native of" noun, the final vowel of the noun is deleted, i.e. the morpheme is added to noun roots. For example, from the following place nouns, Katsina, Sakkwato, Amiřka, Fařansa (France), the following "native of" nouns can be derived, using the root-method.

<table>
<thead>
<tr>
<th>Root</th>
<th>Masculine</th>
<th>Feminine</th>
</tr>
</thead>
<tbody>
<tr>
<td>katsin-</td>
<td>ba-katsin-ee</td>
<td>ba-katsin-aa</td>
</tr>
<tr>
<td>sakkwat-</td>
<td>ba-sakkwat-ee&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ba-sakkwat-aa</td>
</tr>
<tr>
<td>amiřk-</td>
<td>ba-amirič-ee</td>
<td>ba-amirič-aa</td>
</tr>
<tr>
<td>fařans-</td>
<td>ba-fařansh-ee&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ba-fařans-aa</td>
</tr>
</tbody>
</table>

Now, there is an alternative way of forming feminine forms of these which uses the masculine form of such nouns as the base for the derivation, i.e. using noun stems rather than roots. For example, the following alternative forms for the feminine paradigm in (17) are found in many dialects of Hausa (especially the northern and western dialects):

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ba-katsin-i-y-aa</td>
<td>'a Katsina woman'</td>
</tr>
<tr>
<td>ba-sakkwat-i-y-aa</td>
<td>'a Sokoto woman'</td>
</tr>
<tr>
<td>ba-amirič-i-y-aa</td>
<td>'an American woman'</td>
</tr>
<tr>
<td>ba-fařansh-i-y-aa</td>
<td>'a French woman'</td>
</tr>
</tbody>
</table>

<sup>10</sup>/t/ and /s/ → c and sh before i and e.
The nouns in (18) are derived through the stem-method by adding the feminine marker -aa to the masculine form in the following way:

\[(19)\]

<table>
<thead>
<tr>
<th>Base (= Stem)</th>
<th>Feminine form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ba-katsin-ee</td>
<td>ba-katsin-ee-aa → ba-katsin-i-y-aa</td>
</tr>
<tr>
<td>ba-sakkwac-ee</td>
<td>ba-sakkwac-ee-aa → ba-sakkwac-i-y-aa</td>
</tr>
<tr>
<td>ba-amĩk-ee</td>
<td>ba-amĩk-ee-aa → ba-amĩk-i-y-aa</td>
</tr>
<tr>
<td>ba-faňansh-ee</td>
<td>ba-faňansh-ee-aa → ba-faňansh-i-y-aa</td>
</tr>
</tbody>
</table>

The -y- in such feminine nouns is epenthetically inserted in order to ward off a sequence of two vowels, and the masculine marker -ee shortens and assimilates to the height of /y/.

Another instance in Hausa where a second option exists is in the derivation of past-participial adjectival forms from verbs. The base for deriving past participials from verbs is formed by reduplicating the final consonant of the verb. After the base has been formed in this way, then the marker -ee is added to the base to form masculine past participials. The feminine forms of past participials are formed by adding the feminine marker -aa either to the original base or to the masculine form. For example, from the following verbs dinkaa 'sew', zaunaa 'settle down', rinaa 'dye', the following past participials can be derived from the reduplicated bases:

\[(20)\]

<table>
<thead>
<tr>
<th>Base</th>
<th>Masculine</th>
<th>Feminine</th>
</tr>
</thead>
<tbody>
<tr>
<td>dinkakk-</td>
<td>dinkakk-ee</td>
<td>dinkakk-aa 'sewn'</td>
</tr>
<tr>
<td></td>
<td>dinkakk-ee-aa → dinkakk-i-y-aa</td>
<td></td>
</tr>
<tr>
<td>zaunann-</td>
<td>zaunann-ee</td>
<td>zaunann-aa 'permanent'</td>
</tr>
<tr>
<td></td>
<td>zaunann-ee-aa → zaunann-i-y-aa</td>
<td></td>
</tr>
<tr>
<td>rinann-</td>
<td>rinann-ee</td>
<td>rinann-aa 'dyed'</td>
</tr>
<tr>
<td></td>
<td>rinann-ee-aa → rinann-i-y-aa</td>
<td></td>
</tr>
</tbody>
</table>

Similarly, adjectival forms can be derived from abstract nouns. For example, from the following abstract nouns kyawwaa 'beauty' and dumi 'warmth', adjectival forms can be formed, e.g.
(21) \textbf{Base} \hspace{1cm} \textbf{Adjectival (feminine)}

<table>
<thead>
<tr>
<th>kyakkyaw-</th>
<th>kyakkyaw-aa</th>
<th>'beautiful'</th>
</tr>
</thead>
<tbody>
<tr>
<td>kyakkyaw-ee-aa</td>
<td>kyakkyaw-i-y-aa</td>
<td></td>
</tr>
<tr>
<td>dumamm-</td>
<td>dumamm-aa</td>
<td>'warmed up'</td>
</tr>
<tr>
<td>dumamm-ee-aa</td>
<td>dumamm-i-y-aa</td>
<td></td>
</tr>
</tbody>
</table>

It is evident that in Hausa morphology words can be derived from two bases: (1) roots or (2) stems that are themselves derived from the roots. Most dialects of Hausa do not use the root-method for derivations nowadays. It can be deduced that this method is the older of the two methods and, as such, one should expect to find this method of deriving causative verbs being used only in the most conservative dialects. And this is the case. In fact, even in Sokoto and northern dialects, this method is apparently dead—as far as the derivation of causative verbs is concerned. This is evident from the fact that in almost all dialects, causative verbs derived through the root-method are found only in "institutionalized" or fixed expressions, such as:

(22) \textbf{a gai-sh-ee ka} \hspace{1cm} 'May you be greeted' (said by King's courtiers in response to a person who salutes the King)

(23) \textbf{Allah ya tsar-sh-ee mu} \hspace{1cm} 'May God protect us!' (said by one who hears of a calamity)

(24) \textbf{Allah ya fis-sh-ee mu dare lafiya} \hspace{1cm} 'Good-night!' (lit. 'May Allah see us through the night safely')

4. \textbf{Conclusion}

I have attempted to show that the causative marker in Hausa is not -as but -s by comparing the process(es) by which causative verbs can be formed with other derivational processes in the language. I have illustrated that causative verbs can be formed in two ways: (1) by suffixing the causative marker -s to verbal roots, or (2) by suffixing it to verbal stems, just like many other derivations in Hausa.
REFERENCES


REFERENCES


COLOR TERMS IN KAPSIKI

W. E. A. van Beek

1. Introduction

The human eye can perceive between 4 and 10 million shades of color (Lenneberg 1967). No language can even approximate this range of variation, so each language has to label groups of color shades with one lexeme. If the choice of these groups of shades would be as arbitrary as linguistic theory has long supposed, the immense amount of possibilities would make any regularity in color terminology an illusion. One justly famous study by Berlin and Kay attacks this problem:

"The prevailing doctrine of American linguists and anthropologists has, in this century, been that of extreme linguistic relativity. Briefly, the doctrine of extreme linguistic relativity holds that each language performs the coding of experience into sound in a unique manner. Hence each language is semantically arbitrary relative to every other language. According to this view, the search for semantic universals is fruitless in principle. The doctrine is chiefly associated in America with the name of Edward Sapir and B. L. Whorf. Proponents of this view frequently offer as a paradigm example the alleged total semantic arbitrariness of the lexical coding of color. We suspect that this allegation of total arbitrariness in the way languages segment the color space is a gross overstatement" (1969:1-2).

So Berlin and Kay's theory of color terminology has wide significance: one of the central issues of linguistic as well as anthropological theory is at stake, i.e. universals in language and culture. In short, their theory states that though different languages use a different number of color terms (counting only basic color terms), there is a very limited and quite universal set of eleven basic color terms that

*Research on the Kapsiki of northern Cameroon and Higi of north-eastern Nigeria was carried out from February 1972 through August 1973, made possible by the State University of Utrecht and a research subvention from the National Foundation for the Advancement of Tropical Research (WOTRO).
cover all the terms used. These basic terms and basic color categories occur in the following sequence: white, black, red, green, yellow, blue, brown, pink, purple, orange, and grey. Most languages use fewer than eleven terms, and one unexpected result of this research has been a fixed sequence in the appearance of color terms. The authors speak of an evolution of color terminology. The regularity they present is striking indeed. Of the 2,048 logically possible types of color terminology (given eleven basic terms), only 22 are found to occur and these can be ordered on a cumulative scale.

In this paper, we shall present some data on the color terminology of one particular language, Kapsiki, in order to make the following points:
(1) Kapsiki basic color terminology presents a clear exception to the evolutionary sequence as set forth by Berlin and Kay;
(2) secondary color terms in Kapsiki "fill in" the irregularities of basic terminology, so the total semantic structure is less deviant than would be judged from the basic terminology alone.

2. Method

The huge number of possible colors presents some serious difficulties with the method. All colors vary infinitely in brightness and hue, but still other types of variations exist: color of living vs. nonliving things (Snow 1971), fresh or non-fresh looking plants (Conklin 1955), bright or faded looking colors (Berlin and Kay 1969). Berlin and Kay's research has tried to limit the total number of color shades and at the same time eliminate some of these other variants by using one standardized test, i.e. the Munsell color chip method. This consists of eliciting basic color terms with these color chips, arranged in a single chart of 329 chips set up in 40 horizontal gradations of hue and 8 vertical gradations of brightness, plus a series of 9 degrees of brightness of neutral shades.

In order to make my data comparable with that of Berlin and Kay, I used the same chart and asked my informants to name the colors, and to map the boundaries of each color term. The shade that represented the
best example of the color was also elicited.

In eliciting, one should look for basic color terms. In order to qualify as a basic color term, a term must have the following characteristics: (a) it must be monolexemic (the meaning of the term should not be inferred from its constituent parts); (b) the semantic range of one term should not be included in that of another term (two color terms should designate different color shades); (c) the term should be applied to all kinds of objects, not just one (e.g. the term "blond" cannot serve as a basic color term because it is only used for hair color and occasionally a type of furniture finish); (d) it must be psychologically salient for informants (it must be a normal, frequently used term by all informants, and occur at the beginning of eliciting lists).

3. Terms for color in Kapsiki

Kapsiki informants were from the village of Mogodé, just on the Cameroonian side of the international border. Intervillage variation is considerable but checks with informants from other villages showed the same structural properties in color terminology. All Kapsiki lexemes for color are preceded by the prefix kwa, a multipurpose prefix that may be translated in this context with "like".

The basic term for white is kwatya\textw{t}yaw, a monolexemic term, as the single tya\textw{w} is not used.

Black is kwàñkiri\textw{?}yi, but the use of this term exceeds the simple meaning of black. "Dark colored" is a better translation; the Kapsiki call themselves kwàñkiri\textw{?}yi in comparison with the Europeans (who are not labelled white but red). Of any two colors varying in brightness only, the darker one can be called kwàñkiri\textw{?}yi. For example, one ritual in the wet season aims at making the millet grow kwàñkiri\textw{?}yi, dark green. Confronted with the whole array on the color chart, informants consistently choose the darker neutral shades for this term as well as the darkest shades of green, blue, and brown.

Red is an interesting case in Kapsiki. Two terms join hands here to delimitate the field of red and reddish colors, kwàñ\textw{emm} and kwàñ\textw{em}. The former has the larger distribution, covers the larger
field of shades with the darker reds, and the latter designates more the pink reds. In view of the total system of basic color terms, this differentiation in red colors is remarkable. Though the $\epsilon$ and $\sigma$ have definite phonemic status, we feel that it is through this difference in phonetic intensity that the visual intensity (a difference in brightness, not hue) is expressed. These two terms are elicited as two separate lexemes and appear in lexicons as separate words. In our view, they can be considered as differentiation of one semantic spot. The fact that for all informants the field of kwaxme and kwa$x\omega$e are closely joined, without intervening "neutral" space, makes this interpretation the more plausible.

Basic term status presents some more problems for the following two terms, green and blue. The basic color term for green is kwatlake, and for blue kwa$x\omega$e. The word tlake means 'leaf' and $\chi$wome has two meanings, 'mountain' and 'sky'. One may question their inclusion in the list of basic color terms, but these terms are elicited easily without any discrepancies between different informants, so their characterization as a basic color term is amply warranted. Moreover, a term like kwa$x\omega$e is used to indicate all shades of blue, not just the light blue of the sky.

With these five terms we run out of the basic color terms, and this fact is quite astonishing. By all expectations, a basic term for yellow should be present. Berlin and Kay found that "if a language contains five terms, then it contains terms for both yellow and green" (1969:2). Of course the Kapsiki do differentiate and perceive the yellowish colors, and one lexicon gives the term kwaxaqwayaxaqwaya for it. This however is clearly not a monolexemic term (xa$q$waya means 'corn', lit. 'millet of the Margi') and is not in very common use. Informants give several different terms for yellow, but they are not in agreement about which one is the most common form. Other forms are kwara$x\omega$yru $'like the flower of the r$ax$u$w (a representative of the Leguminosa)'$, kwayemugwar$b$y$zmugwave $'like the water of Gawar'$, and kwadawadawa $'like the vomit of jaundice'$. They are color terms but have to be considered as secondary terms.
So the basic color terminology of Kapsiki presents a clear exception to the thesis of Berlin and Kay through the absence of yellow and the presence of pink. We shall see, however, that secondary terms function as well as basic ones in color demarcation. For a fairer consideration of color terms, one should therefore not restrict the analysis to basic terms but also include secondary color terms; these are discussed below for Kapsiki.

The first case is that of the terms for yellow as cited above; the shades indicated with these lexemes are quite consistent and the boundary as well as the core of the colors can easily be equated with yellow.

The terms kwagalagala and kwapsedsade indicate the neutral shades of brightness except black, i.e. grey. The former means 'like rock', the latter 'like ash'.

Two shades of brown are represented by kwagkwetlakwetle 'like the calabash' or kwandaremendarem 'like the fruit of the n'darem (Carissa edulis L.)', both incorporating brown and light brown, and kwaredarada 'like dirt', which is dark brown.

The term kwaksaqksag 'like the ksegu (Dactylotenicum Aegypticum L.)' covers the area we call purple. Darker shades of the same hue are sometimes called kwadzaradadzaradadma 'like a millet parasite with purple flowers'.

One other color indicated with a secondary term is kwamodemede to mean beige (why do Berlin and Kay exclude this from the English basic color terms?); it literally means 'like the color of the baobab tree'.

A few informants distinguish between different shades of green, mainly varying in brightness: kwagwazu 'like grass', indicating the lighter zone, and kwagorasxangaraxa 'like a bird species', used for the darker part of the field for which kwatleke is the basic cover term.

One peculiar term fills in all remaining niches, kwawalewale, by which the color of water is indicated. No specific shade or hue is meant with kwawalewale, but some informants simply use it for all remaining shades and hues not named by other terms. It is a filler term: as water can be of any color, any color falling outside the range of easily named colors may be labelled with it. Such a term, interesting
as a phenomenon in itself, may be to a considerable degree an artifact of method. Still it would be interesting to compare the presence of such terms in other languages.

4. Discussion

For an overview of our findings, we list the Kapsiki terms against the order in which Berlin and Kay have found the basic terminology to appear (1 = basic color term; 2 = secondary color term; the upper lexeme indicates the lighter color; the bracket indicates the possibility of alternative sequences).

1  kwatyawtyaw  white
1  kwâŋkiri?yi  black
1  kwâŋemê  red

1  kwatâku  kwâŋkwezu  green

1  kwâŋkwâŋwayaxâŋwaya  yellow
1  kwâŋwemê  blue

2  kwâŋkwâŋletâŋkwântle / kwâŋerdâmêndârêmê  brown
2  kwâredârêda
1  kwâŋemê  pink

2  kwâŋkweŋâkweŋângu  purple

2  kwâŋkwângâmdâŋzâŋgêma
---
2  kwâŋêlagêla / kwâŋsadêpsêda  orange

If only basic terms are considered, Kapsiki terminology is quite irregular. The only way out would be to assign the status of basic term only to the Kapsiki equivalents of white, black, and red, with the less intensive form of pink as a complication. But as we have argued before, the other terms labelled (1) amply fulfill the criteria of being basic
Any exception to a theory is important enough, but the way in which secondary color terms fill in the "gaps" of the basic terminology is very interesting. The Kapsiki evidence suggests that overall naming of colors is even more regular than Berlin and Kay suppose, if secondary as well as basic color terms are considered. The absence of a term for orange presents no problem, as a terminology without it is quite regular in the Berlin and Kay theory. Given the evolution of basic color terminology, this is very important for theories of human perception.

A last thought concerns the basic/secondary dichotomy. One is tempted, in the case of Kapsiki terminology, to do away with this distinction. However, Berlin and Kay's arguments delimiting and using basic terms are very clear: with this definition of basic terms, they can predict on a high level of probability the colors that are named for any terminology with a given number of terms. The quite obvious fact that the general level of techno-economic evolution may be an important factor in lexical proliferation does not detract from that. Nevertheless, we would argue that secondary terms should be included in the study of color terms. In the case of Kapsiki, the terminology is "straightened out" by them. The total range of semantic structuring is as interesting as the evolution Berlin and Kay show and, as our presentation of Kapsiki terminology suggests, may even be bigger than previously supposed.

REFERENCES


BACHAMA AND SEMITO-HAMITIC

Jack Carnochan

In "Bachama and Chadic" (Carnochan 1975), I showed with a limited number of examples how the consonants of Bachama could be related to those set up for Proto-Chadic by Newman and Ma (1966). In this present paper, I wish to show how far Bachama evinces characteristics suggested by Diakonoff (1965) as being typical of the family of Semito-Hamitic languages in general. So far as reference to the Chadic branch was concerned, he had, in 1965, to restrict his examples almost entirely to Hausa, and it may be of interest now to see how his characteristics find reflexes in another language of the branch, Bachama. Leaving aside the vowels for the moment, Diakonoff drew attention to five phonological features which he considered to be typical of Semito-Hamitic languages in general. I am repeating these below, with comments on their application to Bachama.

The first is the existence of triple groups of consonants, a "voiced", an "emphatic", and a "voiceless" consonant with (approximately) the same place and manner of articulation. In Bachama, there are two such sets, a labial plosive set, and an apical plosive set, illustrated in initial position by:

- bole 'to thresh' voiced bilabial plosive
- biye 'to break' glottalized bilabial plosive
- piire 'to thatch' voiceless bilabial plosive
- dume 'to go out' voiced alveolar plosive
- dime 'to sink' glottalized post-alveolar plosive
- tule 'to reach' voiceless alveolar plosive

(\(\varepsilon\) is an unrounded close back to central vowel; \(\varepsilon\) is an unrounded half-close back to central vowel.)

The position is complicated by the addition of two more labial plosives, a voiced labial velar plosive, as in \(\text{gbere} \) 'to close', and a
voiceless labial velar plosive as in kpiiro 'to harvest too early'. These are not found in Hausa, which exhibits four triple sets of consonants, a labial plosive set, shown in the orthography with b, d, and t; a dorsal set with g, k, and k; and a sibilant set with z, ts (=/s'/), and s.

Diakonoff's second point is the existence in Semito-Hamitic languages of pharyngeal fricatives, both voiced and voiceless. But he finds that these are lost in many of the New Semito-Hamitic languages, including the Chadic branch. Certainly they are not present in Bachama, nor indeed in Hausa.

His third point is the existence of a glottal stop as a separate phoneme on a par with the glottal fricative h. He says: "This stop, too, disappears gradually, at least in some positions. However, due to its function as consonant (and consonants play a specific role in Semito-Hamitic), this phoneme shows a marvellous degree of stability" (Diakonoff 1965:19). It is found in Bachama, as in ?ine 'to carry on the back', and in hidö? 'one'.

The fourth point is the stable functioning of nonsyllabic u and i (w and y) in the morphological role of consonants. Again, this is so for Bachama, and is shown here by comparing the functioning of m and w in the following examples.

ndawume 'he ate (it)' nda zum dape 'he ate the food'
ndawawo 'he cut (it) down' nda daw kada 'he cut down the tree'

The fifth point is that the Semito-Hamitic languages show an absence of affricates, or at least of primary affricates. In this respect Bachama shows the contrary, as both the voiced and voiceless palatoalveolar affricates occur, though neither very frequently. Examples are jipa 'plotting', and bacama 'Bachama'.

One further phonological matter worth commenting on is the fact that Bachama seems to conform to the rules of syllable structure common to Semito-Hamitic. No Bachama syllable begins with a vowel, or with two consonants, and no syllable ends with two consonants. Taken in conjunction with the other factors, this is likely to be more than a typological
accident.

Bachama shares the feature of tone with many languages of the Chadic branch, but tone is not a phonological feature of Semito-Hamitic in general. It is not commonly recognized as an archaic feature and may have developed after the separation of the branch, the Chadic languages being looked upon as belonging to the New stage of a chronological classification.

As a final point, I would like to comment on the structure of verb roots in Bachama as being different from Hausa, the Chadic language on which Diakonoff had to depend so much. He writes:

"The Tchad languages have practically not been investigated from the point of view of historical linguistics. Still, it can be supposed that the structure of the Tchad verbal root...is presumably an ancient feature. It is probable that while the system of predominantly triconsonantal verbal roots with a total replacement of the root-vowel by the internal vocalic inflection has gained supremacy in the Berbero-Libyan and in the Semitic branches, and also in Egyptian (where possibly at some very early stage the root-vowel was still preserved), it never came to prevail in the Cusnitic and the Tchad branches" (1965:38).

It is true that for Hausa one can establish biconsonantal verb roots with a root vowel, but in Bachama the situation is different, at least for those verbs which have a non-open vowel in their Grade 1 forms. For these verbs, one cannot establish a general root vowel, there being regular vocalic inflection from Grade 1 to Grade 2 forms, and also within each grade, as exemplified briefly below.

- nda piire  'he thatched' Grade 1
- nda pir vaney 'he thatched the hut'  
- nda pyer venye 'he thatched the huts'
- taa piira vaney 'they went and thatched the hut' Grade 2
- taa pyaara venye 'they went and thatched the huts'
- nda mbera diye 'he extinguished the fire'
- nda mbara diye 'he beat out the fire'

The two forms for 'hut' and 'huts' show also that there is internal vocalic inflection for nouns in Bachama as well as for verbs. These examples are general rather than unique for Bachama, and may suggest that the Chadic branch is closer to the other branches of the Semito-Hamitic
languages than Professor Diakonoff, without such evidence, had previously thought (cf. Schuh 1976).

REFERENCES


DEFINITENESS IN KERA

Karen H. Ebert

1. Form

Definiteness is marked in Kera by a suffix -ŋ, which is
HI after MID, LO
MID after HI
With consonant-final nouns, only the tone¹ of the DEF-marker is
realized.

(1) həl'gə 'woman' + DEF həl'gəŋ
kuli 'hut' kuliŋ
bàaŋà 'elephant' bàaŋàŋ
kósár 'root' kósárŋ
son 'fat' sonŋ
hùlùm 'man' hùlùmŋ

Definiteness is always marked at the end of the Noun Phrase.
Noun + Adjective:

(2) həl'gə pəsəŋ 'the beautiful woman'
cf. (3) həl'gəŋ pəsə 'the woman is beautiful'
(4) hùlùm bə meemelope 'the dead man'
cf. (5) hùlùm bə meeme 'the man is dead'

¹Research on Kera was carried out as part of the research program on "Tschadöhamitische Sprachen in der Republik Tschad", directed by H. Jungraithmayr (Marburg), and financed by the Deutsche Forschungsgemein-
schaft. The present study is based on a collection of 32 texts published in Ebert (1975).

¹MID tone is unmarked except in compound tones, where it is marked with a ' accent.
Noun + Relative Clause:
As a restrictive (reidentifying) relative clause is part of the NP, the DEF-marker has to follow it.

(6) kul bɔ mǐntí hùlùn bɔ mɛmɛŋ ądəŋ bɔ həetí gisiŋ, ye həw wɔra
    'the hut which the dead man used to sleep in [it-DEF], they destroy it'

(7) kɔyáa ke gə mǐntí ten ỉskíníŋ
    'this is the story that I heard [it-DEF]'

Noun + Noun:
Only the whole NP can be marked definite.

(8) hərgá kə həlgę
    'a woman's goat'

(9) hərgá kə həlgęŋ
    'the woman's goat'
    (but not *hərgáŋ kə həlgęŋ)
    'the goat of the woman')

(10) kɔrmə kúmná
    'a chief's son'

(11) kɔrmə kúmnáŋ
    'the chief's son'
    (but not *kɔrməŋ kúmnáŋ)
    'the son of the chief')

No expressibility is lost through this restriction. The six possibilities of using definite and indefinite articles in English possessive constructions can not express more than three meaning differences:

(a) a son of a chief
(b) the son of a chief
(c) a son of the chief
(d) the son of the chief = the chief's son

In Kera, (c) can be expressed by adding the numeral měnə 'one' to (11):

(12) kɔrmə kúmnáŋ měnə

The DEF-marker can influence the tone of a following grammatical morpheme. The subjunctive marker lə and the locative marker -a are HI after NP not marked definite
MID after NP marked definite

(13) ayan kuməy lá
    'give me some beer'

(14) ayan kuməy lə
    'give me the beer'

(15) a ɲọyọq kérkə ɡeŋələ
    'she was hiding behind a basket'
(16) a ɲɔyʊkə kɛrka ɡɛɡɛlə 'she was hiding behind the basket'
A compound tone on the penultimate syllable is contracted to HI before
the locative -a: ɡɛɡɛlə' + -a → ɡɛɡɛlə, kuliɡ' + -a → xulíŋa. For
consonant-final nouns ending in a high tone, definiteness is thus marked
only by the tone of the suffix:
(17) ɡud kɛsárá 'under a root'
(18) ɡud kɛsára (< kɛsá' + -a) 'under the root'

2. Use

Very little is known about the use of definite markers in Chadic
languages. It is said, for example, in Jungrathmayr and Möhlig (1976),
that the definite article is less frequent in Hausa than in English, but
nothing is said about the conditions of its use in Hausa. Some authors
talk about a "previous reference marker" (cf. Schuh 1972:166ff.). The
term indicates that this marker is used only if the referent in question
has been mentioned before. But should the referent be mentioned expli-
citly or would an implicit mention do?

A detailed analysis of definite markers remains, of course, a
desideratum not only of Chadic studies; to my knowledge, no satisfactory
description has been presented so far of the use of English and German
definite articles either.

In the following, I shall make an attempt at a comparative descrip-
tion of the main uses of the DEF-marker in Kera and the definite articles
in English and German. The categorial framework based on reference
types has been worked out mainly in my dissertation on Frisian definite
articles (Ebert 1970). A detailed justification is not possible here,
but I hope the English and German examples given will both help to
clarify the notions and to show their general applicability.

A. Generic reference

When referring generically, the choice between definite and indifi-
nite forms is often optional in English and German. The restrictions on
the use of either are not identical for the two languages, but they need
not be specified here.
(19) **the elephant is an intelligent animal** = an elephant...
edphants are intelligent animals
der *Elephant ist ein kluges Tier* = ein *Elephant*...
die *Elephanten sind kluge Tiere* = *Elephanten*...

(20) when the first rains fell, people went to sow *(the) red millet
als der erste Regen fiel, gingen die Leute, *(die) rote Hirse zu säen

B. **Specific reference**
Further subclassification is necessary according to whether the referent is:

(a) **unique** in a given socio-cultural context

(21) **the** sun

die *Sonne*

(22) **the** chief

der *Häuptling*

(b) **previously mentioned**

(23) a man ... **the** man

ein Mann ... *der* Mann

(24) some huts ... **the** huts

einige Hütten ... *die* Hütten

(c) identifiable in relation to a known referent, to which it stands in the relationship of **inalienable possession**. Here we can have either a definite article or a possessive pronoun to indicate the identifiability of the referent, their distribution depending on the uniqueness or non-uniqueness of the referent in relation to the possessor, as well as on the nature of the possessor (human, animal, or inanimate).

(i) Referring to **necessarily unique** inalienables
If the possessor is a human being, the possessive pronoun is obligatory in English, more or less optional in German.²

---
²The definite article and possessive pronouns are not interchangeable in all contexts. Their use depends largely on syntactic position, but also on semantic features such as, for example, the difference between kinship and body-part terms. The German forms given are the forms possible in subject position.
(25) man ... his mother, his head
    Mann ... seine/die Mutter, sein/der Kopf

If the possessor is an animal, the possessive pronoun is again obligatory in English. In German, both the definite article and the possessive pronoun are possible when referring to unique body parts, but the possessive pronoun is somewhat unusual with kinship terms.

(26) cow ... its mother, its head
    Kuh ... ihr/die Mutter, ihr/der Kopf

If the possessor is inanimate, the definite article is most common in both English and German.

(27) hut ... the door, the/its roof
    Hütte ... die Tür, das/ihr Dach

(ii) Referring to inalienables with potential multiple reference

If the possessor is a human being:

(28) man ... his brother, his leg
    Mann ... sein Bruder, sein Bein

If the possessor is an animal:

(29) cow ... its leg, a leg
    Kuh ... ihr Bein, ein Bein

If the possessor is inanimate:

(30) tree ... a branch
    Baum ... ein Zweig

The definite article is not admitted in any of these cases. Der Bruder or das Bein can be used in German only in the case of previous mention or presupposition of uniqueness. Non-unique parts of animals or inanimates can be introduced in the same way as alienables, i.e. with an indefinite article. A common alternative is the introduction via the whole set:

(29') one of its legs
    eines ihrer Beine
Here reference is made to one element out of a set which, as a whole, counts as a unique part of the possessor; the forms thus belong in category (i) under (c) above.

If we now turn to the DEF-marker in Kera we find a striking similarity in use.

A. Generic reference

In generic sentences, Kera commonly uses the DEF-marker.

(31) bàaŋäŋ hàmtë duglà bà  'the/an elephant doesn't eat mice'
(32) pép bë kóbërìŋ hàgãŋ aŋë kàŋ, kàŋ ráawàŋ bò jö'ë gàrdàŋ
    'when the first rains fell, people went to sow red millet'

In Kera texts, we also find indefinite NPs with generic meaning:

hùlùm bò péve occurs besides hùlùm bò péveŋ  'the Peve man'
kaa occurs besides kàŋ  'the people'

Generic NPs without the DEF-marker are used mainly by older people. No conditions have been found for omitting the marker; thus for some Kera speakers, it seems to be optional in generic sentences.

B. Specific reference

In NPs with specific reference, the DEF-marker is obligatory when:

(a) the referent is unique

(33) cówàŋ  'the sun'
(34) kúmnàŋ  'the chief'

(b) the referent has been previously mentioned

(35) hùlùm ... hùlùm  'a man ... the man'
(36) kuli ... kuliŋ  'a hut/huts ... the hut/huts'

Kera nouns denoting inalienable possession can never have the DEF-marker alone, in contrast to German and, partly, English, cf. (25-27). The possessor has to be indicated either by a possessive pronominal suffix or by a noun, e.g.

(37) ço  'head'
cúurrú  'his head'  cúurrìŋ  'his head-DEF'
çoəə hùlùm  'a man's head'  cf.  çoəə hùlùm  'the man's head'
(i) If a referent denoted by a term of inalienable possession is necessarily unique relative to an animate possessor, the term is constructed with a possessive suffix and the DEF-marker.

(38) nər̥ó də dēmə 'her/its mother is ill'
(39) ye ləs̥aɣ cúurūŋ 'they injured his/its head'

Some younger speakers make a distinction between human and non-human possessors, as reflected in the English possessive pronouns (his/her vs. its) and in the preference of the German definite article with animal kinship terms (cf. (25) with (26)). The construction N + POSS + DEF is then only used to refer to inalienables of non-human beings. In statements about humans, the DEF-marker would be dropped, leaving only the possessive suffix.

(38') nər̥ó də dēmə 'her mother is ill'
(39') ye ləs̥aɣ cúurūŋ 'they injured his head'

Inalienable parts of inanimates in Kera are usually denoted by a N + N construction, where the second N stands for the possessor:

(40) ku kuli 'mouth [of] hut' = 'door'
(41) cəəe kuli 'head [of] hut' = 'roof'
(42) kas kəpəq 'arm [of] tree' = 'branch'

If the possessor has been mentioned in a previous sentence, the inalienable is referred to by a N + N + DEF construction:

(43) wə tū guγ kāmpə kuli anə kəy, wə bəqəq ku kuliŋ wəra; wə ásəq mínti cəəe kuliŋ ɓə cim-cīmī wəra

'when he came to a hut, he opened the door; he saw that the roof was rotten'

The DEF-marker, however, is not due to an explicit or implicit previous mention, but solely to the uniqueness of the referent in relation to its possessor. This will become clear by comparing (43) with (53) below.

3Uniqueness is a lexical feature that does not necessarily correspond to reality, although it is based on some cultural standards. Thus door counts as [+unique] in relation to house even though nowadays houses usually have more than one door. The door then refers to the front door, if not indicated otherwise by the context.
(ii) If a referent is not necessarily unique, any animate possessor, whether human or animal, has to be indicated by a possessive suffix. The numeral ㄇㄢˋ 'one' may be added at the end of the sentence. The DEF-marker is used exclusively in case of previous mention or presupposition of uniqueness.

\[\text{(44) }síinú bèŋ gêm }\]
\[\text{síinú bèŋ gêm mènà }\]
\[\text{'}a brother of his came, too'\]

cf. \[\text{(45) síinú bèŋ gêm }\]
\[\text{'}his brother (unique or mentioned before) came, too'\]

\[\text{(46) ye lósáq kómúrú }\]
\[\text{ye lósáq kómúrú mènà }\]
\[\text{'}they injured one of his legs' \]
\[\text{'}a leg of his' \]

cf. \[\text{(47) ye lósáq kómúrú ŋ }\]
\[\text{'}they injured his leg (mentioned before)'}\]

However, there is an exception to this general rule regarding the use of the DEF-marker. Some lexically ambiguous kinship terms are distinguished through the presence or absence of the DEF-marker independent of context.

\[\text{(48) nẽnẽ }\] 'uncle, nephew'
\[\text{nẽndẽn }\] 'my uncle'
\[\text{nẽndẽn }\] 'my nephew'
\[\text{nuundu }\] 'his uncle'
\[\text{nuundu ŋ }\] 'his nephew'

\[\text{(49) moomo }\] 'grandfather, grandson, father-in-law (of woman)'
\[\text{moomødẽn }\] 'my grandfather'
\[\text{moomødẽn }\] 'my grandson, my father-in-law'
\[\text{moomødũ }\] 'his grandfather'
\[\text{moomødũ ŋ }\] 'his grandson'

\[\text{(50) ádlidě }\] 'grandmother, mother-in-law (of woman)'
\[\text{ádlidẽ }\] 'my grandmother'
\[\text{ádlidẽ ŋ }\] 'my mother-in-law'
\[\text{ádlidũ }\] 'her grandmother'
\[\text{ádlidũ ŋ }\] 'her mother-in-law'

\[\text{(51) wö bèŋ də nuundu }\] 'he came with his uncle'
\[\text{(52) wö bèŋ də nuundu ŋ }\] 'he came with his nephew'

Thus (51) has to be translated as '...his uncle' even in the case of

Note that the construction (a) a brother of his differs from (b) one of his brothers (cf. (29)) in that the latter presupposes the existence of several brothers whereas the former can only be used if there is no such presupposition. This explains why a leg of his is not possible. Kera has no separate expression for (b).
previous mention or unique reference whereas (52) has to be translated as '...his nephew' in all possible contexts.

A non-unique inanimate part, if mentioned for the first time, is referred to by an indefinite NP. Neither the DEF-marker nor a possessive suffix are possible.

(53) we lúŋ képàng, we jémàŋ kas képàng (mànà)
    'he climbed a tree, he cut a branch'

This example proves that the marking of definiteness in (43)—including the definite article in the English translation there—cannot be attributed to a feature "implicitly mentioned". In (53), kas képàng 'branch' is implicitly mentioned just as much as ku kuli 'door' is in (43), but the DEF-marker is only applied if the implicitly mentioned referent can be unambiguously identified.

C. Other functions of DEF-marker in Kera

So far the principles governing the use of the Kera DEF-marker and the English/German definite articles seem to be very similar. We finally have to mention two uses of the DEF-marker that have no correspondences in English or German.

(i) The DEF-marker suffixed to an NP with an independent possessive pronoun (used with alienable possession) refers anaphorically to the subject of the sentence, distinguishing thus between a reflexive and a non-reflexive use of possessive pronouns.5

(54) a hàq törté naatáŋ
    she took knife her-DEF

(cf. (55) a hàq törté naatá
    she took knife her

(56) we lótnú de kódawà nuutúŋ
    'he1 hit him2 with his1 stick'

he hit-him with stick his-DEF

(cf. (57) we lótnú de kódawà nuutú
    'he1 hit him2 with his2/3 stick'

he hit-him with stick his

---

5 The distinction between reflexive and non-reflexive possessive pronouns is found in Scandinavian languages, too, cf. Danish sin kniv 'his own knife', hans kniv 'his (another person's) knife'.
(ii) Temporal and conditional clauses are obligatorily marked definite. The DEF-marker is attached to the last constituent of the clause, which always precedes the main sentence.

(32) pép bè kôbèríŋ hàgàq ané kaŋ, kaŋ ráawáŋ bè jôé gàrdàŋ
 'when the first rains fell, people went to sow red millet' (lit. first-rains-DEF rained so now-DEF...) 

(58) jôŋ mé ké pép bâŋ, acocôŋ aw-la gûlâ
 'if it was not a death from Pepe (god/rain), the grass shall fall to the left' (lit. 'was dying from Pepe not-DEF...')

(59) tâlêngâŋ nêkaŋ-né wôraŋ, kêmûŋ ñs bê mánté àvâráyâ tâ
 'when the grave is ready, his relatives start to ask for gifts' (lit. 'hole-DEF being-enough completely-DEF...')

3. Summary

<table>
<thead>
<tr>
<th>English</th>
<th>German</th>
<th>Kera</th>
</tr>
</thead>
<tbody>
<tr>
<td>generic</td>
<td>DEF/INDEF</td>
<td>DEF/INDEF</td>
</tr>
<tr>
<td>specific</td>
<td></td>
<td>DEF/(INDEF)</td>
</tr>
<tr>
<td>unique</td>
<td>DEF</td>
<td>DEF</td>
</tr>
<tr>
<td>previous mention</td>
<td>DEF</td>
<td>DEF</td>
</tr>
<tr>
<td>inalienable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unique</td>
<td>POSS</td>
<td>DEF/POSS</td>
</tr>
<tr>
<td>human</td>
<td></td>
<td>POSS + DEF</td>
</tr>
<tr>
<td>animal</td>
<td>POSS</td>
<td>DEF/(POSS)</td>
</tr>
<tr>
<td>inanimate</td>
<td>DEF/(POSS)</td>
<td>DEF</td>
</tr>
<tr>
<td>non-unique</td>
<td></td>
<td></td>
</tr>
<tr>
<td>human</td>
<td>POSS</td>
<td>POSS</td>
</tr>
<tr>
<td>animal</td>
<td>POSS/INDEF</td>
<td>POSS</td>
</tr>
<tr>
<td>inanimate</td>
<td>INDEF</td>
<td>INDEF</td>
</tr>
<tr>
<td>possessive reflexive</td>
<td>-----</td>
<td>DEF</td>
</tr>
<tr>
<td>sentence adverbial clauses</td>
<td>---</td>
<td>DEF</td>
</tr>
</tbody>
</table>

DEF = definite article/marker
INDEF = indefinite article/marker (Ø)
P OSS = possessive pronoun/suffix
(x) = restricted use of x
We have shown that there is a substantial correspondence in the use of the definite article in English/German and the DEF-marker in Kera. The construction of the DEF-marker together with a possessive pronoun or suffix and the marking of adverbiacl clauses as definite constitute the main differences between Kera and English/German.

The DEF-marker in Kera is neither used less than the definite article, nor is it used only as a previous reference marker. I do not claim that the subclassifications used in this paper are exhaustive, but I believe that they are basic for the languages treated and that they have some relevance for other Chadic languages.6

REFERENCES

Ebert, Karen H. 1970. Referenz, Sprechsituation und die bestimmten Artikel in einem nordfriesischen Dialekt. Dissertation, Kiel University. (= Studien und Materialien no. 4, Nordfriisk Instituut, Bredstedt.)


6Russell Schuh pointed out to me during the Colloquium that he had developed a very similar classification for describing the use of Bade and Ngizim determiners, see Schuh (1977).
1. Introduction

The aim of this paper is to describe the relationship between nominal and verbal plural formations and to consider certain hypotheses concerning the nominal plural in Proto-Chadic.

One of the characteristic features in a number of Chadic languages is the identity of markers of nominal plural with the markers that indicate the frequentative, intensive form of the verb and at the same time, often, plurality of object. In this paper, these forms of the verb will be called plural verbs. The assumption in this paper is that this identity is not accidental. The number of languages in which it happens and the number of morphemes involved make any argument against accidental identity superfluous.

There are essentially three possible explanations for this type of identity. The first two involve internal borrowing, from paradigm A to paradigm B or vice versa, in this case, from verbal plural to nominal plural or from nominal plural to verbal plural. Such borrowing is plausible since the forms that are borrowed have the same semantic function, i.e. as markers of plurality. The third possibility is that there is a form, e.g. marker of plurality, which is not attached to any paradigm in

*The work on the present paper has been partially supported by a grant from the Council on Research and Creative Work of the University of Colorado. The University helped as well by providing a travel grant which enabled me to attend the Colloquium. The work on Pero was conducted while I was a member of the faculty of Abdullahi Bayero College, Ahmadu Bello University; their support is hereby acknowledged. I would like to thank David Rood of the University of Colorado for the careful reading of the manuscript and very helpful comments. I wish to thank the participants of the Leiden Colloquium, especially Paul Newman, for their comments on the paper, which prompted some changes and additions, in particular, the addition of the analysis of -Vn. All errors are my sole responsibility.
particular and which is, as it were, used by any paradigm whenever certain semantic conditions require it. Historically this could be interpreted as the existence of a plural morpheme before the number/sex distinction emerged in a language. Since it is impossible to check the validity of this hypothesis, I will not consider it at all in this paper, and therefore only the first two hypotheses will be examined. One of them will be rejected and the implication of this for the reconstruction of the Proto-Chadic nominal plural markers will be discussed.

The most widespread device for the formation of nominal plural is gemination of a consonant and/or reduplication of part of a stem. It will be shown that at a certain stage in the history of Chadic this was a device used only for the formation of verbal plural, and that it was subsequently borrowed to mark the nominal plural as well. The same hypothesis will be tested for another frequent marker of nominal plural, a, which, along with gemination, was postulated by Diakonoff (1965) to be a Proto-Afroasiatic device. These two hypotheses, if accepted, would rule out the possibility that either of the devices was a nominal plural marker in Proto-Chadic.

The third plural marker, less widespread than the previously mentioned two, involves a morpheme of the form -Vn. It occurs almost exclusively as a nominal marker. A hypothesis concerning the origin of this affix will be advanced and argued, and the possibility of -Vn being a Proto-Chadic nominal plural marker will be rejected.

In order to present and defend the hypothesis, the data on nominal and verbal plurals from the languages for which I have data will be presented. The data part begins with Pero, which does not have a nominal plural marker at all, but instead has a rich system of verbal plural markers. This is followed by an analysis of the situation in Kanakuru, a closely related language. The Kanakuru data will serve as evidence for the claimed direction of borrowing of gemination from verbal plural to nominal plural. Third, analysis of the nominal and verbal plural formations in other Chadic languages will show that the nominal plurals in those languages are a relatively recent innovation. Finally, we will turn to the discussion of the possible origin of -Vn and some related affixes as markers of nominal plural.
2. Pero

The following analysis of plural formation in Pero is rather lengthy for two reasons. First, it is the first presentation of the appropriate data. Second, since Pero has only the verbal plural, it is worthwhile to show how it is formed. The data from Pero will be necessary to show the connection between gemination and reduplication of a syllable, to be discussed briefly later in the paper.

There are several forms of plural for the verb in Pero. Pero verbs may be disyllabic (the largest group), trisyllabic, and monosyllabic. Theoretically, every verb should be able to have a plural form. In practice, this is not always the case, and there are some verbs for which speakers were not able to provide a plural form.

Trisyllabic verbs form the plural by doubling the consonant of the second syllable, which may be formalized by the following rule.

\[(C_1)VC_2VC_3V \rightarrow (C_1)VC_2C_2VC_3V[\text{plural}]\]

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>úgújò</td>
<td>úggújò</td>
<td>[úkkújò] 'throw on ground'</td>
</tr>
<tr>
<td>lígúnò</td>
<td>líggúnò</td>
<td>[íkkúnò] 'answer'</td>
</tr>
</tbody>
</table>

Monosyllabic verbs form the plural by adding a suffix -yy- to the verbal stem:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>cá</td>
<td>cá-yy-ò</td>
</tr>
<tr>
<td>cé</td>
<td>cé-yy-ò</td>
</tr>
<tr>
<td>cí</td>
<td>cí-yy-ò</td>
</tr>
</tbody>
</table>

'go down'  
'drink'  
'eat'

Disyllabic verbs with a sonorant at the onset of the second syllable form the plural by the following rule:

\[C_1V_1SV_3 \rightarrow C_1V_1C_1V_2SV_3[\text{plural}]\ (S = \text{sonorant})\]

V₂ in the plural form is epenthetic. After a high front stem vowel the

---

¹The forms in the singular are the underlying forms of the verb; they occur in this phonological form before some of the suffixes. The plural form is found in the imperative and some other paradigmatic forms of the verb.
epenthetic vowel is -i-; elsewhere it is -u-.\(^2\)

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>méñò</td>
<td>mémmúñò</td>
<td>'like'</td>
</tr>
<tr>
<td>cínà</td>
<td>ciccínà</td>
<td>'sleep'</td>
</tr>
<tr>
<td>bínà</td>
<td>bíbbínà</td>
<td>'wash'</td>
</tr>
<tr>
<td>tánù</td>
<td>táttúnù</td>
<td>'run'</td>
</tr>
</tbody>
</table>

The above group of verbs is particularly important in the present investigation since it shows that reduplication of syllable and gemination of consonant are essentially variants of the same device in Pero. The use of reduplication rather than gemination of a consonant is phonologically conditioned. It is the presence of a sonorant at the onset of the second syllable that apparently requires reduplication.

Disyllabic verbs with a sonorant at the onset of the second syllable where the first syllable has either a long vowel or a sonorant form the plural by the following rule:

\[
CV_1 \left[ \frac{V_1}{S} \right] SV_3 + CV_1 SV_2 SV_3^{[\text{plural]}} \quad (S = \text{syllable boundary})
\]

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>bíírò</td>
<td>bíṣírò</td>
<td>[pí?írò](^3) 'make fire'</td>
</tr>
<tr>
<td>túúlò</td>
<td>túṣúlò</td>
<td>[tú?úlò] 'scatter'</td>
</tr>
<tr>
<td>gélò</td>
<td>gèṣòlò</td>
<td>'incline the head'</td>
</tr>
<tr>
<td>káírò</td>
<td>káṣórò</td>
<td>'check, examine (medically)'</td>
</tr>
<tr>
<td>táámò</td>
<td>táṣúmò</td>
<td>'wait'</td>
</tr>
<tr>
<td>cúrò</td>
<td>cúṣúrò</td>
<td>[cú?úrò] 'fry'</td>
</tr>
<tr>
<td>báññò</td>
<td>báṣúñò</td>
<td>[bá?úñò] 'look'</td>
</tr>
</tbody>
</table>

Disyllabic verbs which have the structure CVCCV, i.e. those that have the first syllable closed, add either a suffix -t- \(\rightarrow r/V_V\) or a

\(^2\)There are similar restrictions on the form of the epenthetic vowel in Kanakuru (cf. Frajzyngier 1976).

\(^3\)The \$ is phonetically realized as [?] due to a general phonological rule in Pero which inserts a glottal stop before all vowel-initial syllables. The \(V_2\) of the plural form is a copy of \(V_1\) when \(V_1\) is [+high]. If \(V_1\) is [-high], the \(V_2\) of the plural cannot be predicted at the present state of analysis.
suffix -j-. It is still possible to reconstruct the rule which governs
the choice of -t- or -j-. Verbs that have an alveolar consonant as
the stem final add the suffix -t-; all the other verbs in this group
add the suffix -j-.

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>-t-</td>
<td>fúndò</td>
<td>fúndú-t-ò</td>
</tr>
<tr>
<td></td>
<td>cóttò</td>
<td>cóttú-t-ò</td>
</tr>
<tr>
<td></td>
<td>báddò</td>
<td>báddú-t-ò</td>
</tr>
<tr>
<td></td>
<td>díllò</td>
<td>díllú-t-ò</td>
</tr>
<tr>
<td>-j-</td>
<td>ámbò</td>
<td>ámbú-j-ò</td>
</tr>
<tr>
<td></td>
<td>yémmò</td>
<td>yémmú-j-ò</td>
</tr>
<tr>
<td></td>
<td>cèbbò</td>
<td>cèbbú-j-ò</td>
</tr>
<tr>
<td></td>
<td>múmmò</td>
<td>múmmú-j-ò</td>
</tr>
<tr>
<td></td>
<td>bénjò</td>
<td>bénjú-j-ò</td>
</tr>
</tbody>
</table>

There are only a few examples which do not allow the postulation of
the above rule as still operating in Pero. All of them have the singular form CVCCV rather than CVCCCV. Two of these examples involve a final velar consonant and take the suffix -t- rather than the expected -j-.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>cókò</td>
<td>[céyò]</td>
<td>cékkú-t-ò</td>
</tr>
<tr>
<td>cúgà</td>
<td></td>
<td>cúkkú-t-ò</td>
</tr>
</tbody>
</table>

The remaining exceptions all involve the suffix -j-.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>cámù</td>
<td></td>
<td>càmmú-j-ò</td>
</tr>
<tr>
<td>ífü</td>
<td>[ívù]</td>
<td>íffú-j-ò</td>
</tr>
<tr>
<td>cákù</td>
<td>[càyù]</td>
<td>cákkú-j-ò</td>
</tr>
<tr>
<td>béjò</td>
<td></td>
<td>bájjújò [péccújù]</td>
</tr>
<tr>
<td>májù</td>
<td></td>
<td>májjújò</td>
</tr>
</tbody>
</table>

The plural class C₁VC₂C₂VC₂V has as its source singular verbs of
the structure C₁VVC₂V:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>wátò</td>
<td>[wáarò]</td>
<td>wàttútò [wàttúrò]</td>
</tr>
<tr>
<td>dáafò</td>
<td></td>
<td>[táffúvò]</td>
</tr>
<tr>
<td>cúukò</td>
<td>[cúugò]</td>
<td>[cúkkúgò]</td>
</tr>
</tbody>
</table>
díekò [díeyò] díkkúkò [díkkúgo] 'fetch water'
fóójò fójjújò [fóccújò] 'push'

The last major class of plurals includes verbs of the structure
(C₁)VC₂C₂V, i.e. with the second consonant reduplicated. The main source
for this class of plurals is verbs of the (C)VCV structure. The other
source is verbs which have the first vowel long:

ádù áddò 'eat something hard'
lófò [łóvò] lóffò 'beat'
kóöffò kóffò 'pass'
déeffò déffò 'discuss'
páátò [páarò] páttò 'pour'
túbbò túbbo 'take from container'
lóokò [lóoyò] lókkò 'hang'

This rule of plural formation is of course the same as the rule for tri-
syllabic verbs, and could be formalized in the following way:

\[ C₁VC₂V \rightarrow C₁VC₂C₂V(C₃V)[\text{plural}] \]

2.1. Summary of plural formation in Pero

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C₁)VC₂VC₃V</td>
<td>(C₁)VC₂C₂VC₃V</td>
</tr>
<tr>
<td>CV</td>
<td>CV-yy-V</td>
</tr>
<tr>
<td>C₁V₁SV₃</td>
<td>C₁V₁C₁V₂SV₃</td>
</tr>
<tr>
<td>V₂ = i if V₁ = i</td>
<td></td>
</tr>
<tr>
<td>V₂ = u elsewhere</td>
<td></td>
</tr>
<tr>
<td>CV₁SV₃</td>
<td>CV₁SV₂SV₃</td>
</tr>
<tr>
<td>(For value of V₂ see footnote 3)</td>
<td></td>
</tr>
<tr>
<td>C₁VC₂C₃V</td>
<td>C₁VC₂C₃V \begin{bmatrix} t &amp; j \ j &amp; C₃ \end{bmatrix}</td>
</tr>
<tr>
<td>t/C₃ alveolar</td>
<td></td>
</tr>
<tr>
<td>j/C₃ non-alveolar</td>
<td></td>
</tr>
</tbody>
</table>
2.2. **Conclusion regarding Pero**

Despite the considerable variation and complexity in the formation of the verbal plural, there is still a rather large degree of regularity and most of the forms are predictable from the singular form of the verb. It seems that the reduplication of the second consonant is relatively earlier than suffixation of -t- or -j-. This conclusion is based on the following observations. A number of verbs have plural forms which have already specialized meanings, usually a narrowed meaning when compared with the meaning of the normal plural form:

- **bétò** 'cut into two'
- **bëttò** 'cut into pieces'
- **áfù** 'open'
- **áfò** 'split'
- **ádu** 'eat (e.g. peanuts)'
- **ádogò** 'eat something hard (meat)'
- **cúbù** 'show'
- **cúbbò** 'teach'

Some of these verbs have a secondary pluralization by means of suffixes in order to convey the most general semantic notion implied by the plural verb:

- **áfò**
- **áfújò** 'split, divide'
- **ádogò**
- **ádogútò** 'eat many times, many things'
- **cúbò**
- **cúbbújò** 'show, teach many things'

It is important to note that there is no infix or suffix a in the plural forms of the verb. This affix occurs rather frequently in other Chadic languages.

The existence of morphologically plural verbs with meaning different from the singular verbs, e.g. **cúbù** 'show' vs. **cúbbò** 'teach' indicates that gemination and reduplication are not due to recent innovation in Pero. This conclusion is further supported by the fact that the suffixes -t- and -j- are used only when the gemination cannot apply because the stem already has the structure CVCCV, with the word-medial consonants identical or not.
3. **Kanakuru**

Kanakuru has a nominal plural realized in essentially three different ways, which are not predictable on phonological or semantic grounds (Newman 1974:82). One is the suffix -ngin with what appear to be its variants -njén/-njén; the second is the suffix -iyán/-uyán with its variants ín, án, yen, and en. The third means of forming the nominal plural is through gemination (Frajzyngier 1976; Newman 1974 analyzes it as hardening) of the second consonant and an addition of one of the above suffixes.

Kanakuru has a verbal plural as well, formed by gemination of the second consonant of the verb (Frajzyngier 1976), thus partially resembling the third means of forming the nominal plural. The difference consists in the suffixes, which are present in the nominal plural but absent in the verbal plural.

It appears that gemination is an older device than suffixation in the formation of nominal plurals in Kanakuru. The argument for this conclusion is the following. There is a small number of verbs which have a plural form as well as a singular. There is also a much larger group of verbs in Kanakuru which are plural in form, i.e. they have the second consonant geminated, but for which there are no recorded singular forms. This may of course be attributed to the incompleteness of our data, although the number of such verbs makes this an unlikely explanation. The other possible reason for the lack of the singular counterparts is that they were lost and are not used any more. If this is the case, it would indicate that the gemination of the second consonant is a relatively old device in the formation of verbal plural, although it is not productive anymore. The small set of nouns which form their plural in the same way in which the verbs do may therefore represent the oldest device of forming the nominal plural in Kanakuru, since this set is closed as well.

The following is an explanation for the development of the plural markers in Kanakuru. After gemination ceased to operate as a device for marking the plural, the various suffixes on nouns emerged as a result of compensatory change. The old verbal plurals were not perceived anymore
as plural forms and, therefore, there was a situation in which there existed two forms containing essentially the same semantic characteristics. One of those forms disappeared from usage.

It is possible that the whole process was the opposite from the one described above. One could conceive, for instance, that the nominal suffixes marking plural developed first, and then gemination as the morphological device ceased to operate because it was duplicating the function of the nominal suffixes. But this direction of development is contradicted by examining a number of languages, e.g. Hausa, where there is a large number of nominal plural markers and, at the same time, reduplication of part of the verb is a productive device for the derivation of frequentative forms.

4. Other Chadic languages

In the presentation of plural formation in other Chadic languages, I will use the classification in P. Newman (1977) in which four branches are distinguished: East, Biu-Mandara, West, and Masa. The analysis below is based on data for some of the languages from three of these branches of the Chadic family. Whenever I did not have data, this fact is indicated by "?" in the appropriate column. Most of the data are quoted as presented in the sources I have been using, in most cases without any attempt at reanalysis. The list of languages is by no means exhaustive.  

"The following are the sources used for the particular languages:
Dangla (Pédry 1971); Jonkor and Jegu (Jungraithmayr 1961/62; J. Lukas 1974/75); Kera (Karen Ebert, personal communication); Kapsiki (Smith 1969); Kotoko, Logone, and Buduma (Westermann and Bryan 1952); Tera (P. Newman 1970); Margi (Hoffmann 1963); Bachama (Carnochan 1970); Ga’anda (R. Newman 1971); Bade (R. Lukas 1967/68); Ron languages (Jungraithmayr 1965, 1970); Gisiga (J. Lukas 1970); Angas (Jungraithmayr 1963); Sura (Jungraithmayr 1963/64); Chip (Jungraithmayr 1964/65); Bole (J. Lukas 1971); Kanakuru (P. Newman 1974); Pero (Frajzyngier 1976 and fieldnotes); Musgu (J. Lukas 1941); Hausa (Russell Schuh’s analysis in Welmers 1973; Frajzyngier 1965)."
<table>
<thead>
<tr>
<th>SUBBRANCH A</th>
<th>Nominal</th>
<th>Infix</th>
<th>Verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangla</td>
<td>---</td>
<td>-a-.</td>
<td>?</td>
</tr>
<tr>
<td>Jonkor</td>
<td>-to.</td>
<td>---</td>
<td>vocalic changes, e.g. o → a.</td>
</tr>
<tr>
<td>Jegu</td>
<td>-an, -e, -i, -o, -ik, -nau.</td>
<td></td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Tonal changes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>There are singular suffixes -o, -e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mubi</td>
<td>Vocalic change and gemination of second consonant.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUBBRANCH B</th>
<th>Nominal</th>
<th>Infix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kera</td>
<td>-n.</td>
<td></td>
</tr>
</tbody>
</table>

The forms in Jegu and in Kera show similarity, viz. the suffixes -an and -n. The forms in Dangla and Jonkor are different from each other and from Jegu and Kera. The markers involving -n and -k will be dealt with later in this paper. The infix -a- is of course a retention of a very old morpheme (see Greenberg 1955) which will be discussed later as well. Unfortunately I did not have sufficient data concerning the verbal plural in this branch, but from Lukas (1975) it appears that the intensive form of the verb in Jonkor involves the change from o → a in the prefix.
<table>
<thead>
<tr>
<th>SUBBRANCH A</th>
<th>Nominal</th>
<th>Verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ga'anda</td>
<td>-co.</td>
<td>Reduplication of first consonant and insertion of -a-. Rule (from R. Newman 1971:35): $C_1V{C_2(V)^{[+int]}} \rightarrow C_1aC_1aC_2(V)$</td>
</tr>
<tr>
<td>Tera</td>
<td>-ku.</td>
<td>None.</td>
</tr>
<tr>
<td>Margi</td>
<td>-'yar, -i (traces).</td>
<td>Plural through reduplication.</td>
</tr>
<tr>
<td>Kapsiki</td>
<td>Plural marked with very few nouns denoting humans and animals. Suffixes: -li (-eli), -ši, -lemu, -ati. Reduplication of part of stem.</td>
<td>Reduplication of part of stem.</td>
</tr>
<tr>
<td>Bachama</td>
<td>Vocalic suffixes.</td>
<td>Internal vowel change. Infixed -a-.</td>
</tr>
<tr>
<td>Gisiga</td>
<td>-ay, postposition hay.</td>
<td>Plural form of verb marked by suffixes -am or -ak indicates plurality of subject.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUBBRANCH B</th>
<th>Nominal</th>
<th>Verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musgu</td>
<td>-ai (-oi), -akai, -ad.</td>
<td>Verb is number-sensitive but, unlike in other Chadic languages, it is in plural form when subject is plural.</td>
</tr>
<tr>
<td>Kotoko</td>
<td>Gemination of final consonant. Suffixes: -e, -en, ni-i. Internal vowel change.</td>
<td>(Information not available about verbal plural for most languages of this subgroup.)</td>
</tr>
<tr>
<td>Logone</td>
<td>Gemination of final consonant. Internal vowel change to -a, suffix -en, -e.</td>
<td></td>
</tr>
<tr>
<td>Buduma</td>
<td>Suffixes: -ai, -ei, -e. Other devices as in Kotoko.</td>
<td></td>
</tr>
</tbody>
</table>
In subbranch A of Biu-Mandara, there is no obvious form which one could postulate to be common to all languages of this subbranch. The verbs in subbranch A form plurals through reduplication or through the vocalic change to \( a \), e.g. Ga'anda, Bachama. This fact will be an important argument later in this paper for the direction of "internal borrowing of forms" in Chadic languages. Apparently, Tera has lost the plural forms of the verb, since it is the only language in the subbranch that does not have a mechanism for the derivation of verbal plurals.

In subbranch B, in Kotoko (Gulfei dialect) and Logone there is an -en suffix. Gemination occurs as a device in at least three languages. In addition, there is an -a suffix in this subbranch. As far as the nominal plural formation is concerned, these two subbranches do not have much in common except for the Gisiga suffix -ay, which is similar to the plural markers in subbranch B. In Gisiga and in Musgu the verb agrees in number with or indicates the number of the subject.

<table>
<thead>
<tr>
<th>WEST</th>
<th>Nominal</th>
<th>Verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Suffix</td>
<td>Infix</td>
</tr>
<tr>
<td>SUBBRANCH A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Daffo  | -ay, -ash, -e. -a(a). | Infix -a-.
| Sha    | -a, -aa, -ash, -e. Tonal changes. | Suffix -an. Reduplication. |
| Kulere | -egy. Reduplication. | Infix -a-.
| Bokkos | -ha, -ash. -a-with reduplication. | ? |
| Fyer   | an, ash, -ash, -a-, -aa-. \( e, -ee, -i. \) Reduplication. | Infixes -i-, -a-, -aa-. Suffixes -aq, -an. |

"..."
<table>
<thead>
<tr>
<th>Language</th>
<th>Features</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hausa</td>
<td>-unaa, -ukaa, -uwaa, -C'aa, -ai, -uu, -ii, -aa, -akuu, -akii, -annii, -ac'ii. Infix -a-. Reduplication of a consonant is involved in a number of suffixes.</td>
<td>Reduplication of first three phonemes or of second syllable.</td>
</tr>
<tr>
<td>Angas</td>
<td>-mwa.</td>
<td>Plurals exist but are not numerous.</td>
</tr>
<tr>
<td>Sura</td>
<td>Postposition -mo.</td>
<td>Reduplication of stem. Change of tone. Shortening of vowel. Infix -a-. Suffixes: -ap, el, -x. Infix -l-.</td>
</tr>
<tr>
<td>Bole</td>
<td>?</td>
<td>Reduplication of initial syllable or doubling of last consonant of stem.</td>
</tr>
<tr>
<td>Pero</td>
<td>No plural.</td>
<td>Reduplication.</td>
</tr>
<tr>
<td>SUBBRANCH B</td>
<td>Suffix</td>
<td>Infix</td>
</tr>
<tr>
<td>Bade</td>
<td>Final vowel change: a &gt; aa, e, ae &gt; a, a, e, -en, -at, -let, -e, -yet, -age, -oot, -ageet, -cin, -tin.</td>
<td>Reduplication.</td>
</tr>
</tbody>
</table>

It seems impossible to reconstruct a common plural marker for the West branch. Within the Ron languages, one can determine a common plural marker and the same goes for Angas, Sura, and Chip. But the plural marker of Angas, Sura, and Chip is a recent innovation. It apparently is a third person plural pronoun and it has been analyzed as such (cf. Greenberg 1955:202). The most widespread markers of plural in the West
branch are the infix (sometimes suffix) /a/ and reduplication, which has been noted for almost all of the languages except for Angas, Sura, and Chip.

The verbal plural has been noted in all West languages, except for Bade—but there my data might be incomplete since the source for this language was an article dealing explicitly with the nominal system. In most of the languages, the verbal plural is marked either by reduplication or by the affix /a/. Sura and Chip have a few additional affixes not shared by other languages in the table. Those affixes seem to be innovations. It is worth noting that neither Pero nor Kanakuru have /a/ as a plural marker.

5. Analysis of the three branches of Chadic

5.1. Nominal plural

The most frequent devices used to mark plural in the three branches of Chadic are /a/ and reduplication or gemination. Within each branch there is an abundance of plural markers which are not cognate within the branch, e.g. Margi -'yar, Tera -ku. Many of the languages have a variety of plural morphemes whose occurrence is often unpredictable on any grounds. This leads to a conclusion that except for /a/ and reduplication, the rest of the plural markers in Chadic languages are the result of a process or processes which must have occurred after Proto-Chadic split into the three or more branches. Moreover, quite often these plural markers did not emerge until the particular branches split into the modern languages. Evidence for this is provided by the diversity of the plural markers within each branch of Chadic.

5.1.1. The morpheme /a/. This marker occurs in all of the branches of Chadic, most often as an infix, but it may be a suffix as well. The languages for which it was not recorded, such as Pero and Kanakuru, either did not have it or lost it.

5.1.2. Reduplication. This process occurs in all of the branches of the Chadic family, but not in all languages. In subbranch A of Biu-Mandara it occurs only in Kapsiki. In the West branch it does not occur
in the Sura-Angas-Chip group. In the East branch it occurs only in Mubi.

5.2. Verbal plural

This category occurs in all of the languages for which I have data. The meaning of this form always includes an indication of intensity of action, repetition of an action and, in all but two languages, it implies plurality of the object. Musgu and Gisiga are important exceptions, in that verbs in these languages agree in number with the subject and have the plural form if the subject is plural. It is important to remember that for the rest of the Chadic languages the plural form of the verb is not usually a function of verb-object agreement, although this has been noted as well, e.g. in Kanakuru (Newman 1974:72). In Margi (Hoffmann 1963:57), if the verb has a plural form the noun does not have to have the plural suffix. Thus the verbal markers in verb and noun in Margi are, as it were, complementary.

The most common devices for formation of the verbal plural are reduplication of a syllable or gemination of a consonant in the verb. Since this device occurs in all of the branches of Chadic and in almost all the languages, one can assume that it is a retention from the Proto-Chadic verbal system. The rules for formation differ from language to language, and those differences have to be attributed to innovations in particular languages.

The morpheme /a/ occurs as the plural marker of verbs in the Biu-Mandara branch (Ga'anda and Bachama) and in the West branch (Ron languages, Sura, Chip). In the East branch it has been noted in Jonkor. On the evidence of the Biu-Mandara and West branches alone, one could conclude that /a/ was a morpheme marking plural in the verbal system of Proto-Chadic. The suffixes which occur in Sura and Chip, viz. -p and -k must be innovations that emerged in these languages after they had split from the other languages of the West branch.

The hypothesis that gemination/reduplication and affix /a/ were originally markers of the verbal plural is most strongly supported by the fact that in the majority of languages there is a verbal plural having one of the above forms even though there is no nominal plural, or
else the nominal plural has a different form from the verbal plural. It has been shown, therefore, that Proto-Chadic had the verbal plural, which still exists in all the branches of the group, marked by reduplication or an affixed /a/. Some Chadic languages have taken this device and used it in the formation of nominal plurals. That is why we find nominal plurals by reduplication or by an affix /a/ in some languages only. The data from Kanakuru suggest that the plural by reduplication is older than the other forms of the plural.

5.3. Suffix -Vn

Another candidate for a Proto-Chadic plural marker is a suffix which always contains at least an alveolar nasal, and usually has the form -Vn. The hypothesis that it was a Proto-Chadic nominal plural marker will be reviewed and rejected in what follows.

In the East branch of Chadic it occurs in Kera. It also occurs in Jegu as one of the many suffixes that mark nominal plural. Dangla and Jonkor do not have such a suffix. If one were to accept -Vn as a Proto-Chadic plural marker, one would have to assume that Dangla and Jonkor lost it and, moreover, that Jonkor developed a new suffix -to.

In subbranch A of Biu-Mandara there are no suffixes of the form -Vn with the possible exception of Margi. Hoffmann (in a remark at the Colloquium) pointed out that r in the Margi plural marker 'yar could be considered a reflex of Proto-Chadic *n, according to Newman and Ma (1966). While this is a very likely possibility, there is nevertheless a reason not to consider 'yar as a reflex of the Proto-Chadic plural marker. As noted in the Biu-Mandara chart, Margi has some traces of the plural suffix -i, the only other plural marker apart from 'yar. Some of the words that take it are:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>mbɔ 'person, man'</td>
<td>mj</td>
<td>'people'</td>
</tr>
<tr>
<td>sáli</td>
<td>shili</td>
<td>'man, husband'</td>
</tr>
<tr>
<td>ŋkwà</td>
<td>ŋkwà’i</td>
<td>'girl, daughter'</td>
</tr>
</tbody>
</table>

As Hoffmann writes (1963:59), all these plural forms may take, in
addition, the plural suffix 'yar when used with demonstratives, e.g.:

mjè'yar kò 'these people' (besides mjè kò)
shíf'yar kò 'these men', etc.

The nature of the words which still take the suffix -i rules out its having been borrowed. Besides, -i occurs as a plural marker in a number of other Biu-Mandara languages, e.g. Kotoko and Buduma. It appears therefore that the suffix 'yar is not the oldest plural marker in Margi, which is further supported by its spread in the language.

In subbranch B of Biu-Mandara, a -Vn suffix occurs in Kotoko and Logone, two closely related languages.

Among the closely related Ron languages, only Fyer has a -Vn suffix -an, which can hardly be called a productive suffix, since only one word containing it is provided by Jungraithmayr (1970), viz. yuur-u 'eye', pl. yiran /y-i-r-an/. In this word there is already a plural marker -i-. In the description of Fyer, there is one more word, humu 'ear', pl. humuan/humwaŋ, which contains a suffix with a nasal, but it is a velar nasal.

These two suffixes cannot be considered reflexes of a hypothetical Proto-Chadic morpheme without previous explanation of what might have caused two different nasals in those suffixes. Besides, the suffixes -aq and -an occur more frequently as markers of the verbal plural in Fyer. Another Ron language, Sha, also has -an as the marker of the verbal plural, but does not have it as the marker of the nominal plural. The two instances containing the -Vŋ and -Vn morphemes in Fyer could be explained by postulating that, as in several other instances mentioned earlier in this paper, those plural markers have been internally borrowed from the verbal system. It seems that the fact that the two cases are different, together with the other arguments presented above, rules out the possibility that the Fyer morphemes are reflexes of the Proto-Chadic nominal plural marker.

While Hausa has at least two suffixes that may be claimed to have developed from the Proto -Vn suffix, another subgroup of the West, consisting of Sura, Angas, and Chip, does not have a -Vn suffix.
In the Bole cluster, Kanakuru has a -Vn suffix among several other suffixes which contain a -Vn as part of the morpheme. There is, however, evidence that the various -Vn suffixes in Kanakuru are relatively later devices when compared with gemination of the second consonant of the stem. There is a group of nouns which, in addition to suffixes, have the second consonant geminated; the following examples, based on the data in Newman (1974:84), are presented according to the analysis in Frączyngier (1976).

\[
\begin{array}{ccc}
dúu & (\langle dūhú \rangle) & dūkkúyán & 'boar' \\
lípè & [líwè] & líppén & 'calabash' \\
yáapè & [yáawè] & yáapplyán & 'chicken' \\
tákà & [tāā] & tákkín & 'shoe'
\end{array}
\]

These data indicate that a suffix containing -Vn has been added to the geminated noun, probably when gemination was not perceived any more as a pluralizing device. Pero, a language from the same cluster, does not have any plural marker.

Bade, a language from Subbranch B of the West branch, as an infix -en, among eight other affixes, reduplication, and vowel change to mark the nominal plural.

The peculiar distribution of the -Vn suffixes in Chadic languages may have two possible explanations.

(a) A certain suffix containing a nasal consonant functioned as a plural marker in Proto-Chadic. This marker was subsequently dropped by the majority of languages. The reasons for such a massive reduction of this suffix in languages from various groups are not known. This hypothesis has its major weakness in our inability to explain why the suffix was lost.

(b) The other possibility is to postulate that in various languages, a -Vn suffix developed independently to mark the nominal plural. Such a hypothesis can be retained only if one could show why several independent changes produced so similar a result. In order for independent innovations to produce a similar form, one would have to have a similar source for them. It appears that there is such a source in those Chadic languages that have a -Vn suffix.
In many Chadic languages there is a particular form of demonstrative pronoun, genitive linker, independent pronoun, or similar morpheme related to the class of masculine nouns, which often contains a nasal consonant, usually an alveolar nasal, although sometimes it may be a velar nasal. The plural suffix -\( \text{\textnu} \) could be derived from a form related to this Chadic masculine marker. All the Chadic languages which have the -\( \text{\textnu} \) marker do indeed have a form of the masculine marker containing an n. In Hausa it is a genitive linker and stabilizer. In Sade there are demonstrative pronouns and many other forms (cf. Schuh 1975).

It is very likely that in a number of Chadic languages the feminine marker was also used in the formation of the plural, and that this was another source of plural markers that show similarity to one another, for example, markers involving -k or -t.

At present, I am unable to explain how and why masculine (and feminine) markers could be transformed into plural markers, but this is apparently what happened in Chadic languages. Outside of the Chadic branch of Afroasiatic, a similar phenomenon occurred in Semitic, in particular in Arabic, where the -\( \text{\textunu} \) plurals were first an innovation as plural markers for masculine nouns and only later spread to cover both masculine and feminine nouns (cf. Kuryłowicz 1972:139).

Since it is impossible to reconstruct a common plural morpheme apart from /a/ and reduplication, one has to assume that the multitude of other morphemes occurring in various Chadic languages must be innovations, occurring after those languages split from Proto-Chadic and even after there was a split within the smaller branches of Chadic.

REFERENCES


Lukas, Johannes. 1941. Deutsche Quellen zur Sprache der Muagu in Kamerun. Berlin.


THE NATURE AND FUNCTION OF AUXILIARY VERBS IN HAUSA

Philip Jaggar

1. Introduction

This paper is an attempt to pinpoint and examine the grammatical parameters of so-called "auxiliary verbs" in Hausa. These verbs are a common and important feature of both spoken and written Hausa,¹ and denote essentially such universal modifications of the verbal notion as "continue", "begin", "finish" doing something. Before I present my analytical model and accompanying descriptive data, let me first of all clarify the terms of reference of this paper by dealing with the problem of terminology.

Most scholars of the language have, to varying degrees, described this class of verbs in Hausa. With the exception of Parsons (1971/72), who prefers the Latin grammar term "indeterminate", all these scholars, including Abraham (1934)—who was, I believe, the first to employ the term—Pilszczikowa (1960), Maxwell and Forshey (1963), Kraft and Kirk-Greene (1973), and Cowan and Schuh (1976), apply the term "auxiliary"² to

---

¹This analysis is based largely upon research done in 1974 with some of my Hausa students at Bayero University College, Kano. I wish to thank these students, especially Mary Izam, who was researching this particular topic at the time, and P. Newman and R. M. Newman. I am grateful too to my colleagues at Hamburg University, in particular E. Wolff, for their constructive criticisms. Lastly I am indebted to F. W. Parsons of the School of Oriental and African Studies, London University, who kindly read through the original draft and made valuable comments upon it.

²Of the first fifty or so verbs which occur in the opening page of Shehu Umar (Balewa 1955), for instance, eight are auxiliary verbs accordant to my classification.

²This label unfortunately gives rise to some terminological confusion since the term "auxiliary" is also used in Hausa to describe such elements as the -na of the "continuous pronoun" used in the continuous aspect, e.g. yana tafiya 'he is travelling', and the -ke morpheme used in the relative continuous aspect, e.g. inda yake tafiya 'where he is travelling'.

these verbs in toto. However, none explain exactly why they consider this label an appropriate one, beyond saying that these verbs refer to processes in an action rather than the action itself.

In view of this consistency in usage, therefore, and in the absence as yet of a more accurate descriptive label to apply comprehensively to such diverse modifications of the verbal notion as inchoation, repetition, continuance, etc., I shall continue to use the term "auxiliary". Moreover, the very fact that these verbs do operate to qualify a following verb which is then nominalised in the form of a verbal noun, whose semantic content is at the same time modified, would seem to indicate that the term "auxiliary" is not wholly inappropriate.

The nature and syntactic function of Auxiliary Verbs (AV) in Hausa have been described, with varying degrees of clarity and accuracy, in most of the standard grammars and dictionaries of the language. Pilszczikowa (1960) is the only scholar to date who has published an analysis of these verbs which is anything more than superficial. She lists a total of 12 AV\(^3\) and states how they may operate in Hausa: (a) as intransitive verbs without a following complement ("d'une manière indépendante, c.à.d. sans complément"), e.g. misali a iya farawa da binciken kayan kasuwa 'for example one may start by examining market products'; (b) with a noun complement ("avec un complément exprimé par un substantif"), e.g. iokacin da aka gama maganan amfanin gona sosai 'when discussion of the farm produce was completely over'; (c) with a verbal noun complement ("avec un complément exprimé par un nom déverbal"), e.g. ba ta iya

\(^3\)As must be obvious from the differing total numbers presented, these authors do not all list the same AV; moreover, some verbs are given, e.g. riga and sa, which must be excluded from my list on syntactic grounds. Also, since none of them makes any analytical distinction between what I term AV-1 and AV-2, their use of the label "auxiliary" refers to verbs which are members of both subcategories.

\(^4\)I have provided my own English translations of the Hausa citations given by Pilszczikowa, most of which are from early Hausa texts, and also made a few minor corrections in the orthography in keeping with modern Hausa orthographic standards. I have also underlined the AV in all the examples provided. Standard Hausa orthography is used for all the citations and examples in this study.
zuwa nan 'she cannot come here'; or (d) with a "verbal theme" comple-
ment ("avec un complément exprimé par un thème verbal"), e.g. barawo ba
a taba kama shi ba a wurin sata 'the thief was never caught red-handed'.
Abraham (1934:95-98) lists 15 AV in all and says that they may
govern either a following "verbal noun", e.g. kada ka dinga zaginta
'don't keep on reviling her', or a "noun", e.g. sun dinga murna 'they
were in a perpetual state of happiness'. And Bargery (1934) says in his
glosses of a few AV that they may be followed by a "verbal noun", e.g.
ya iya gani 'he can see'.
Maxwell and Forshey (1962:77-78) list 11 AV and claim that they are
"followed by the verbal noun", e.g. sai ka rika zuwa 'you must keep on
coming'. Parsons (1971/72:52) says that these verbs are "normally
followed by either a dynamic or an abstract noun, or by the pronoun of
reference for these two classes of noun, which is not shi/ta but haka".
Kraft and Kraft (1973:354) list 8 AV in all, attach to them the
label "helping verbs", and add that "the translation of the utterance
usually highlights the verb modifier (which is often a verbal noun)
rather than the verb". Kraft and Kirk-Greene (1973:157-60) give a total
of 12 AV and state that they are followed by "verbal nouns", e.g. ban
sake ganinsa ba 'I didn't see him again', or, somewhat cryptically, by
"certain types of nouns", e.g. ya cika karambani 'he is extremely
meddlesome, a big nuisance'.
Cowan and Schuh (1976:136, 181-82, 242-43) list 8 of the more com-
monly used AV and write: "These verbs are followed by the same types of
verbal expressions or action nouns that are used after the continuative
pronominal suffixes". By "verbal expressions", they are in fact referring to verbal
nouns, including those which add the nominalising suffix -wa in the con-
tinuous aspect when there is no object following, e.g. maka iya sake
likewa 'the blacksmith patched (it) over again', and those which do not
take the nominalising suffix -wa, e.g. ban iya daukar buhur gyada ba
'I can't pick up the sack of peanuts'. As examples of "actor nouns"
they give magana 'speech, speaking' and wasa 'play, playing', e.g.
sun fara wasa 'they have started playing'.

5This example is my own as Cowan and Schuh do not give one.
The foregoing extracts are an indication of the confusion which has surrounded the question of precisely what item(s) may fill the slot of complement immediately following an AV in Hausa. The attempts so far to describe this class of verbs have been rather inadequate and untidy, and it is the purpose of the present paper to help clarify the situation by setting up a more workable and watertight model, and thereby tidy up the grammatical boundaries of AV in Hausa.

2. The syntactic behaviour of auxiliary verbs

The basic aim of this synchronic analysis is to determine the nature and function of auxiliary verbs by establishing the syntactic criteria by which verbs may be confidently assigned to this class and thus formally designated as Auxiliary Verbs (AV). According to the analytical model presented, those verbs in Hausa which do not accord with the definitional criteria set up are regarded as being Non-Auxiliary Verbs (NAV) for the purposes of this paper. My model is therefore based essentially on an analytical distinction between AV and NAV classes.

2.1. Auxiliary verbs

I define an AV in Hausa as any verb which, with a few exceptions discussed in full below, may only govern as a complement a verbal (dynamic) noun (+ following direct object), subject to the following restrictive conditions:

(i) the subjects of the AV and the following verbal dynamic noun (VDN) must be referentially identical, thereby ruling out such constructions as na ji zuwansa 'I heard him coming';
(ii) excluding those constructions in which a verb of motion may immediately precede a VDN to indicate purpose, e.g. sun tafi cin abinci 'they have gone (in order) to eat'.

2.1.1. Features of verbal dynamic nouns. Basically, VDN in Hausa signify an action, event, or process, and share common bases with verbs. They may be divided into those which take the nominalising suffix -wa if there is no following object, e.g. tana dafawa 'she is cooking' and those which do not add this suffix, e.g. tana saka 'she is weaving'.
These two types of verbal noun are sometimes referred to as "weak" and "strong" verbal nouns, respectively. Notice that the verbal noun in Hausa is usually rendered in English either by an infinitive, e.g. 'to come out', or by a present participle, e.g. 'coming out'.

Galadanci (1969:24-25) lists some of the key characteristics of VDN as follows: (a) they are preceded, for the most part, by indeterminate verbs such as iya, fara, riika, e.g. Audu ya iya saka 'Audu can weave'; (b) they can occur in the frame ...nake (yi), e.g. saka nake (yi) 'I am weaving'; (c) they can occur immediately after a "continuous pronoun", e.g. ina dafa abinci 'I am cooking food'; (d) they have plural forms with distinctive reduplicated patterns with -e suffixes, which are not found with non-verbal dynamic nouns (see below), e.g. ya iya gyare-gyare 'he can do various kinds of repair work'.

2.1.2. Direct object slot. The question of what item(s) may optionally fill the direct object slot to the right of a VDN simply depends on course on the syntactic capabilities of the particular VDN and the type of construction involved, and this issue is of no relevance here.

2.2. Non-auxiliary verbs

For the purposes of this study, I define NAV as any verb in Hausa which does not fulfill those syntactic conditions which serve to define AV. This category thus embraces all those verbs which are viewed, traditionally at least, as being transitive and/or intransitive depending upon the particular construction, e.g. ya bugi yaro 'he hit the boy', na gan shi 'I saw him', ya gudu 'he ran away'.

A few of the verbs exemplified in the NAV column of Table I below operate both transitive and intransitive usages. However, since this alternation is of no importance for this analysis, only their potential operation as AV, I list only one usage.

2.3. Auxiliary verbs AV-1 and AV-2

As is perhaps inevitable with any attempt at determining the class membership of a verb, we find that there is a considerable overlap in

---

6Galadanci uses Parsons' label "indeterminate". As Parsons (1971/72: 52) rightly points out, however, this definition is somewhat circular.
membership between these two classes. Thus within the general syntactic category AV there are two subcategories of verbs. The first subcategory includes those few verbs which may operate only as AV and never as NAV, and which seem to be AV "intrinsically". For this group I have chosen the label AV-1. The second larger subcategory embraces those verbs which are syntactically capable of functioning either as AV or as NAV depending upon the type of complement they control, and these I term AV-2.7 Throughout the analysis I distinguish between AV-1 and AV-2 only when such a distinction is relevant to a particular problem under discussion. Otherwise I simply use the general shorthand notation AV.

The position of AV relative to NAV may be represented as follows:

\[ \text{NAV} \]
\[ \text{AV-2} \]
\[ \text{AV-1} \]

2.4. Operation of AV-1 and AV-2

Table I illustrates the operation of AV-1 and AV-2. The provisional list is in no way accepted as being exhaustive but it probably accounts for the majority of those verbs which can be confidently assigned to this class on the basis of their common syntactic properties. The 30 or more listed are certainly the more commonly used AV in Hausa.8

7The choice of this label in no way implies that I consider this subcategory of verbs to be more "auxiliary" than "non-auxiliary". It is simply that the focus throughout this paper is on AV as distinct from and in contrast to NAV. The term therefore seems appropriate to apply to this important overlapping group of verbs. However, the question of the relative frequency of AV-2 occurring as either AV or NAV, while important, is beyond the present scope of this study.

8In all tables, verbs are listed alphabetically by grade, starting with Grade 1; tone patterns are indicated in parentheses. A blank space indicates nonoccurrence of the item. All examples in the paper are attested by Hausa speakers; some are taken from the well-known Hausa books Magana Jari Ce [MJC] (Imum 1937-39) and Shehu Umar [SU] (Balewa 1955).
<table>
<thead>
<tr>
<th>Verb Grade</th>
<th>Auxiliary Operation (AV-1 and AV-2)</th>
<th>Auxiliary Notion(s)</th>
<th>Non-Auxiliary Operation (AV-2 only)⁹</th>
<th>Non-Auxiliary Notion(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1 (Hi-Lo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cika</td>
<td>ya cika shan giya</td>
<td>do too/very much, do to excess</td>
<td>ta cika tulu</td>
<td>fill</td>
</tr>
<tr>
<td></td>
<td>he drinks too much beer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dada</td>
<td>ya dada zuwa</td>
<td>repeat, do more/again</td>
<td>ya dada ruwa</td>
<td>increase, add</td>
</tr>
<tr>
<td></td>
<td>he came again</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>daina</td>
<td>ya daina zuwa</td>
<td>stop/cease doing</td>
<td>he added more water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>he has stopped coming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dinga</td>
<td>na dinga tafiya</td>
<td>keep on doing, continually do</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I kept on travelling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dosa¹⁰</td>
<td>ya dosa tafiya</td>
<td>keep on doing, do regularly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>he kept on travelling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fara</td>
<td>sun fara karatu</td>
<td>begin/start, be first to do</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>they have started reading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fasa</td>
<td>ya fasa zuwa</td>
<td>fail to, miss, decide not to do</td>
<td>tafiya ta fasa</td>
<td>be postponed</td>
</tr>
<tr>
<td></td>
<td>he failed to come</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gama</td>
<td>ya gama ginin gida</td>
<td>finish, complete doing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>he has finished building the house</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
iya ya iya safar tabarma can, be able to ya iya doki
he can weave mats he is a good horseman can, be able to
kama mun kama shirin yakâ da su start doing na kama hannunsa take, seize, capture
take
we have started preparing for war with them
for war with them
kasa ka kasa daukar daya ciki be unable to do, fail to do dokina ya kasa fail
da hardace (MJC 2:182)
you aren't able to take one (story) and memorise it
my horse failed
koma ya koma karatun Hausa go (back) to, return to doing ya koma Ingila go (back to),
he has gone back to studying Hausa he has gone (back to) return
England
kara Waziri Aku zai kara ba shi ya kara kudi increase
misalai (MJC 2:226) repeat, do more/again he increased the money
Vizier Parrot was about to give him more examples
rasiya ya rasi ganin sarki be unable to do ya rasi wajen kwana lack, be short of
he was unable to see the Emir he had nowhere to sleep of
nika ya nika zuwa da dare keep on, regularly do ya nika hannuna hold, grasp
he kept on coming at night he held my hand
saba (da) ko da yake an saba da be used to doing, do often ya saba da abincin Turawa be used to
ganinta (MJC 2:7) although one was used to he is used to European food
seeing her
soma ya soma wanke riga begin/start doing
he started to wash the gown
<table>
<thead>
<tr>
<th>taɓa</th>
<th>ka taɓa zuwa Ingiila?</th>
<th>(n)ever do</th>
<th>taɓa mota</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>have you ever been to</td>
<td></td>
<td>she touched the car</td>
</tr>
<tr>
<td></td>
<td>England?</td>
<td></td>
<td>touch</td>
</tr>
<tr>
<td>tara</td>
<td>mun tara tafiya (tare)</td>
<td>share doing</td>
<td>ya tara iyalinsa duka</td>
</tr>
<tr>
<td></td>
<td>we travelled together</td>
<td></td>
<td>(SU:4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>collect, share in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>he gathered his whole family together</td>
</tr>
<tr>
<td>tsaya</td>
<td>ka tsaya yi mini wadansu</td>
<td>persist in,</td>
<td>ya tsaya a kan hanya</td>
</tr>
<tr>
<td></td>
<td>kursalwọyi (NJC 2:172)</td>
<td>stick to doing</td>
<td>he stood on the road</td>
</tr>
<tr>
<td></td>
<td>you persisted in telling me</td>
<td></td>
<td>stand, stop</td>
</tr>
<tr>
<td></td>
<td>some lies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grade 2 (Lo-Hi)

<table>
<thead>
<tr>
<th>nema</th>
<th>ya nemi ganin sarki</th>
<th>try to/seek doing</th>
<th>ya nemi littafi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>he tried to see the Emir</td>
<td></td>
<td>he looked for the book</td>
</tr>
<tr>
<td>*sama⁴</td>
<td>ya sami ganin sarki</td>
<td>manage to, succeed in doing</td>
<td>na sami riga</td>
</tr>
<tr>
<td></td>
<td>he managed to see the Emir</td>
<td></td>
<td>I have obtained a gown</td>
</tr>
<tr>
<td>tasa</td>
<td>ya tashi bugun yaro</td>
<td>set about, take steps toward doing</td>
<td>ya tashi Audu da wuri</td>
</tr>
<tr>
<td></td>
<td>he set about beating the boy</td>
<td></td>
<td>he got Audu up early</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>lift, get up, dispatch</td>
</tr>
</tbody>
</table>

Grade 3 (Lo-Hi)

<table>
<thead>
<tr>
<th>isa</th>
<th>ta isa hawan keke</th>
<th>be worthy/capable of doing</th>
<th>abinci ya isa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>she is old enough to ride a bicycle</td>
<td></td>
<td>that's enough food</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>be enough, reach</td>
</tr>
<tr>
<td>shiga</td>
<td>ya shiga dimar kare</td>
<td>set about, begin, take on doing</td>
<td>ya shiga gida</td>
</tr>
<tr>
<td></td>
<td>(NJC 1:106)</td>
<td></td>
<td>he entered the house</td>
</tr>
<tr>
<td></td>
<td>he set about beating the dog</td>
<td></td>
<td>enter, go in(to)</td>
</tr>
</tbody>
</table>
**Grade 4 (Hi-Lo)**

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>faye</td>
<td>ya faye shan taba</td>
</tr>
<tr>
<td></td>
<td>he smokes too much</td>
</tr>
<tr>
<td>kare</td>
<td>ya kare shan magani</td>
</tr>
<tr>
<td></td>
<td>he has finished drinking the medicine</td>
</tr>
<tr>
<td>rage</td>
<td>ta rage zuwa nan</td>
</tr>
<tr>
<td></td>
<td>she comes here less often</td>
</tr>
<tr>
<td>sake</td>
<td>ya sake zuwa</td>
</tr>
<tr>
<td></td>
<td>he came again</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>do too much</td>
</tr>
<tr>
<td></td>
<td>finish doing</td>
</tr>
<tr>
<td></td>
<td>abinci ya kare</td>
</tr>
<tr>
<td></td>
<td>the food is finished</td>
</tr>
<tr>
<td></td>
<td>be finished</td>
</tr>
<tr>
<td></td>
<td>do less</td>
</tr>
<tr>
<td></td>
<td>an rage albashinmu</td>
</tr>
<tr>
<td></td>
<td>our wages have been reduced</td>
</tr>
<tr>
<td></td>
<td>reduce</td>
</tr>
<tr>
<td></td>
<td>repeat, do again</td>
</tr>
<tr>
<td></td>
<td>ya sake rigarsa</td>
</tr>
<tr>
<td></td>
<td>he changed his gown</td>
</tr>
<tr>
<td></td>
<td>change</td>
</tr>
</tbody>
</table>

**Grade 7 (Lo-Hi)**

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>damu da</td>
<td>ban damu da ganinsa ba</td>
</tr>
<tr>
<td></td>
<td>I'm not bothered about seeing him</td>
</tr>
<tr>
<td>rabu da</td>
<td>na rabu da ganinsa</td>
</tr>
<tr>
<td></td>
<td>I've not seen him for some time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>be bothered about doing</td>
</tr>
<tr>
<td></td>
<td>I'm not bothered about him</td>
</tr>
<tr>
<td></td>
<td>ya rabu da doki</td>
</tr>
<tr>
<td></td>
<td>get rid of, separate from</td>
</tr>
</tbody>
</table>

**Irregular**

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>bari</td>
<td>ku bar zaginta!</td>
</tr>
<tr>
<td></td>
<td>(MJC 2:230)</td>
</tr>
<tr>
<td></td>
<td>stop abusing her!</td>
</tr>
<tr>
<td></td>
<td>stop doing</td>
</tr>
<tr>
<td></td>
<td>ya bar matarsa</td>
</tr>
<tr>
<td></td>
<td>leave, abandon</td>
</tr>
<tr>
<td></td>
<td>he has left his wife</td>
</tr>
</tbody>
</table>
kusa can an kusa gama masa aski nearly/almost
(MJC 2:12) done abinci ya kusa nearly/almost
done
later on when his haircut
was almost finished
sha ya sha zuwa nan do often/much ya sha ruwa drink
he comes here often
yi ta\textsuperscript{15} suka yi ta rokonsa keep on doing
they kept on begging him

Notes to Table I

\textsuperscript{9}The citation forms used for the non-auxiliary operation of these verbs are the C form (the form of the verb when followed by a direct object other than a personal pronoun) and the A form (used if no object follows the verb).

\textsuperscript{10}There is an NAV Grade 1 verb \textit{dosa}, which has a completely unrelated meaning 'to haft a handle'. Although it is homophonous with the AV Grade 1 \textit{dosa} 'do regularly', it is derived from a different lexical base.

\textsuperscript{11}The phrase \textit{ya iya doki} is highly idiomatic. The combination of this verb with a noun direct object is restricted to such fixed phrases as \textit{ya iya ruwa} 'he can swim', \textit{ya iya Hausa} 'he can speak Hausa (or any other language')'. Bargery (1934:482) gives \textit{ya iya hannusa} 'he has become an expert', and \textit{ka iya bakinka} 'control your tongue!'. There is also an interesting Kalalatu ba ta iya miya ba 'Kalalatu could not make/prepare/cook soup' (\textit{MJC} 2:16).

\textsuperscript{12}When followed by a concrete noun direct object, the addition of the associative particle \textit{da} is obligatory, but optional before a following VDN.

\textsuperscript{13}It is possible of course to generate a sentence incorporating both auxiliary and non-auxiliary usage of a verb such as \textit{taba}, e.g. \textit{ka taba taba macijif} 'have you ever touched a snake?'

\textsuperscript{14}\textit{Sama} is a non-occurring form; \textit{samu} is the regularly used A form.

\textsuperscript{15}The two elements of this compound verb are sometimes incorrectly written together, thus \textit{yita}. The identity of \textit{ta} is unclear, though it could be the viative particle meaning 'by way of'.
2.5. Observations on Table I

2.5.1. AV in Hausa serve to qualify a following verb which then becomes nominalised in the form of a verbal noun and whose semantic content is at the same time modified, e.g. ya zo 'he came', cf. ya dinga zuwa 'he kept on coming'. With regard to syntactic behaviour, AV can be divided into the two subcategories AV-1 and AV-2.

2.5.2. AV-1. There are a handful of verbs in Hausa (8 out of 35 listed) which operate exclusively as AV-1 in that they may only govern as complement a verbal (dynamic) noun (+ direct object). These verbs, which exhibit a close nexus with their complement and have single class membership, are: daina, dinga, dosa, fara, gama, soma, faye, yi ta.

It should be added immediately, however, that three of the above AV-1 may, in surface structure at least, control a complement other than VDN (+ direct object), e.g. an fara ruwa 'it has started to rain', ta gama abinci 'she has finished (making) the food', and an soma ruwa 'it has started to rain', examples which should, according to my analytical procedure, appear in the NAV column and thus make fara, gama, and soma all examples of AV-2. These and other apparent exceptions will be handled in section 2.7.2.

2.5.3. AV-2. The remaining 27 verbs in my list have double class membership in that their syntactic potential overlaps into both AV and NAV classes depending upon the type of complement.

An interesting feature of these AV-2 is the semantic modification of the verbal notion which they bring about when shifting in operation between the two classes AV and NAV. This change in relational meaning which normally accompanies a shift in operation varies in degree from verb to verb, though the semantic relationship remains clear in all cases.

2.5.4. Ambiguity arising from AV vs. NAV usage. It is worthwhile noting here that there are some orthographically identical pairs of utterances, involving both the AV and NAV usages of the same verb, which are potentially ambiguous in Hausa. In (1) and (2) below, the two distinct meanings of each utterance can only be elucidated by the context.
(1) na sha zagi

The two different meanings of (1) are (a) 'I abused her excessively', where sha is AV-2 + VDN zagi + direct object -nta, where the merged direct object is an objective genitival suffix, and where the two subjects are the same; and (b) 'I suffered her abuse', where sha is NAV + direct object zagi, where the -nta is a subjectival genitival suffix, and where the two subjects are different.

(2) ya nemi taimakona

The two different meanings of (2) are (a) 'he tried to help me', where nema is AV-2 + VDN taimako + objective genitival suffix -na, and where the two subjects are identical; and (b) 'he sought my help', where nema is NAV + direct object taimakona, where the -na is a subjective genitival suffix, and where the two subjects are not identical.

An interesting feature of the verb nema is that when operating as AV-2 it allows a following VDN to be replaced by a complement clause in the subjunctive aspect (see Table III), and this potential means that the ambiguity inherent in the sentence ya nemi taimakona, may be resolved not only by context but also formally by substituting such a clause. Meaning (a) of this sentence would be expressed by ya nemi ya taimake ni, where the two subjects are now identical grammatically as well as referentially, whereas meaning (b) would be expressed by ya nemi in taimake shi, where the two subjects are different, again both grammatically and referentially.

2.5.5. Distribution of AV within the Hausa verb grade system. Table I reveals that more than half the AV listed (20 out of 35) operate as Grade 1 verbs. Generally speaking, AV do not co-occur in more than one grade. The few exceptions to this rule are the Grade 1 verbs fara, soma, rasa, danga, and koma, and the Grade 4 fare, all of which may occur as AV in other grades (usually Grade 2), though these usages are highly restricted.

Both fara and soma, which, as far as I am aware, are completely synonymous in all environments, may operate Grade 2 usages. This change in operation, however, is accompanied by a subtle change in meaning,
with the Grade 2 forms only indicating "be the first to do something", e.g. ya fari/somi ginin gidan siminti a Kano 'he was the first to build a concrete house in Kano'. Unlike the much more common Grade 1 forms of these two verbs, their Grade 2 counterparts cannot denote "start/begin". Both Abraham (1962:251) and Bargery (1934:301) list the Grade 2 usages of these verbs which, though rare, are attested by Hausa speakers. I have also heard, in conversation, rigimar da ya faro 'the agrument he (came and) started', here a Grade 6 usage of faro, but again this is very rare.

Bargery (1934:844) also lists a Grade 2 auxiliary usage for rasa, na rashi ganinsa 'I could not see him', and a rare Grade 2 form for dinga, dingi karatu! 'keep on studying!' The verb kara may also operate a Grade 2 form with the same meaning as the Grade 4 form, e.g. ban kari ganinsa ba 'I have not finished looking at it'. This particular usage is listed by Bargery (1934:559), though the Grade 4 usage is much more common. And finally, I have heard—though never come across in a text—a Grade 6 auxiliary usage of koma, yaya ka komo karatun Ingilishi? 'how is it that you have returned to studying English?'

2.6. Operation of yin as VDN

Our attention now turns to the important question of the other constituents which may occur in the slot of direct object to the right of the VDN in our formula.\(^\text{16}\) Two categories of noun can occur in this position, a non-verbal dynamic noun (NVDN) or an abstract noun (AN). When either of these categories is present, the VDN slot is obligatorily filled by yin 'doing/making', the strong VDN of the multifunctional finite verb yi 'do/make'.

2.6.1. Non-verbal dynamic nouns. NVDN, like VDN, denote an action, process, or event, but differ in that they have no morphological connection with a verb, e.g. barci 'sleep/sleeping', atishawa 'sneeze/

---
\(^{16}\)It is also possible, of course, for an indirect object to intervene between the VDN and its potential direct object, though this is of no importance here.
sneezing', magana 'speech/speaking', etc. As a rule, NVDN occur in the same grammatical environment as VDN. The only different in behaviour is that since NVDN have no associated verbs, they must combine with the verb yi in all aspects except the continuous when the VDN yin is optionally suppressed, e.g. yana (yin) magana 'he is speaking'.

2.6.2. Abstract nouns. AN in Hausa are basically non-dynamic and refer to the quality of a person or thing, e.g. zafi 'hotness', nauyi 'heaviness', santsi 'slipperiness', etc.\(^{17}\)

Table II illustrates some of the possible combinations of AV + VDN yin + NVDN or AN direct object.

\(^{17}\)For a detailed description of abstract nouns in Hausa, see Parsons (1955).
<table>
<thead>
<tr>
<th>Verb Grade</th>
<th>AV (+ VDN yin)</th>
<th>Direct Object</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cika</td>
<td>ya cika (yin)</td>
<td>murna</td>
<td>he was very happy</td>
</tr>
<tr>
<td></td>
<td>ya cika yin</td>
<td>nauyi⁺</td>
<td>he is getting heavy</td>
</tr>
<tr>
<td>dafa</td>
<td>ya dafa (yin)</td>
<td>barci</td>
<td>he slept on a little</td>
</tr>
<tr>
<td></td>
<td>ruwa ya dafa (yin)</td>
<td>zafi</td>
<td>the water has become hotter</td>
</tr>
<tr>
<td>daina</td>
<td>sun daina (yin)</td>
<td>surutu</td>
<td>they have stopped chattering</td>
</tr>
<tr>
<td></td>
<td>ruwa ya daina (yin)</td>
<td>zafi</td>
<td>the water has stopped getting hot</td>
</tr>
<tr>
<td>danga</td>
<td>ya danga (yin)</td>
<td>gardama</td>
<td>he kept on arguing</td>
</tr>
<tr>
<td></td>
<td>nama ya danga (yin)</td>
<td>wari</td>
<td>the meat kept on smelling</td>
</tr>
<tr>
<td>dosa</td>
<td>ya dosa (yin)</td>
<td>atishawa</td>
<td>he kept on sneezing</td>
</tr>
<tr>
<td></td>
<td>nama ya dosa (yin)</td>
<td>wari</td>
<td>the meat kept on smelling</td>
</tr>
<tr>
<td>fara</td>
<td>ya fara (yin)</td>
<td>barci</td>
<td>he started to sleep</td>
</tr>
<tr>
<td></td>
<td>ruwa ya fara (yin)</td>
<td>zafi</td>
<td>the water has begun to get hot</td>
</tr>
<tr>
<td>fasa</td>
<td>ya fasa yin</td>
<td>magana*</td>
<td>he decided not to continue speaking</td>
</tr>
<tr>
<td>gama</td>
<td>ya gama (yin)</td>
<td>barci</td>
<td>he has finished sleeping</td>
</tr>
</tbody>
</table>
iya   ya iya (yin)              ciniki                                      he is a good bargainer
kama  ya kama (yin)            wuridin $arya                                      he pretended to start reciting
       (MJC 2:56)                           the Koran
    dakin nan ya kama (yin)                sanyi                                   this room has started to get cold
kasa  dän zaki ya kasa (yin)          numfashi                                      the lion cub was unable to breathe
       (MJC 1:20)                           
yaro ya kasa (yin)                       tsawo                                    the boy is not growing any taller
koma  ya koma (yin)               barci                                          he went back to sleep
ğara  ya ğara (yin)                barci                                          he slept on a little
       ruwa ya ğara (yin)                   zafi                                      the water has become hotter
rasa  ba za ta rasa yin             kuka ba*                                     she's bound to cry
riğa  ya riğa (yin)                alfahari                                      he kept on boasting
       (MJC 2:20)                                     
yá ce kada su riğa (yin)                 saurin fushi                                he said that they should not be
       (MJC 1:108)                              (yin)                                 quick-tempered
saba  ya saba (yin)                $arya                                          he is used to telling lies
       wurin nan ya saba yin                warin nama+                               this place has the bad smell of
                                                   meat                                      meat
soma  sun soma (yin)               kokawa                                         they have started to wrestle
       dakin nan ya soma (yin)               sanyi                                    this room has started to get cold
tağa  bai tağa (yin)                tağama ba                                     he has never done any boasting
tsaya ka tsaya (kan/ga) (yin)      maganar abin                              stick to talking about what you
       da ka sani                                              know
<table>
<thead>
<tr>
<th>English</th>
<th>Mandinka</th>
<th>Phrase</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>he tried to speak with me</td>
<td>nema</td>
<td>ya nemi (yin)</td>
<td>magana da ni</td>
</tr>
<tr>
<td>he managed some sleep</td>
<td>*sama</td>
<td>ya sami (yin)</td>
<td>barci</td>
</tr>
<tr>
<td>there's treachery in the air!</td>
<td>tasa</td>
<td>an tasma ma (yin)</td>
<td>munafunci ((MWC , 1:73))</td>
</tr>
</tbody>
</table>

**Grade 3**

<table>
<thead>
<tr>
<th>English</th>
<th>Mandinka</th>
<th>Phrase</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>the boy is old enough to talk</td>
<td>isa</td>
<td>yaro ya isa (yin)</td>
<td>magana</td>
</tr>
<tr>
<td>he started to chatter</td>
<td>shiga</td>
<td>ya shiga (yin)</td>
<td>surutu</td>
</tr>
<tr>
<td>the town has started to become difficult to live in (financially)</td>
<td>gari ya shiga yin</td>
<td>zafi+</td>
<td></td>
</tr>
</tbody>
</table>

**Grade 4**

<table>
<thead>
<tr>
<th>English</th>
<th>Mandinka</th>
<th>Phrase</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>he's a chatterbox</td>
<td>faye</td>
<td>ya faye (yin)</td>
<td>magana</td>
</tr>
<tr>
<td>this boy is very irritable</td>
<td>wannan yaro ya faye (yin)</td>
<td>Kunci</td>
<td></td>
</tr>
<tr>
<td>before you finish thinking this over...</td>
<td>Kare</td>
<td>kafin ku Kare (yin)</td>
<td>tunanin wannan ((MWC , 1:101))</td>
</tr>
<tr>
<td>the hot weather is over</td>
<td>an Kare (yin)</td>
<td>zafi</td>
<td></td>
</tr>
<tr>
<td>he is less generous nowadays it's less hot today</td>
<td>rage</td>
<td>ya rage (yin)</td>
<td>alfarma yanzu</td>
</tr>
<tr>
<td></td>
<td>an rage (yin)</td>
<td>zafi yau</td>
<td></td>
</tr>
<tr>
<td>repeat what you said!</td>
<td>sake</td>
<td>ka sake (yin)</td>
<td>magana!</td>
</tr>
<tr>
<td>the meat is smelling again</td>
<td>nama ya sake (yin)</td>
<td>wari</td>
<td></td>
</tr>
<tr>
<td>Grade 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>damu da</td>
<td>ban damu da (yin)</td>
<td>magana ba</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>I'm not bothered about speaking</td>
<td></td>
</tr>
<tr>
<td>rabu da</td>
<td>ya rabu da (yin)</td>
<td>munafunci</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>he has not been treacherous for some time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>gida ya rabu da (yin)</td>
<td>zafi</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>the room is no longer hot</td>
<td></td>
</tr>
</tbody>
</table>

**Irregular**

| bari                                                                 | ka bar (yin)                                                     | magana kan abin                                                  |
|                                                                      |                                                                  | da ba ka cika                                                   |
|                                                                      |                                                                  | sani ba ¹⁸                                                      |
|                                                                      |                                                                  | stop talking about things you know little about                 |
|                                                                      | daki ya bar (yin)                                                | sanyi                                                          |
|                                                                      |                                                                  | the room has stopped being cold                                  |
| kusa                                                                 | yaro ya kusa (yin)                                               | barci                                                          |
|                                                                      |                                                                  | the boy is nearly asleep                                        |
|                                                                      | ruwa ya kusa (yin)                                               | dimi                                                           |
|                                                                      |                                                                  | the water is nearly hot                                         |
| sha                                                                  | ya sha (yin)                                                     | surutu                                                         |
|                                                                      |                                                                  | he talks to much                                                |
| yi ta                                                                | suka yi ta (yin)                                                | hira har kusan (MJC 1:14)                                       |
|                                                                      |                                                                  | they kept on talking until it was nearly dawn                   |
|                                                                      | an yi ta (yin)                                                   | sanyi                                                          |
|                                                                      |                                                                  | it was continuously cold                                        |

¹⁸ Note the inclusion of two AV in this example, cf. su kuma su yi ta ‘kara iza su (MJC 2:184) 'and they would keep on applying more pressure on them', where the second AV ‘kara takes the form of a VDN following the first AV yi ta.
2.7. Observations on Table II

2.7.1. All but one of the AV listed may combine with NVDN in Hausa, and a little more than half may precede an AN. The absence of a citation for these particular combinations indicates that such collocations are semantically incompatible.\(^1\)

2.7.2. Deletability of yin as VDN. In section 2.5.2 following Table I, it was noted that such strings as an fara/soma ruwa 'it has begun to rain', and ta gama abinci 'she has finished (making) the food' were quite acceptable and therefore appeared at first sight to be violations of the formula defining AV since they apparently include no VDN. The problem now posed is how does my model deal with such constructions which, though highly restricted, are nonetheless well-formed?

This apparently serious flaw is resolved when we realise that the above strings are surface realisations only, being simply deletion transforms of the underlying structures an fara yin ruwa, literally 'one has started to make/making rain', ta gama yin abinci, literally 'she has finished making the food', and an soma yin ruwa, literally 'one has started to make/making rain', respectively. In other words, the source sentences of all these constructions include the VDN yin between the AV-1 and their direct object complements (in these instances a concrete noun), a structure which accords with the basic formula. Moreover the argument for interpreting the verbs in the reduced constructions as AV-1 and not, as would seem to be the case, NAV, is strengthened by the fact that the deletion of yin is purely optional and that the surface realisation may indeed include the overtly marked yin without in any way altering the meaning of the utterance.

\(^1\)At the time of writing up this study, we were unable to fill these blank spaces in Table II with combinations acceptable to my Hausa assistants. I should add too that there was sometimes disagreement amongst the students as to the semantic plausibility of a few of the combinations AV (+ VDN yin) + AN cited in Table II. In many cases, of course, a particular selection is simply a matter of personal preference (Hausa tana da yawa ai!). I am aware also that, because of the potential interchangeability of some of these AV in certain environments, Hausa speakers may differ in their choice of the appropriate AV.
So too, as clearly revealed in Table II, such constructions as ya cika surutu 'he chatters a lot' (AV + NVDN in surface form), and an kare zafi 'the hot weather is over' (AV + AN in surface form) also qualify in fact as AV + VDN + NVDN and AV + VDN + AN auxiliary constructions, respectively, since the dummy VDN yin is again present in deep structure, and optionally marked in surface structure without any change in meaning, giving ya cika yin surutu, and an kare yin zafi. To take yet more examples from Table II, such sentences as suka yi ta hira 'they kept on chatting', and ruwa ya kusa dimi 'the water is nearly hot' in no way invalidate the basic formula AV + VDN (+ direct object) since the NVDN hira and the AN dimi are simply filling the direct object slot following the VDN yin which is present, yielding suka yi ta yin hira and ruwa ya kusa yin dimi again perfectly acceptable Hausa sentences and completely synonymous with the above. I am arguing, in other words, that a sentence such as ya yi ta atishawa 'he kept on sneezing' is in fact structurally comparable to the sentence ya yi ta bugun yaro 'he kept on beating the boy', the former being simply a deletion of ya yi ta yin atishawa.

It should be pointed out at this stage that in most instances the dummy VDN yin does not in fact materialise in surface structure in Hausa, a feature which tends to obscure its existence in underlying structure.\(^{20}\) That it is indeed present, however, is further indicated by the following supportive evidence:

(i) The finite verb yi is obligatory in all aspects except the continuous when combined with a NVDN or AN, e.g. ya yi barci 'he slept' (literally 'he did sleeping'), and ya yi saufi 'he is better' (literally 'he has made relief'), a feature already referred to earlier.

\(^{20}\) Though the VDN yin is deleted more times than not in both spoken and written Hausa, it is sometimes preferred. Pilsczickowa herself (1960:109, 116) provides a few examples where it is overtly marked before a following NVDN, e.g. a kuma rika yin gamade kullum 'people would continue to act in unison all the time', and ta ki shan magani, har kuma ta ki yin numfashi 'she refused to drink the medicine, and she even refused to breathe'.

(ii) This optional deletion of the VDN yin before a NVDN or AN in an auxiliary construction is paralleled in Hausa when these two items follow the continuous pronoun in the continuous aspect, e.g. ana (yin) surutu 'there's a lot of noise', and ana (yin) zafi yanzu 'it is hot at the moment'. The two constructions thus share the same transform potential.

(iii) When a surface construction of the type AV + NVDN, e.g. ya cika surutu 'he chatters a lot' is subject to a relative transform, the underlying yi(n) often appears, yielding surutun da ya cika yi 'the chattering he often does' or, interestingly, yin surutun da ya cika, a fact which might justify regarding all these combinations of AV + NVDN or AN as being simply "phrasal verbs" of the type discussed briefly in section 2.11 of this paper.

2.7.3. Contrastive presence or absence of yin with certain AV. With regard to the contrastive alternation of some verbs operating as either AV or NAV, it is pertinent to note that in certain instances, when a NVDN is included in the piece, the underlying VDN yin must appear in an auxiliary construction to disambiguate it from what might otherwise be an ambiguous, non-auxiliary construction without yin. Compare the following pairs of sentences:

(3a) ya sha yin surutu
This can only mean 'he chattered/complained a lot', where sha is acting as AV-2 in an active construction, where the subjects of AV-2 sha and the VDN yin are identical, thus satisfying coreference condition (i) stated in the definition of AV (section 2.1), and where a relative transform could only produce surutun da ya sha yi, and not *surutun da ya sha.

(3b) ya sha surutu
This can only mean 'he suffered/endured the chattering/complaints', i.e. of others, with sha operating here as NAV, where the two subjects are not identical referentially,21 and where a relative transform could only

---

21The auxiliary notion of sha 'often, to excess', is probably derived from the secondary meaning of NAV sha 'suffer/endure'.

yield surutun da ya sha.

(4a) ya sake yin aiki

This means 'he did some more work' = AV-2 + VDN + NVDN direct object, where a relative transform yields aikin da ya sake yi.

(4b) ya sake aiki

This means 'he changed his job' = NAV + noun direct object (NVDN or semi-concrete?), where a relative transforms yields aikin da ya sake.

2.7.4. Exceptions to presence of yin as VDN. The foregoing material and analysis would seem to indicate that the rule which permits optional deletion of the VDN yin in the combinations AV (+ VDN yin) + \{NVDN AN\} may be applied to all such constructions in Hausa. This is not the case however. As is perhaps inevitable in any attempt to set up categories of verbs on the basis of their syntactic behaviour, there are a few exceptions to the definitional formula which forms the basis of this study. I shall now consider these exceptions.

Two AV-2 in our list, fasa and rasa (examples marked with * in Table II) are problematical in that they may be followed immediately by a NVDN but the VDN yin is not allowed in either surface or underlying structure. Consider the following contrastive pairs:\(^{22}\)

(5a) ya fasa yin magana 'he decided not to continue speaking'
(5b) ya fasa magana 'he decided not to speak'
(6a) ya rasa yin maganar da zai yi 'he couldn't say what he intended to say'
(6b) ya rasa maganar da zai yi 'he was at a loss what to say'

Examples (5a) and (6a) are distinguished syntactically from (5b) and (6b) by the fact that the former must include the VDN yin before the NVDN magana, whereas the latter cannot insert yin, the purpose of this contrast being to indicate a rather subtle difference in meaning. Thus the verbs fasa and rasa in (5a) and (6a) qualify as AV on syntactic

\(^{22}\)I am grateful to Mu'azu Sani of Bayero University College and the School of Oriental and African Studies, University of London, for bringing my attention to the counterexamples discussed here.
grounds, but as NAV in (5b) and (6b), though from a semantic point of view, at least, one is tempted to consider them AV in all the above examples, since the shift in relational meaning is very slight indeed, unlike sentences (1) and (2) discussed earlier, where the AV/NAV contrast in operation and meaning is clear-cut. Furthermore, there may be some justification for considering the nouns exemplified in sentences (1) and (2) as possessing different values, i.e. (semi-) concrete noun as opposed to verbal dynamic noun, depending upon whether the preceding verb is AV or NAV, a possible explanation which cannot, I think, be extended to sentences (5) and (6).

Another explanation which might perhaps account for this contrastive behaviour is that we are in fact dealing here with two distinct lexemes, a NVDN magana 'talk/speech' in (5b) and (6b), and a phrasal verb yi magana 'to talk/speak' in (5a) and (6a), a tentative explanation already proposed earlier.

There are also semantic restrictions, again of a rather deep nature, on the presence or absence of yin before abstract nouns with a handful of AV (examples marked with + in Table II). Compare the following:

(7a) wannan mutum ya cika yin nauyi 'this man is increasing in weight' i.e. referring to a process
(7b) wannan mutum ya cika nauyi 'this man is too heavy', i.e. referring to the state resulting from the process
(8a) wurin nan ya saba yin warin nama 'this place has the bad smell of meat', i.e. at certain times only
(8b) wurin nan ya saba warin nama 'this place has the bad smell of meat', i.e. normally
(9a) gari ya shiga yin zafi 'the town has become difficult to live in (financially)'
(9b) gari ya shiga zafi 'the weather has started hotter up'

In examples (7a), (8a), and (9a), the obligatory VDN yin is inserted in order to distinguish the meaning of these utterances from (7b), (8b), and (9b), respectively; the verbs cika, saba, and shiga are thus interpreted as AV-2 according to my model. In sentences (7b), (8b), and (9b), on the other hand, the inclusion of yin is not allowed in either underlying or surface form, a linguistic signal which then conveys a
subtly different message to a Hausa speaker. However, the same verbs cika, saba, and shiga clearly cannot qualify grammatically as AV here, even though, once again, they qualify on semantic grounds since the modification in meaning which they undergo is very low.

The choice of whether or not to include the VDN yin depends therefore on the specific meaning the speaker wishes to convey, and whilst we are forced to admit that such constructions as those presented above do go counter to our basic rules, such counterexamples are nonetheless rare and are determined by semantic considerations of a rather deep kind.23

2.8. AV + object clause in the subjunctive aspect

The remaining exceptions to my basic syntactic definition, already alluded to earlier, will now be treated. 6 of the 35 AV listed, all of them AV-2, may govern a complement clause in the subjunctive aspect (see also discussion under section 2.5.4). Such a clause may substitute for a following VDN with no change in meaning, provided that the two subjects remain the same. These AV include iya, saba, nema, isa, damu da, rabu da. Table III illustrates these combinations.

---

23 There also appears to be a rule in Hausa, again determined by semantic factors, which does not allow the combination AV + VDN yin + AN if the subject of the AV is inanimate. Hence *wannan akwati ya cika yin nauyi 'this box is very heavy', with yin included, is not allowed, only wannan akwati ya cika nauyi, since an inanimate object is not capable of effecting an action or process, whereas wannan mutum ya cika yin nauyi is of course permissible, albeit with a slightly different meaning. I am not sure just how productive this rule is, however, especially as the finite verb yi is obligatory in the past aspect in such constructions as wannan akwati ya yi nauyi 'this box is heavy'.
<table>
<thead>
<tr>
<th>AV + VDN (+ Direct Object)</th>
<th>AV + Object Clause in Subjunctive</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>ya iya rinin k'alle</td>
<td>ya iya ya rina k'alle\textsuperscript{24}</td>
<td>he can dye cloth</td>
</tr>
<tr>
<td>mun saba (da) ganin mutane a nan</td>
<td>mun saba mu ga mutane a nan</td>
<td>we are used to seeing people here</td>
</tr>
<tr>
<td>ya nemi ganin sarki</td>
<td>ya nemi ya ga sarki\textsuperscript{25}</td>
<td>he tried to see the Emir</td>
</tr>
<tr>
<td>ya isa hawan keke</td>
<td>ya isa ya hau keke</td>
<td>he is old enough to ride a bicycle</td>
</tr>
<tr>
<td>ban damu da ganinsa ba</td>
<td>ban damu da in gan shi ba</td>
<td>I'm not bothered about seeing him</td>
</tr>
<tr>
<td>na rabu da ganinsa</td>
<td>na rabu da in gan shi</td>
<td>I've not seen him for some time</td>
</tr>
</tbody>
</table>

\textsuperscript{24}This usage of iya with the following subjunctive is in fact noted by Abraham (1962:408), Bargery (1934:482), and Pilszczikowa (1960:113).

\textsuperscript{25}There is apparently a nice semantic distinction between the use of nema + VDN and nema + clause in the subjunctive. The former construction means 'he tried to see the Emir/sought an audience with the Emir', with the implication that he had no difficulty in seeing him, whereas the latter construction has the same meaning essentially but with the added inference that he had some difficulty in gaining an audience. Of the AV listed in this table, this is the only instance of some semantic modification accompanying an optional change in complement.
2.10. The "pro-form" haka and sub-forms of AV

All AV may in addition be followed by haka, which is the pro-form for all the grammatical items which may fill the slot of complement following an AV. Thus for ya cika neman kudi 'he is always looking for money', one may substitute ya cika haka, in a context where the reference of haka would be understood. Similarly, ya faye haka for ya faye (yin) surutu 'he talks too much'; an daina haka for an daina (yin) zafi 'the hot weather is over', cf. yanzu sai a daina haka (MJC 2:233) 'now one should stop (doing) thus'; and ya isa haka for ya isa ya hau keke 'he is up to riding a bicycle', etc.

As indicated above, the pro-form for these items is haka, and not shi/ta/su, which are the referent pronouns for concrete nouns, a feature already noted by Parsons (1971/72:52). This fact illustrates an interesting morphosyntactic feature of AV, namely, that they do not as a rule operate a B form (the form of the verb used before a personal pronoun direct object). Most AV in fact only operate a C form (that used before a noun or clause direct object), and occasionally, in relative transforms, for example, an A form (the form used when there is no following object), a fact which Parsons failed to observe at the time. The orthographically unambiguous auxiliary usages of the Grade 2 verbs nema and *sama are proof of this, cf. na nemi ganin/in ga sarki, amma ban sami ganinsa ba 'I tried to see the Emir, but did not manage to (see him)', where the C form is used, with ganin sarki da na nema 'my trying to see the Emir', a perfectly acceptable A form construction.

There are a few examples of AV operating a B form, though this is rare and occurs in highly restricted contexts. Parsons (1971/72:52) cites the example yaa faaraa ta27 'he has started (making) it (i.e. a chair)' (B form), which is in effect a deletion transform of yaa faara yin kujeeraa 'he has started making a chair' (C form). He also gives kaa taɓa kujeeraa? 'have you ever made a chair?', which is again a deletion of the more common kaa taɓa yin kujeeraa? The sentence kaa

---

27In this section, I am following Parsons' transcription using single and double vowels to illustrate in particular the different morphological sub-forms of the verb.
2.9. Observations on Table III

One of the restrictive requirements given in our original definition of AV was that the subject of the AV and its following complement in the formula AV + VDN (+ direct object) must be identical, and this basic requirement holds fast even when a subjunctive clause optionally replaces the VDN (+ direct object) immediately following the AV.\textsuperscript{26} Table III demonstrates the operation of this coreference constraint.

It seems that there is one exception to this rule, determined by extra-linguistic factors, and this involves the AV-2 \textipa{isa} in a sentence such as \textipa{ta isa a ure 'she should be married'}, where the two subjects are not in fact identical. This becomes clear when the complement VDN is replaced by an object clause in the subjunctive, which would be \textipa{ta isa a ure ta}, literally, 'she is worthy that one should marry her', with the implication that the subject is a young girl who is attractive enough or whose parents are rich and influential enough for her to be married, and not \textipa{ta isa ta yi a ure 'she should marry'}, referring to a woman who has already been married and should marry again.

The verbs \textipa{koma} and \textipa{shiga} may also precede a clause in the subjunctive, e.g. \textipa{ya koma ya saci kaya and ya shiga ya yi karatu}, meaning, respectively, 'he went back (in order) to steal the goods', and 'he went back (in order) to study', but in the physical or literal sense. Thus the two verbs \textipa{koma} and \textipa{shiga} are here operating not as AV but as NAV (verbs of motion) with a following conjoined clause in the subjunctive to indicate purpose or intention. For \textipa{koma} and \textipa{shiga} to act as AV, the above sentences would have to read \textipa{ya koma satar kaya 'he returned to stealing goods'}, and \textipa{ya shiga (yin) karatu 'he has started/turned to studying'}, i.e. in a figurative sense.

\textsuperscript{26}I say "immediately" because, whilst only a handful of AV can govern a verb in the subjunctive as a first verb, most AV may be followed by a verb in the subjunctive as the second verb, e.g. \textipa{kana iya daukan wannan akwati ka saka shi waje 'you can take this box and put it outside'}. 
REFERENCES


MJC. See Imam.


SU. See Balewa.
2. Sample derivations for class 2b plurals

The basic characteristics of the parsing model are the following. Lexical representations are essentially phonetic representations; for clarification, see Leben (in press). Derivations consist in comparing two forms \( W_1 \) and \( W_2 \) with respect to a morphological rule \( R \) with a view to determining whether they are related by \( R \). Proving that two forms are related requires that there be some stage in the derivation at which the two forms in question match the environment of morphological rule \( R \). Derivations proceed by undoing the effects of phonological rules step by step on the forms in question, when this will increase the resemblance between them. A rule \( A \rightarrow [-F] / \_Y\_Z \) is undone by replacing \([+F] \) with \([-F]\) on \( A \) in \( YAZ \). Analogously, an insertion \( \_\rightarrow A / \_ \_Y\_Z \) is undone by deleting \( A \) from \( YAZ \), and a deletion \( A \rightarrow \_ / \_Y\_Z \) is done by restoring \( A \) between \( Y \) and \( Z \). As soon as the forms in question match the specifications of the morphological rule, the derivation stops.

For example, consider the plural class with a falling tone before -aa. (This and other plural classes of Hausa are described and illustrated in Parsons (n.d.).)

\[
(1) \quad \begin{array}{ll}
\text{Singular} & \text{Plural} \\
\text{a. dámli} & \text{dâmmáa} & \text{bundle}' \\
\text{b. káátòò} & \text{kâttáa} & \text{'huge'} \\
\text{c. góóróó} & \text{gwârráá} & \text{'kolanut'}
\end{array}
\]

The morphological relationship between the singulalrs and plurals is given by the following rule:

\[
(2) \quad \text{Morphological rule (Falling tone + -aa class)}
\]

\[
[CVCV]_{1\ldots4}^{\text{sg}} \rightarrow [C\text{VC-C-áa}]_{1\ldots3}^{\text{pl}}
\]

Rule (2) says simply that some singulalrs of the form CVCV correspond to a plural in which the second consonant is doubled and followed by the ending -aa and in which the tone pattern is Falling-High. Given the words of (1a) dámli and dâmmáa, which are both in the lexicon, rule (2) determines that they are a possible singular/plural pair. The remaining forms in (1) also come under rule (2), but they cannot be
1. Introduction

It is a common practice in generative phonology to account for correspon-
dences between sets of morphologically related forms by assuming
that two such forms arise from the same root and that, by virtue of
undergoing different morphological and phonological processes, they ac-
quire any surface differences that distinguish them from each other. A
sign of the utility of this approach is Newman's (1972) quite successful
analysis of Hausa plurals, representing a significant departure from
past accounts, which occupied themselves primarily with categorizing the
various Hausa plural classes and subclasses.

In Leben (1977) I attempted to show that certain defects in
Newman's analysis could be overcome if we changed the theoretical frame-
work that he adopted. The general proposal, first presented in Leben
and Robinson (1977), involves assuming that the lexicon contains surface
forms rather than abstract underlying forms and that it is the function
of phonological rules to take a given surface form back to a more basic
representation (similar to the hypothetical base form of Bloomfield
(1933:218-19)) that is nondistinct in all relevant respects from the
Corresponding basic representation of a morphologically related form.
In applying this proposal to Hausa plurals, I argued that this framework
permitted one to maintain the essential principles of Newman's analysis
while avoiding numerous exception features, diacritic uses of phonolo-
gical features, and unjustifiably abstract lexical representations.

In the present paper I modify the new framework in ways that depart
even more significantly from the conventional framework of generative
phonology. As a result, new arguments arise to support the parsing
analysis over the conventional one.
(4) **Singular** | **Plural**
---|---
a. bééráa | bééráayée | 'rat'  
zóomóo | zóomáayée | 'hare'  
kíiíí | kííííayée | 'fish'

b. dá MMO | dá MMO amée | 'monitor'
    wúkáa | wúkáakée | 'knife'
    wórríí | wórráarée | 'place'

The relevant difference is that in (4a) the root vowel is long while in (4b) it is short. Accordingly, Newman proposes to apply a doubling rule, which we may formulate as in (5), in the formation of the plurals.

(5) **Doubling**

\[
\begin{align*}
  [CVC]_{123}^R - aa - ee & \rightarrow [CVC]_{123}^R - C - aa - ee
\end{align*}
\]

The position of the consonant produced by (5) with respect to the infix -àa- is expressed by rule (6):

(6) **Infixation**

\[
\begin{align*}
  CC - aa - ee & \rightarrow C - aa - C - ee
\end{align*}
\]

Since the plurals in (4a) do not satisfy the environments of rules (5) and (6), they appear with -àa-éé suffixed to the singular root, and a general rule of y-Epenthesis changes this suffix to -àa-y-éé.

Regarding (5) and (6) as separate processes permits Newman to capture the correspondence between the singulars and plurals of (7):

(7) **Singular** | **Plural**
---|---
kásóó | kásóóakée | 'bowl'
    biííí | biííííáanée | 'city'
    kúlííí | kúlííííakée | 'cudgel'

The roots kásó-, etc. do not fit the environment of rule (5) and so do not undergo doubling. But they do fit the environment of (6), and so the infix -àa- is inserted just to the left of the final root consonant, yielding the plural forms in (7).
parsed by this rule until the effects of some phonological rules are undone. In accordance with the conventions summarized above, we undo phonological rules on these forms until the singular and plural pair fit the description of rule (2). The fact that the singular ḷáátóó has a long vowel in the first syllable while the plural ḷáttáá has a short one is dealt with by undoing the rule which shortens vowels in closed syllables. We undo the shortening rule by changing vowels in closed syllables to [+long] where this would increase their similarity to corresponding long vowels. The first syllable of ḷáttáá qualifies and becomes ḷáttáá. At this point there is no need to undo any further rules, since ḷáátóó and ḷáttáá are already in a form to fit the environment of rule (2), and so the derivation is complete.

Example (1c) shows that along with a discrepancy in vowel length in góóróó/gwárráá, there is also a discrepancy in the height of the vowel of the first syllable. This latter discrepancy is the result of the neutralization of nonhigh vowels to a in closed syllables. The derivation for this pair is sketched in (3). Redundant labialization of the initial consonant of góóróó is included in W₁.

(3)   W₁     W₂   MORPHOLOGY


a. [₉-hi] → a/₀C$   --   [₉+rd][₉-hi]rráá   --

b. V → [-long]/₀C$   --   [₉+rd][₉-hi]rráá   --

After undoing rule (b) in (3), the singular and plural match the environment of the morphological rule.

3. Newman’s analysis of aa–ee plurals

Newman (1972) observes a regularity that in general determines whether the aa–ee class ending is realized as ḷáayée (as in (4a)) or ḷááCée (as in (4b)), where C is a copy of the final root consonant.
4. Alternative analysis for aa-ee class plurals, framed within a parsing model

The behavior of the geminate consonants in Hausa can be explained if we adopt an assumption about their representation that I believe can be motivated on general grounds. If this assumption is correct, it provides further support for the parsing analysis, over and above the arguments in Leben (1977). I propose to abandon the representation of geminates as consonant sequences, and to represent them instead, in all languages, as single consonants with the peculiarity of being associated with two adjacent syllables at the same time. Following Kahn (1976), I will represent syllable structure on a level of analysis distinct from but associated with the segmental level. The contrast between geminates and non-geminates is illustrated in (8), where association lines connect syllables (designated by S) with segments.

(8) a. damoo = damoo  b. gamoo = gammoo

Kahn demonstrates that it is plausible to keep the level of segmental structure separate from the level of syllable structure, and I believe that it is equally plausible to represent the contrast between long and short consonants in the way illustrated in (8). The representation for the long m in (8b) is the same as the one Kahn proposes for ambisyllabic consonants in English, like the n in honey, though the phonetic realization is different. To account for the difference, we add a rule to Hausa that interprets ambisyllabic consonants as longer versions of consonants associated with a single syllable. English, on the other hand, will not have this additional rule. What is interesting about this proposal is that it makes the following predictions: (i) in a language with morpheme-internal contrasts between long and short versions of the same consonant, there are no interludes, i.e. no cases like the n in English honey in which a short consonant can claim membership in two adjacent syllables; and (ii) in a language with interludes, the only cases in which long and short consonants can contrast are across morpheme boundaries, where identical segments can be juxtaposed.
This analysis neatly captures the relevant parallels and differences between the forms of (4a), (4b), and (7). There are, however, some problematic forms, and it is these that call for a reworking of the analysis. For example, the fact that Báwrée 'fig tree' has the plural Báwràayée while Kyáwrée 'door covering' has the plural Kyáwàarée leads Newman to posit that the w of Báwrée is [+vocalic], and presumably [-consonantal], making it impossible for this w to qualify as the first consonant in rule (6). This causes Báwrée to behave like the nouns of (4a). On the other hand, the w of Kyáwrée is represented by Newman as [-vocalic], and presumably [+consonantal], so that this w qualifies as the first consonant in this rule, leading to the plural Kyáw-àa-r-ée. Since there is no phonetic distinction corresponding to the phonological distinction posited by Newman to differentiate the two kinds of w, this constitutes the diacritic use of a phonological feature.

A more extreme example involves roots ending in long consonants, like those of gámmóo 'head pan' and tállée 'small soup pot'. The analysis summarized above would incorrectly lead one to expect these to have the plurals *gámmàamée and *tállàalée, for the same reason that dámmóo in (4b), after undergoing doubling of its final root consonant, has -àa- inserted to the left of the second m in the plural dámmàamée. Newman takes note of the problem with tállée and proposes that the representation of this word for purposes of plural formation is *tánlée, where the n is [+vocalic]. This prevents (5) and (6) from applying, and so gives *tánl-àa-ée > tállàayée. The same procedure would correctly yield gámmàayée as the plural of gámmóo. But the fact that n hypothesized in *tanlee never surfaces makes one wonder if a more straightforward explanation isn't possible; and the diacritic use of the phonological feature [+vocalic] to mark nasal consonants (which, after all, involve a stop closure in the mouth, making them inconsistent with the phonological specification [+vocalic]) increases one's doubts about the feasibility of this aspect of the analysis.
In the parsing analysis, on the other hand, the problem does not arise. The singular and plural, both of which are in the lexicon, are related in the following way:

\[(10) \quad W_1 \quad W_2 \quad \text{MORPHOLOGY} \]

LEXICAL FORMS: gamooc \quad gamaayee \quad [QV]_{12}^{\text{sg}} \Rightarrow [\text{-ayee}]_{\text{pl}}

\[SS \quad SSS\]

(Q is a variable encompassing the entire form up to the ending.)

Without undoing any phonological rules, the two forms fit the specifications of the morphological rule, and so the relationship between them is established by the grammar.

This analysis also provides a way of explaining why the correct plural of dámóo is dámàamée rather than *dámììaayée. Of course, Newman's analysis does this perfectly well, but the alternative developed in Leben (1977) does not. Incorporating the new representation for geminates permits the parsing analysis to match Newman's in descriptive adequacy in this instance. Consider how the parser would cope with the improper pair dámóo/*dámììaayée. Since Hausa geminates are to be treated as single consonants belonging to two syllables, the surface form *dámììaayée would have the representation given under W₂ in (11):

\[(11) \quad W_1 \quad W_2 \quad \text{MORPHOLOGY} \]

LEXICAL FORMS: dámóo \quad *dámììaayée \quad [QV]_{12}^{\text{sg}} \Rightarrow [\text{-ayee}]_{\text{pl}}

\[SS \quad SSS\]

a. Doubling

\[-- \quad -- \quad --\]

Since Doubling creates a copy of the segment m, the only case in which Doubling could be undone is where two segments m existed. Since there are not two m's in W₂ in (11), the environment for undoing Doubling is not met, and consequently the specifications of the morphological rule will never be met by the pair W₁ and W₂. Additional derivations for aa-ee plurals are sketched in section 6 below.
As far as I know, these predictions are correct, though unfortunately there is a lack of research on interludes. To the best of my knowledge, however, languages with morpheme-internal contrasts between long and short consonants, like Italian (e.g. coppia 'couple' vs. copia 'copy'), Spanish (e.g. perro 'dog' vs. pero 'but'), and Hausa (e.g. gámmón vs. dámó), do not have interludes. A sign of this is that speakers are quite consistent in syllabifying words when called upon to do this. On the other hand, English, which has interludes, possesses no contrastively long consonants, except across morpheme boundaries, as in immeasurable, irreparable, non-native. These latter types of geminates pose no problem for the analysis of English. They cannot represent ambisyllabic consonants (since these are not contrastively long); rather they result from the juxtaposition of a morpheme-final consonant and a morpheme-initial consonant that happen to be identical.

To see that this proposal has the intended effect in Hausa, recall that the problem encountered by Newman's analysis was the need for a device to exempt the geminate consonant of tálée, etc., from fitting the description CC in rule (6). The present proposal solves this problem by representing geminates as single segments. Cases that still undergo rule (6) are those which, like káskóo, have two different consonants at the end of the stem, and those which, like dámó, have a single consonant which is copied before -aa-ee by rule (5): [dám]₉-m-ₐa-ée.

Along with giving a principled account of the apparent exceptionality of geminates, the proposal advanced here also provides a new type of support for the parsing analysis or, for that matter, for any analysis that can motivate listing the plurals in question in the lexicon. The conventional generative analysis, in which the root gámm- is the input to -ₐa-ée affixation, is at a loss to explain how the m of the root can retain its membership in two syllables, when only one syllable is present. The intermediate representation in (9) is ill-formed.

(9)  *gám-
They can also precede *yin* + *NVDN*:

ya yi alkawarin (*yin*) magana  
'he promised to say something'

ya yi ko farin (*yin*) barci  
'he tried to get some sleep'

ya yi niyyar (*yin*) magana  
'he decided he would say something'

na yi shawarar (*yin*) magana  
'I considered saying something'

ta ci gaba da (*yin*) barci  
'she carried on sleeping'

3. **Concluding remarks**

I have attempted in this paper to provide a workable framework for describing and understanding the syntactic behaviour of auxiliary verbs in Hausa, a framework based upon both descriptive and analytical procedures. In order to define the grammatical parameters of this group of verbs, I used a simplistic but nonetheless practical model based upon an analytical distinction between auxiliary verbs (AV) and non-auxiliary verbs (NAV) in terms of their following complements. Certain surface structures which appeared to be major exceptions to the rules set up were explained as being the results of deletion transformations applied to basic underlying structures which in fact satisfied the definitional formula.

At the same time, we saw, perhaps unavoidably, that the model was not watertight, and that the syntactic environment in which AV occur is not exclusive due to certain subtle semantic restrictions on usage. I am aware too that there may be some verbs which could be confidently assigned to this class but which have been inadvertently overlooked. Furthermore, time and space have not permitted the treatment of such important questions as possible dialectal variations in the use of AV, the aspects in which they operate, AV whose notions are similar but not identical, and so on.

Despite these limitations, it is hoped that the material and interpretations presented in this analysis have helped in some way to tidy up the grammatical boundaries of AV. It is also hoped that they will provoke questions of a comparative nature and perhaps open the way to further research into this important class of verbs in related Chadic languages.
taba kujeeraa? is in fact ambiguous in Hausa. It could mean 'did you touch the chair?' (NAV + concrete noun direct object) or, as Parsons gives, 'have you ever made a chair?' i.e. AV (+ VDN yin) + concrete noun direct object, though the two distinct meanings would of course be elucidated by the context. Note, however, that a topicalised transform of the auxiliary construction would yield kujeeraa, kaa taba yii? (C form) 'a chair, have you ever made one?’, with the addition of the VDN yii obligatory, and a similar topicalised transform of the non-auxiliary construction kujeeraa, kaa tabaa? (A form) or kujeeraa kaa tabaa ta? (B form) 'the chair, did you touch it?'

Some AV also have a D form (that used before an indirect object), e.g. naa faaraa masa aikii 'I started working for him' (D form), a deletion of the equally acceptable and synonymous naa faara yii masa aikii (C form). The D form is clearly distinguished in the unambiguous taasam ma, which is the D form of the Grade 2 AV taasaa, e.g. yaa taasam ma shiga bookasyee (MWC 3:72) 'he set about consulting witch-doctors' (see also Table II).

2.11. Phrasal verbs

Finally, there are a number of "phrasal verbs" in Hausa which should be briefly mentioned since they share some of the syntactic, if none of the semantic, features of AV. As illustrated below, all but one of these verbs are compounded with the verb yi + dynamic noun, the one exception being ci gaba da, which is a bound compound with the verb ci 'eat'.

These phrasal verbs may optionally occur in the same syntactic environment as AV, for example, with a following VDN or subjunctive clause complement.

ya yi alkawarin zuwa/ya zo
ya yi kokarin ba da/ya ba da amsa
ya yi niyyar tafiya/ya tafi gobe
na yi shawarar gudu/in gudu
ya ci gaba da dukar/ya doki yaro

'he promised to come'
'he tried to give an answer'
'he has decided to go tomorrow'
'I considered fleeing'
'he carried on beating the boy'
example, the morphological rule for \textit{aa-ee} class plurals was expressed as \([QV]\)\(_{\text{sg}} \implies [Q-\text{ayée}]_{\text{pl}}\), where \(Q\) in plurals was required to contain CVV or CVC followed by at least a consonant. This condition on \(Q\) served the function of bringing out the irregularity of \(\text{rágàayée}\). In addition, Doubling was restricted to apply only after monosyllabic roots with a short vowel followed by a single consonant, as in Newman's analysis. This brought out the irregularity of \(\text{wáagàagéé}\). There are two problems with this approach, besides the general one of lacking a principle to permit these complications of the rules without permitting any arbitrary complication. The first is that, in order to express the fact that the irregular plurals \(\text{rágàayée}\) and \(\text{wáagàagéé}\) are still identified by speakers as related to their corresponding singulars, it had to be assumed that the parsing procedure did not have to be satisfied in its entirety before a parsing could go through. This raises the problem of distinguishing these irregular cases from impossible ones like \(\text{fámàaméé}\). The second problem is that in order to capture the restriction embodied in Newman's rule of Doubling, the parsing analysis had to express the restriction twice: without the condition on \(Q\) in the morphological rule, the account would not have addressed the irregularity of \(\text{rágàayée}\), and without the restriction on Doubling, the account would not have addressed the irregularity of \(\text{wáagàagéé}\).

I believe that these problems provide motivation for relinquishing the use of rules as a device for filtering out irregular forms. The rules of the parser exist for the sole purpose of establishing relationships among lexical items. Any restrictions placed on the rules must accordingly be motivated solely by the need to avoid parsings that are demonstrated incorrect. This will disallow the restriction on \(Q\) in the morphological rule for the \textit{aa-ee} class and the restriction of the length of the root vowel in the Doubling rule, thereby permitting the parser to use these rules in the derivation of \(\text{rágůo/rág(w)àyée}\) and \(\text{wáagáa/wáagàagéé}\). But we are still faced with the problem of accounting for the intuition that hypothetical pairs like \(\text{fámóo/fámàayée}\) and \(\text{fáamóo/fáamàaméé}\) are less well-formed members of the \textit{aa-ee} class paradigm than are the hypothetical pairs \(\text{fámóo/fámàaméé}\) and \(\text{fáamóo/}\)
5. Determining well-formedness of morphologically complex words

In conventional generative phonology, the class of permissible words is distinguished from the class of impermissible ones by virtue of whether a derivation exists in which an underlying form conforming to the morpheme structure constraints of the language can be realized as the needed surface form as a result of undergoing the appropriate phonological rules. Since the parsing analysis treats unproductive rules as purely interpretive, it cannot use the phonological rules as a filter to rule out impermissible derivations, and since there is no single level of underlying phonological structure as such, the possibility of stating morpheme structure constraints is ruled out in principle. But it is still necessary for the parsing model to express how a native speaker can distinguish between permissible and impermissible words. In part, this is accomplished by the statement of phonotactic regularities; for suggestions on how this is done in a parsing model employing surface forms, see Leben (in press). Aside from phonotactic regularities, the grammar must also capture the fact that fáam̱ayée would be a less likely plural for the hypothetical form fám̱óo than fáam̱am̱ée would be, and that fáam̱aayée is a more likely plural for the hypothetical fáam̱óo than fáam̱am̱ée is. In a conventional generative account, this task poses no problem. If the singular is fám̱óo, the root satisfies the environment of Doubling, and so fáam̱am̱ée is predicted as the plural. If the singular is fáam̱óo, the root does not satisfy the environment of Doubling and so fáam̱aayée is predicted. Hausa does happen to have exceptions to Doubling, e.g. rág̱óo/rá̃g(w)áayée 'lazy', which unexpectedly does not undergo Doubling in the plural, and wáag̱áa/wáag̱áag̱ée 'hide pannier', which unexpectedly does undergo Doubling in the plural. But the conventional analysis can handle the irregular forms by means of positive and negative exception features. How would the parsing model handle such phenomena?

Because parsing rules do not generate—they only interpret what is already there—restricting their environments often represents a needless complication of the rules. Despite this, in Leben (1977) it was assumed that restrictions on parsing rules could serve a filtering function. For
that the substitution should be performed on the individual subclasses rather than on the paradigm as a whole. I will leave the matter open.

6. Sample parsing of aa-ee class plurals

Here is a summary of the analysis of the aa-ee plural class. The morphological rule relating singulars with plurals has the following form:

(13) Morphological rule (aa-ee class)

\[[QV]_{12\;\text{sg}} \Rightarrow [Q-\ddag\ddag\text{ay}\ddag\ddag\text{e}]_{1\;\text{pl}}\]

The phonological rules that must be undone in relating singulars and plurals are the following:

(14) y-Epenthesis

\[\emptyset + y / V\text{--}V\]

(15) Infixation (revised version of (6))

\[C\text{-}aa\text{-}ee \Rightarrow aa\text{-}C\text{-}ee\]

[123 1 2 3]

(16) Doubling (revised version of (5))

\[C \Rightarrow CC\]

[1 11]

The revisions in (15) and (16) reflect the decision taken in section 5 to remove conditions that play no role in blocking invalid derivations.

The form dámàaméé is related to dámóó in the following way:

(17) LEXICAL FORMS W₁ W₂ MORPHOLOGY

| a. y-Epenthesis | -- | -- | \[[QV]_{12\;\text{sg}} \Rightarrow [Q-\ddag\ddag\text{ay}\ddag\ddag\text{e}]_{1\;\text{pl}}\]
| b. Infixation | -- | dám-m-àa-éé | -- |
| c. Doubling | -- | dám-àa-éé | -- |

After stage (c), the singular and plural match the specifications of the morphological rule (which, in its turn, has lost the y of -àayéé by undoing y-Epenthesis), and so the derivation succeeds in relating them.
fáamàayée. These intuitions cannot stem directly from the rules of Hausa, since the rules (as now construed) would sanction the parsing of all four of these hypothetical examples as possible singular/plural pairs. Instead, what differentiates the less acceptable plurals from the more acceptable ones is the degree to which they resemble other members of the aa-ee class plural paradigm. Of course, it is the morphological and phonological rules of Hausa that determine the composition of the aa-ee class paradigm—this is, in effect, what was demonstrated in section 4. To this extent, the rules are relevant to the decision as to whether some form is a member of a given paradigm. But a novel form is judged not only by its parasibility but also by its similarity to attested forms of the same class. This is why a novel English form like espical provokes a more puzzled reaction than a novel form like opical does. The -ical ending suggests to the listener that the form is morphologically complex, but there are no existing forms in -ical that are similar to espical, while corresponding to opical there are real words like topical, apical, optical. Similarly, Hausa words of the form CVC̄ayée or CV̄CaC̄ée are less likely candidates for membership in the paradigm of the aa-ee class because the probability of finding a close match among existing aa-ee class plurals is less than for words for the form CV̄CaC̄ée or CV̄Caayée.

A description of how the needed metric might work is given in (12).

(12) Metric for likelihood of membership in a paradigm

Membership of a novel form in a paradigm P is a function of the probability that the resemblance of the novel form to an occurring form F₁ arbitrarily selected from P will equal the resemblance of F₁ to another form F₂ arbitrarily selected from P. Resemblance is measured by the number of substitutions that must be made to change one form into another.

The substitution procedure suggested here is adapted from the metric proposed by Greenberg and Jenkins (1964) for assessing the phono-
tactic well-formedness of monomorphemic words. Of course, the phrasing of (12) is tentative, and one can imagine major and minor ways of modifying it. For example, it might make sense to propose that rules (5) and (6) of Hausa divide the aa-ee class paradigm into subclasses and
are being replaced by the more transparent Báwnàayée and Búwzàayée. Schuh's explanation for this is that, because Klinghenheben's Law is not synchronically productive in the labial and velar series, it became inverted, with the effect that w in singulars had to be subcategorized for which labial or velar consonant it corresponded to in a particular aa-ee class plural. Because this subcategorization is difficult to learn, the plurals that required it have subsequently been regularized to attach the more transparent ending -àayée to the root.

In Leben (1974) I attempted to show that Schuh's analysis is untenable, particularly because, operating within his own set of assumptions, it requires a hypothetical diachronic stage in which certain conditions on the aa-ee class morphological rule were lost, followed by a stage in which these same conditions were restored. I proposed instead that dialects that still permitted Báwnàa/bákàanée, Búwzuù/búgàajée, etc., retained Klinghenheben's Law as a synchronic rule in order to generate Báwnàa from /báknàa/, Búwzuù from /búgzúu/, etc., and that the reason behind changing the plurals to Báwnàayée and Búwzàayée was a desire to reduce allomorphy. There are two respects in which my analysis left important questions unanswered, and the parsing analysis resolves the problem in both cases. The first is that it is difficult to reconcile the proposed synchronic application of Klinghenheben's Law with the evidence from reduplications. Productively generable forms like Kárkàshée 'kill (iterative)', from Kás-kàshée, show that the alveolars are still undergoing the changes specified by Klinghenheben's Law, while the same is not true in the labial and velar series, where we get, for example, Búbbàgàa 'beat (iterative)' rather than *Búwwàgàa from Búg-búgàa. In these latter series, total consonant assimilation applies to obstruents (and sometimes to nasals) rather than Klinghenheben's Law.

In the parsing analysis, the difference between the productive and nonproductive subparts of Klinghenheben's Law consists in its applying only interpretively to labials and velars. In a dialect which has Báwnàa/bákàanée, the plural can be parsed by undoing Klinghenheben's Law in the singular. The derivation would take the following form:
Similarly, káskóó is related to kášàakée by first undoing y-Epenthesis on the suffix -áayée in the morphological rule, giving Q-àa-ée as the description of the plural pattern, and then undoing (15) Infixation on kášàakée, giving kásk-àa-ée.

The parser has the ability to analyze an improper plural like *káskàayée as an aa-ee class plural of káskóó, but procedure (12) outlined above marks *káskàayée as a somewhat deviant member of this class, since the only members of this class that have CC before -àayée are those in which the first C is a nasal, like bángàayée, or a glide, like báwràayée. The plural bángàayée 'walls' is related to its singular bángóó by undoing the redundant labialization on g before oo in the singular. The variant bángwàayée is related to bángóó without undoing any phonological rules, since the surface forms themselves meet the specifications of morphological rule (13) if we represent orthographic gw as g with the feature [+round]. An improper plural form *bánàagée for bángóó could be analyzed by the parser, but procedure (12) makes it an unlikely candidate for the W₁ slot in a derivation for the aa-ee class, because there is only one marginal instance in which an ending of the form -àaCée is preceded by a nasal: kyámaarée, a dialectal variant of kyáwàarée 'door coverings'. Finally, báwràayée undergoes a derivation analogous to that of bángàayée, and kyáwàarée undergoes one analogous to kášàakée.

7. A diachronic argument for the parsing analysis

Schuh (1972) has observed that certain aa-ee class plurals which used to contain the -àa- infix between two root consonants are now changing so that -àayée is simply suffixed to the root. As Schuh notes, where this has happened is in many of the instances in which a consonant in the singular is no longer identical to its counterpart in the plural, due to a sound change known as Klingengeber's Law. Klingengeber's Law changed syllable-final labial consonants and velar obstruents to w and syllable-final alveolar obstruents to r. Examples of alternations induced by Klingengeber's Law are w ~ k, in báwääné/Bákàanée 'bush cow', and w ~ g, in búwzúu/bugàajée 'Tuareg'. These plurals
not yet led to a corresponding regularization of the plural form. The example is fárkée/fátàakée 'itinerant trader'. Since this is, to my knowledge, the only case in which Klingengeben's Law applied to an alveolar consonant in a singular with an aa-eé class plural, it was fair enough for Schuh to suppose that this is simply an exception to the trend. But it is also worthwhile to investigate whether there is a reason behind this exception. One factor might be that the result of regularization, if it remained in the aa-eé class, would be fárkàayée, which would be judged somewhat deviant by procedure (12) of section 5. But this is not sufficient, because Schuh notes cases like zúwcìyáa/zúkàatáa 'heart' which have regularized their plural by shifting it into a different, more productive class: zúwcìyóoyí.

I believe that the failure of fárkée to change its plural fátàakée can be explained if we maintain that surface forms change not in order to minimize allomorphy but rather in order to minimize the application of unproductive neutralization rules. In line with a recent suggestion by Mervin R. Barnes, there is pressure to change fákìanée to báwnìayée because the former requires application of the unproductive synchronic reflex of Klingengeben's Law that relates labials and velars with w; but fátàakée does not change to *fárkìayée because the synchronic reflex of Klingengeben's Law still applies productively.

8. Conclusion

It is worthwhile to remark briefly on the general approach taken in this paper. Upon encountering data that are unexpected in that they go against otherwise general rules, I have attempted to avoid devices that dismiss the unexpected data as exceptional and have chosen instead to sketch general principles of phonological theory that, if true, would account for forms that first appeared problematic. Naturally, this type of approach will not always succeed, since rules often have real exceptions, but it is always useful to examine the possibility that what first appears to be an exception instead reflects a more general principle. In this way, problematic cases, far from being troublesome details, are sources of new hypotheses about the structure of phonology.
(18)  
LEXICAL FORMS:  
\( W_1 \)  \( W_2 \)  
\( \text{báwnáá} \)  \( \text{bákàanéé} \)  
MORPHOLOGY  
\[ [QV]_{\text{sg}} \Rightarrow [Q-\text{hayéé}]_{\text{pl}} \]

a. y-Epenthesis  
--  --  
\[ [QV]_{\text{sg}} \Rightarrow [Q-\text{aa-éé}]_{\text{pl}} \]
b. Infixation  
--  \( \text{bák-n-àa-ée} \)  --  
c. Klinghenheben's  
\( \text{bá[\_cor]náá} \)  --  --  

Since Klinghenheben's Law neutralizes all labials and velars to \( w \), undoing it will simply restore an archisegment encompassing the labial and velar consonants. But this restored archisegment is enough to permit the parsing to go through, since after stage (c) in this derivation, the singular and plural match the environment of the morphological rule.

The second question left unanswered by the solution proposed in Leben (1974) involves the principle of minimization of allomorphy, which was left inexplicit. Intuitively one would expect such a measure to assess how different two realizations of a base form are and how different the realization of an affix is compared with its specification in a morphological rule. The parsing analysis can provide an index of these types of differences by considering the number (and perhaps the complexity) of rules that apply in a parsing. Thus, derivation (18) is to be compared with the derivation in (19) for relating the noun \( \text{báwnáá} \) with the innovative plural \( \text{báwnàayéé} \).

(19)  
LEXICAL FORMS:  
\( W_1 \)  \( W_2 \)  
\( \text{báwnáá} \)  \( \text{báwnàayéé} \)  
MORPHOLOGY  
\[ [QV]_{\text{sg}} \Rightarrow [Q-\text{ayéé}]_{\text{pl}} \]

Here no rules need apply, since the singular and plural already match the specifications of the morphology on the surface. Thus, the change from \( \text{bákàanéé} \) to \( \text{báwnàayéé} \) permits the language to shorten its derivations in these cases without any modification of the morphological rule for this class and without any direct effect on the phonological rules.

This explanation suffices for the cases just considered but there are signs that it needs some refinement. Schuh observes one case in which an application of Klinghenheben's Law to the alveolar series has
The principles proposed are (i) that geminates are single segments associated with two syllables, (ii) that procedure (12) determines the likelihood of membership of a given form in a paradigm, and (iii) that surface forms change through time in order to minimize the application of unproductive neutralization rules. Principle (i) is interesting in that it predicts that languages cannot contrast geminates with ambisyllabic consonants, and principles (ii) and (iii) are plausible because they seem to be in accord with known facts. I have argued that if principle (i) is correct, it provides a new argument for any approach that lists words rather than abstract roots in the lexicon, and that (ii) and (iii) make the parsing approach an adequate vehicle for expressing the regularities and subregularities in Hausa plurals that previously resisted satisfying formulation.

REFERENCES


Parsons, Fred W. n.d. "Morphonological (singular-plural) classes of disyllabic nouns in Hausa". Mimeographed.

Having brought to light the empirical complexity of the situation, Kraft proposed a number of alternative hypotheses that might account for the facts: that PC *s also split into /s/ and /hl/ in the WST branch; that WST already had *hl as a proto-phoneme (presumably going back to PC *hl); and/or that the Zaar group languages were not really West Chadic but rather belonged to BM or to a separate branch. However, since none of the hypotheses seemed to fit all of the conflicting evidence, he stopped short of actually adopting any of them as his own.

In this paper I propose to take up the question of laterals again and to provide some answers regarding their presence or absence throughout the Chadic family. The laterals that now exist (or can be presumed to have existed) are explained in terms of three major sources. The first is a lateral *hl, reconstructable for PC, which provides laterals for the whole family. The second is a PC sibilant *s, which phonetically changed into /hl/ in Proto-BM. The third is an historically recent change of *s and *z into hl and fl within the Zaar group. The absence of laterals is explained in terms of various instances of sound laws changing hl (and sometimes fl) into non-fricative laterals or non-lateralized fricatives.

The creations, retentions, and losses that have occurred have taken place at various levels within the family: branch, subbranch, group, subgroup, and individual language. The description of these historical developments thus depends on the prior existence of a correct subclassification of the family. Conversely, the recognition of shared sound laws serves as evidence in support of the presumed family tree structure. (The reasoning is spiral, not circular.) The internal classification that I shall be making use of in this paper is shown in the accompanying tree diagram. This diagram is based on a new Chadic classification (Newman 1977), in which the earlier classification of Hoffmann (1971) has been modified and subjected to the imposition of greater internal structure.
LATERAL FRICATIVES ("H-LATERALS") IN CHADIC

Paul Newman

A conspicuous phonological feature of the Chadic language family, noted from the very beginning of modern Chadic studies (Lukas 1936), is the presence of lateral fricative consonants (henceforth "h-laterals"), represented here by h1 for the voiceless and h1 for the voiced (often transcribed as t1 and d1 or s1 and z1, respectively). H-laterals are found in languages of the Biu-Mandara (BM) branch such as Tera, Margi, and Kotoko (but not Bachama or Buduma), in West Chadic (WST) languages such as Ngizim, Warji, and Zaar (but not Hausa or Bole), and in languages of the Masa group (treated here as an independent branch). They are completely absent in the East Chadic (EST) branch, which includes Mubi, Dangla, Tumak, Kera, etc.

In Newman and Ma (1966) we proposed that the h-laterals one finds in the BM branch (h1 specifically) could be accounted for in terms of a conditioned split of Proto-Chadic (PC) *s into /s/ and /h1/. H-laterals found outside BM were not discussed but it was tacitly assumed that their occurrence was sporadic and unsystematic, and that they could be explained by relatively recent influence from neighboring BM languages. Given the impressions one had at the time about h-laterals outside the BM branch, the hypothesis that h-laterals in Chadic were due to a BM innovation seemed reasonable.

Subsequently, the adequacy of the split hypothesis to account for the origin of Chadic h-laterals was challenged by Kraft (1971). Drawing on newly collected field materials on WST languages, especially those belonging to the poorly known Warji (= N. Bauchi) and Zaar (= S. Bauchi) groups, Kraft showed that h-laterals outside BM were far from rare. In comparing cognate forms between the BM and WST branches, he discovered that there was not just a single correspondence h1 :: s (which underlay the Newman/Ma explanation) but that one also found h1 :: h1 and even
Abbreviations:

A. Angas Ki. Kirfi P. Pero
B. Bole Lo. Logone PC Proto-Chadic
BM Biu-Mandara M. Margi R. Ron (Bokkos)
Br. Bura Mb. Mubi So. Sokoro
D. Dangla Mg. Musgu T. Tera
EST East Branch Mk. Mokulu Tm. Tumak
G. Ga'anda Mn. Mangas W. Warji
H. Hausa Ms. Masa WST West Branch
K. Kanakuru N. Ngizim Z. Zaar (Sayanci)
Kf. Kofyar Nc. Nancere Zm. Zime

Source 1: PC *hl

There are a number of good Chadic cognates where a lhalteral in BM is matched by a lhalteral in WST languages such as Ngizim, Warji, and Zaar (i.e. languages belonging to subbranch WST-B). If cognates are found in MASA, they also contain a lhalteral. Cognate forms in WST-A languages regularly appear with frictionless *l (or *r in the case of Hausa which has undergone an *1 > r change (Newman 1970)). Cognate forms in EST languages (to be discussed separately below) appear either with frictionless *l or with a voiceless palatal obstruent.

(1) Words with PC *hl

<table>
<thead>
<tr>
<th>Gloss</th>
<th>WST-A</th>
<th>WST-B</th>
<th>BM</th>
<th>EST</th>
<th>MASA</th>
</tr>
</thead>
<tbody>
<tr>
<td>'beat'</td>
<td>P. lofo</td>
<td>Mg. hlib-</td>
<td>Tm. lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'belch'</td>
<td>A. jel</td>
<td>W. yehl-</td>
<td>T. jahli</td>
<td>D. gyte</td>
<td>Ms. gisla?</td>
</tr>
<tr>
<td>'break'</td>
<td>H. kary-</td>
<td>N. kehlə</td>
<td>T. wuhla</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'cough'</td>
<td></td>
<td>W. aihli</td>
<td>M. *wuhla</td>
<td>Mb. icca</td>
<td>Ms. *ohl</td>
</tr>
<tr>
<td>'cow'¹</td>
<td>K. la</td>
<td>N. hla</td>
<td>Mg. hlay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'cut'</td>
<td>P. la</td>
<td>Z. hla</td>
<td>T. hla</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'meat'</td>
<td>Kf. luwa</td>
<td>W. hlu-</td>
<td>G. hliw-</td>
<td>Ms. hliw-</td>
<td></td>
</tr>
</tbody>
</table>

¹My guess is that Hausa sã/sâniyã 'bull/cow', which is usually included in this cognate set, does not really belong.
frictionless lateral in contrast to the hlaterals. The answer, surprisingly, seems to be no, although the question is far from settled. While all present-day BM languages that have hlaterals also have /l/, the frictionless 1 tends either to be limited to non-basic vocabulary or else to be derived from *r. In either case it is impossible to establish 1 as a reflex of an earlier consonant of the same type. Similarly in Ngizim in the WST-B subbranch, where PC *hl is still realized as a hlateral, it is rare to find frictionless 1 in basic words with recognizable cognates elsewhere in the family. The most likely explanation for these facts is that PC had only one (h)lateral phoneme and that it did not distinguish *hl from *l. In other words, its hlateral pronunciation notwithstanding, *hl was the PC lateral." From a universal point of view, the presence of *hl without *l can be considered unnatural; however, the existence of this phonological vacuum where the *l should have been helps to explain the numerous cases in Chadic where other sounds have independently changed into /l/, e.g. *hl > l (independently in WST-A and in EST) and *r > l (independently in the Bura group and in Masa). Admittedly, there are a couple of seemingly strong etymologies (included in Newman and Ma 1966) where a PC reconstruction with *l rather than *hl seems called for, e.g. 'child': H. yərə; Mg. ali (pl.); Mk. ulo; and 'look/see': K. ali; Z. yeli; M. ule, Mk. wəll-. Nevertheless, I would contend that the weight of the evidence still favors the idea of a single (h)lateral in PC and that these counterexamples must have some other explanation.

Source 2: PC *₃

The PC hlateral just reconstructed accounts for those Chadic cognates where a hlateral in BM corresponds to a hlateral or a lateral in the WST branch. It also provides a source for the hlaterals one finds in MASA and in the languages of the WST-B subbranch. It does not, however, account for the numerous etymologies in which a hlateral in BM

*hl may also have been phonetically realized as [l] and [ål] in specific phonological environments.
On the basis of the regular 1/hl :: hl :: hl correspondence between the WST, BM, and MASA branches, one can reconstruct a hlateral phoneme *hl for Proto-Chadic. This hlateral was carried down as is into the proto-languages of these branches. Subsequently, in one subbranch of WST (WST-A), *hl changed into 1, in what was apparently an exceptionless, unconditioned sound change. This innovation took place in the proto-language of this subbranch, i.e., after the separation of WST-A from WST-B but before the differentiation of WST-A into its component groups. (The *hl > 1 change is one of the shared innovations that justifies putting the Hausa, Bole, Angas, and Ron groups together into a single subbranch within West Chadic.) The change resulted in the complete elimination of hlaterals in the WST-A subbranch. Their presence in Bole group languages such as Karekare and Maha is clearly a later reintroduction without significance for the general question of hlaterals in Chadic.

Since hlaterals are not found in EST languages, it is obvious that PC *hl must have changed into something else in that branch, but into what and at which period is questionable. A good possibility is that PC *hl underwent a split in Proto-EST, going to 1 in initial position and to sh in non-initial position (with later "hardening" of sh into c or t'). This hypothesis, however, is based on scanty evidence and needs to be investigated further before it can be established as fact.

The existence of a hlateral consonant in the PC phonemic inventory is almost certain. An interesting question is whether PC also had a

\[\text{\textsuperscript{2}}\text{The existence of 1 rather than the expected hl is due to an internal dissimilation of *ahlisi to *alsi (and thence to alesi).}\]

\[\text{\textsuperscript{3}}\text{Karekare probably borrowed its hlaterals from a now-extinct Bade group language originally spoken in the area now occupied by the Karekare. The Maha hlaterals are probably due to influence from Tera or Bura.}\]
the split hypothesis were correct. BM *s and BM *hl (in (2) and (3)) must therefore go back to two different proto-phonemes, these being *s for the former and a sibilant that I am representing by *ǧ for the latter. Exactly what distinguished *ǧ from *s is yet to be determined; but it seems certain that *ǧ was an sh-like sibilant (if not actually sh?) and not a hlaterals. The idea that the existence of hlaterals in the etymologies in (2) was due to a BM innovation thus turns out to be correct after all. The BM innovation, however, was not the split of *s into s and hl, as earlier thought, but rather the phonetic change of PC *ǧ into hl and the subsequent merger of this hl with the hl deriving from PC *hl. This innovation can be ascribed to the proto-language of the entire BM branch since hlaterals reflexes of *ǧ are normal both in the subbranch that includes Tersa, Margi, Matakan, etc. (i.e. BM-A), and in the subbranch that includes Kotoko and Musgu (i.e. BM-B).

The Masa group, by contrast, did not share the *ǧ > hl change — this being an important reason for doubting its traditionally assumed membership in the BM branch. Rather, *ǧ went to s in Masa, merging with the reflexes of PC *s, cf. asi-'egg' < *aši with ase-'leg' < *aše. Similarly, in the EST branch, *ǧ > s and merged with the pre-existing s, cf. D. sāgo and Tm. hin 'tooth' < *ǧan with D. sE and Tm. he 'drink' < *sa. (Note that after the merger, sound laws such as the change of initial s to h in Tumak would have operated indiscriminately on all s's whether originally derived from PC *s or from PC *ǧ.)

In the WST, *ǧ at first remained g, i.e. it was still a sibilant (unlike in BM) but it was also still distinct from *s (unlike in EST and MASA). The changes affecting *ǧ took place only after the two subbranches had separated from one another. In WST-A, *ǧ shifted to s and merged with the s's derived from *s, as had happened elsewhere.

---

7 The interpretation of PC *ǧ as simply *sh, i.e. as the regular palatal counterpart to *s, was suggested independently by Russell Schuh and Suzanne Platiel (personal communication).

8 All PC reconstructed forms are taken from Newman (1977).
correspond to an s or sh in the other branches. Compare the examples in (2) with those in (1) and in (3).

(2) Words with PC *§

<table>
<thead>
<tr>
<th>Gloss</th>
<th>WST-A</th>
<th>WST-B</th>
<th>BM</th>
<th>EST</th>
<th>MASA</th>
</tr>
</thead>
<tbody>
<tr>
<td>'bone'</td>
<td>A. dyeṣ</td>
<td>N. awu-k</td>
<td>T. ʔəgəl</td>
<td>Nc. ese</td>
<td></td>
</tr>
<tr>
<td>'break'</td>
<td>H. fəs-</td>
<td>M. pəhlə</td>
<td>Tm. pə</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'egg'</td>
<td>A. aṣ</td>
<td>W. sū-</td>
<td>Lo. nhłe</td>
<td>Ms. asi-</td>
<td></td>
</tr>
<tr>
<td>'name'</td>
<td>Kf. sum</td>
<td>Z. sum</td>
<td>T. əlem</td>
<td>Mb. sam</td>
<td>Ms. san</td>
</tr>
<tr>
<td>'root'</td>
<td>P. cərį</td>
<td>G. hlar-</td>
<td>Nc. sar-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'scatter'</td>
<td>P. wasu</td>
<td>N. wəyə</td>
<td>G. wel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'send'</td>
<td>W. cen</td>
<td>Lo. hlen</td>
<td>Zm. shin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'tooth'</td>
<td>Z. shin</td>
<td>G. hlan-</td>
<td>D. səŋo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'work'</td>
<td>W. cəna</td>
<td>T. hləna</td>
<td>So. ussan</td>
<td>Zm. sin</td>
<td></td>
</tr>
</tbody>
</table>

(3) Words with PC *s

<table>
<thead>
<tr>
<th>Gloss</th>
<th>WST-A</th>
<th>WST-B</th>
<th>BM</th>
<th>EST</th>
<th>MASA</th>
</tr>
</thead>
<tbody>
<tr>
<td>'dream'</td>
<td>B. sunna</td>
<td>N. suwan</td>
<td>Br. suni</td>
<td>D. səne</td>
<td>Zm. misin</td>
</tr>
<tr>
<td>'drink'</td>
<td>B. sə</td>
<td>N. sa</td>
<td>M. sa</td>
<td>D. əə</td>
<td></td>
</tr>
<tr>
<td>'know'</td>
<td>H. sanį</td>
<td>W. sen</td>
<td>G. sen</td>
<td>Nc. sen</td>
<td></td>
</tr>
<tr>
<td>'leg'</td>
<td>R. say</td>
<td>Lo. asə</td>
<td>D. əse</td>
<td>Ms. ase-</td>
<td></td>
</tr>
<tr>
<td>'mouse'</td>
<td>H. kusu</td>
<td>Z. kuseg</td>
<td>Mg. kusum</td>
<td></td>
<td>Zm. kusom-</td>
</tr>
</tbody>
</table>

In Newman and Ma (1966), it was proposed that the BM hlaterals in examples such as (2) were derived from the normal PC *s by a conditioned split of *s into s and hl. This proposal cannot be maintained. In the first place, it has proved impossible to determine the environment that could have conditioned the split. Secondly, the assumption of a single proto-phoneme underlying BM s and BM hl is contradicted by the fact that these two consonants correspond systematically to two distinct consonants in the Bade group (see (4) below)—an impossibility if

---

5 The appearance of /hl/ in the presumably cognate Pa’a (WST-B) form hlar (brought to my attention by Margaret Skinner) is inexplicable.

6 Pero c (→ [j] intervocally) is regularly derived from *s. In Ga’anda, non-initial hlaterals sometimes appear as /hl/, sometimes as /l/.
e.g. H. ƙashƙi 'bone' < *?Jaŋu, cf. H. kusu 'mouse' < *kusem. In the Bade group of WST-B, *$ changed into a semivowel (y or w) in contrast to *s which remained s, e.g.

(4)

<table>
<thead>
<tr>
<th>Gloss</th>
<th>Bade Group (Ngizim)</th>
<th>BM</th>
<th>Words with PC *$</th>
<th>Gloss</th>
<th>Bade Group (Ngizim)</th>
<th>BM</th>
<th>Words with PC *s</th>
</tr>
</thead>
<tbody>
<tr>
<td>'send'</td>
<td>wana</td>
<td>Lo. hlən</td>
<td>'dream'</td>
<td>suwan</td>
<td>Lo. suwane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'work'</td>
<td>wana</td>
<td>T. hləna</td>
<td>'buy'</td>
<td>masə</td>
<td>T. masa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'tooth'</td>
<td>yənau</td>
<td>G. hlən-</td>
<td>'drink'</td>
<td>sa</td>
<td>G. sa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'bone'</td>
<td>awu-k</td>
<td>Br. dyehlu</td>
<td>'laugh'</td>
<td>gamə</td>
<td>Br. kumshi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'scatter'</td>
<td>wayə</td>
<td>G. wel</td>
<td>'two'</td>
<td>shirin</td>
<td>G. sarri</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The historical development of *$ in Warji and Zaa, the other two groups belonging to the WST-B subbranch, is less clear than in the case of the Bade group. Nevertheless, the initial palatal consonant one finds in words such as W. cəna 'work', W. cen and Z. shin 'send', and Z. shin 'tooth' argues for the distinctiveness of *$ and *s in Proto-WST-B and suggests further that the distinguishing feature of *$ was its position of articulation. If this is correct, then the few cases such as W. su 'egg' and Z. sum 'name', where an s now appears in an *$-word instead of the expected palatal, would have to be regarded as exceptions due to lexically-specific secondary changes.

Source 3: *s/*z > hl/fl

A striking feature of languages in the Zaa (= S. Bauchi) group is the "superabundance" of hlaterals as compared with other WST languages. Part of the stimulus for Kraft's (1971) study must undoubtedly have been the discovery of such a large number of hlaterals in the word lists he collected for languages in this group. These hlaterals require an explanation. Some of them (normally hl) are simply retentions of the inherited h lateral traceable to PC *hl. These correspond in a straightforward way to l in WST-A and to hl in the other WST-B groups, e.g. Z. hlə, Kf. luwa, W. hlə 'meat'; Z. hli, Ki. la, N. hla 'stand up'; Z. yahlo, K. ali 'earth'. Many of the hlaterals one finds in the Zaa languages, however, have another origin, having come from an
historically recent sound change \*s/\*z > hl/\#l, e.g.

\[(5) \quad \begin{array}{ccc|ccc}
\text{Zaar} & \text{Other WST} & \text{Zaar} & \text{Other WST} \\
\hline
'drink' & hlya & 'body' & \#li & B. \#Two \\
'laugh' & gyomhle & N. gamse & 'guinea-fowl' & \#lepm & N. \#abanu \\
\end{array} \]

The change from sibilant to lateral was a conditioned sound law restricted to s and z in prevocalic position where the next consonant was not a nasal. As compared with the examples in (5), the following words retained the sibilant: yIs 'excrement', ges 'bottom', pIs 'arrow', kusəq 'mouse', gusum 'porcupine'. The specification of the nasal is descriptively correct but dynamically unnatural. However, if one reinterprets words of the form CVsVN as CVsN (i.e. kusəq = kusq), on the model of words such as \#lepm 'guinea-fowl' and zhokq 'to smell', the change or non-change of \*s/\*z into hl/\#l becomes simply a matter of pre-vocalic vs. non-pre-vocalic position.\(^9\)

An interesting fact about the sibilant to lateral change is that it did not even apply to the entire Zaar group. Rather, it was an historically shallow innovation limited to the "Barawa" subgroup, one of the three divisions of the Zaar group, and not applying to the other subgroups ("Boghom" and "Guruntum").\(^10\) This cannot be seen immediately looking at the two languages Boghom and Guruntum, since they have both entirely lost their laterals. However, if one looks at Mangas, a small language in the Boghom subgroup, or at Ju, a small language in the Guruntum subgroup, in which laterals are still found, but only as reflexes of \*hl and not of \*s/\*z, the restricted nature of the Barawa innovation becomes apparent, e.g.

\(^9\)The lack of change to hl in the Zaar words sum 'name', shin 'send', and shin 'tooth' should now be seen as a function not of the final nasal, as suggested by the original formulation, but of the distinctiveness of the s(h) coming from \*s as opposed to the s from \*s.

\(^10\)My major source of information on the internal structure of the Zaar group, including the specific subdivision adopted here, is an unpublished comparative word list collected and compiled by Kiyoshi Shimizu, to whom I am most grateful.
(6) *hl

B/G Subgroups Barawa
'meat' Mn. hlu hlu 'drink' Mn. she hle
'earth' Ju ahli yahle 'bird' Ju yasi yahli

Loss of hl laterals

Up to now I have been concerned with providing explanations for the hl laterals that are found in Chadic languages. I shall now turn to the languages that do not have hl laterals and briefly outline the changes that have resulted in their disappearance.

(a) The complete absence of hl laterals in EST languages is due to a sound law (or laws) eliminating PC *hl that probably took place in Proto-EST before the branch separated. As described earlier, the change was probably the conditioned split of *hl into l and something else, most likely sh.

(b) The absence of hl laterals in the Hausa, Angas, Ron, and (with insignificant exceptions) Bole groups resulted from the change of *hl to l in the proto-language of the WST-A subbranch.

(c) In Boghom and Guruntum (two Zaar group languages), hl laterals were lost by historically shallow sound laws changing *hl into s and 1, respectively.

(d) In the BM branch, where the presence of hl laterals is normally taken for granted, Bachama now has none because of an exceptionless sound law changing all hl laterals to l. Since some of the hl laterals were originally derived from PC *hl and some from *s, the resulting frictionless l in Bachama sometimes corresponds to l in cognate forms in WST-A languages and sometimes to s, e.g. luwo 'accept', cf. K. ləwi; falo 'shatter', cf. H. fas-. Gude, a language closely related to Bachama, also underwent the same change although it does have some (non-basic) vocabulary items with hl. However, Gudu, another language in the same group, still preserves its BM hlateral inheritance, thereby indicating how very recent the loss in Bachama and Gude must have been.

(e) Buduma (a language in the BM-B subbranch) is unusual in that it has lost not only its hl laterals but its sibilants as well, both having changed...
to h (at least in initial position). Whether hl and s were lost in a single *fricative > h rule or whether there was a feeding sequence *hl > s and then *s > h, the result was the same.

(f) Finally, there is a case of a loss affecting not a branch nor a group even a language, but rather a dialect of a language. In Kotoko, a language belonging to the same group as Buduma, almost all dialects preserve their share of hlateralis derived from PC *hl and *§. In the Makari dialect, however, all hlateralis have been lost as a result of the changes *hl > sh (e.g. shu 'meat', cf. Afade hlu) and *thl? [a glottalized hlateral of undetermined origin] > c? (e.g. c?a 'laugh', cf. Afade nthl? a). While striking from a phonetic point of view, the change from hlaterals to fricatives/affricates has as yet had no structural effect on the phonological system of the Makari dialect, since the language previously did not have /sh/ or /c/? and thus the change neither increased nor decreased the number of phonological contrasts in the system.

The problem of the voiced hlateral

Most Chadic languages that have hlaterals have both voiceless hl and fl. A few have only hl but not fl; none has only fl but not hl. 11 In the case of the hlaterals in the Barawa subbranch of the Zaar group, the voicing distinction between hl and fl was directly correlated with a voicing distinction in the source sibilants. Elsewhere in the paper, however, I have generally ignored the difference between the voiceless and voiced hlaterals, treating the two as essentially equivalent for historical purposes. This was a simplifying assumption that seems to have been justified by the overall results achieved. In closing, however, I would like to explicitly raise the question of the origin(s) of the widespread hl/fl contrast even though I cannot now answer it. Since the two major sources of Chadic hlaterals—*hl for all of Chadic plus *§ for BM—both lead to the voiceless hlateral hl, where, then,

11Actually, Kanakuru has only fl and not hl, but the sound is limited to a couple of words and cannot really be considered an integrated part of the phonemic system.
does *l come from? Could there have been a distinctively voiced PC
h lateral *fl? Could *fl be a direct reflex of the missing friction-
less *l? Or is it the result of secondary developments having taken
place at a more recent date? In the absence of distinct correspondence
sets involving hl vs. *fl or any other relevant evidence of an in-
direct nature, there seems little basis upon which to posit a *hl/*fl
contrast (in whatever form) for Proto-Chadic. Therefore, while none of
the various possibilities can be ruled out at this point, I personally
would adopt the last mentioned alternative as a working hypothesis and
look for indications of a secondary split of *hl into hl and *fl, the
conditioning factors and the historical time depths involved varying from
group to group and branch to branch.

REFERENCES

Hoffmann, Carl. 1971. "Provisional check list of Chadic languages",
Chadic Newsletter [Marburg], special issue.


Lukas, Johannes. 1936. "The linguistic situation in the Lake Chad area


Ling. 5(1):1-42.

Newman, Paul and Roxana Ma. 1966. "Comparative Chadic: phonology and
Y-PROSODY AS A MORPHOLOGICAL PROCESS IN GA'ANDA

Roxana Ma Newman

This paper describes some morphophonemic alternations in Ga'anda, a language belonging to the Tera group of the Biu-Mandara branch of the Chadic language family. The changes to be described occur in noun and verb stems.¹ They involve primarily fronting of certain vowels and palatalization of certain consonants. The conditions under which these changes take place are not phonological but rather morphological, having to do with the inflectional forms of noun and verb stems in the environment of specific syntactic categories and grammatical morphemes.

Noun stems

All Ga'anda nouns have two forms, a simple stem and a modified stem. The choice of stem is governed by the various suffixes which cooccur with it. For example, in one class of nouns, the simple stem is used with the definite marker and all definite determiners, while the modified stem is used with the indefinite marker and the genitive marker.

Nouns are subcategorized into two major classes on the basis of the form of the modified stem. In one class, called the T class, the modified stem is formed by the addition of a suffix to the simple stem. In the other class, called the Y class, the modified stem is marked by a set of internal changes in the simple stem.² The assignment of nouns to the two classes is only partially predictable phonologically. All nouns

¹Fieldwork on Ga'anda was originally carried out as part of a comparative Chadic syntax project funded by a National Science Foundation grant GS-2279 (Paul Newman, principal investigator).

²For a fuller description of Ga'anda morphology and syntax, see R. Newman (1971a).

ending in the vowels a, e, and ø belong to the T class, while those ending in i belong to the Y class. Nouns ending in consonants may belong to either class. While historically the distinction between T and Y class nouns was related to gender, synchronically this is no longer true since Ga'anda has lost grammatical gender.

The difference between simple and modified stems is first illustrated with T nouns. In this class, the modified stem is formed by suffixation of -tə- (~ -t-) to the simple stem. The modified stem is used before the indefinite marker -a, the definite marker -án (~ -?án), the previous reference marker -dā, the demonstrative -dí, and the genitive marker -l.\(^3\) The simple stem is used only before the plural suffix -cə- (~ -c-).\(^4\)

<table>
<thead>
<tr>
<th>Simple stem</th>
<th>Modified stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>xáf-c-á⁵</td>
<td>'arrows'</td>
</tr>
<tr>
<td>fár-c-dí</td>
<td>'those days'</td>
</tr>
<tr>
<td>shúk-c-án</td>
<td>'the spears'</td>
</tr>
<tr>
<td>mbán-c-á</td>
<td>'roads'</td>
</tr>
<tr>
<td>ylíkwá-c-á [yíkwé-cá]</td>
<td>'goats'</td>
</tr>
<tr>
<td>kwécē-c-án</td>
<td>'his quivers'</td>
</tr>
</tbody>
</table>

(P rules: t → nd / N__; a → e / c)

With Y class nouns, the difference between simple and modified stems is marked by both vowel alternations and consonant changes. In this class, the simple stem is used before the definite, previous reference, demonstrative, and plural suffixes; the modified stem is used before the indefinite -a and the genitive marker -l. For convenience,

---

\(^3\) Nasal-final T nouns do not use the modified stem in all these environments but these exceptions need not concern us here.

\(^4\) Tone is assigned to the indefinite and plural suffixes according to the tone class of the noun; these rules are not discussed in this paper.

\(^5\) Ga'anda has a three-tone system plus downstep (see R. Newman 1971b). Downstep occurs when a Hi tone is preceded by a non-segmental Mid or Lo tone (indicated by 'or ' written over a consonant, hyphen, or space). Examples like yíkwá-tá and píršá are phonetically realized as [-__-] and [-]: respectively.
all examples of the simple stem are illustrated with the plural indefinite -ca (< -c- + a) and all examples of the modified stem with the singular indefinite -a.

The vocalic alternations between simple and modified stems are discussed first. The vowel system in Ga'anda is as follow:

<table>
<thead>
<tr>
<th>-round</th>
<th>+round</th>
</tr>
</thead>
<tbody>
<tr>
<td>+front</td>
<td>-front</td>
</tr>
<tr>
<td>+high</td>
<td>i</td>
</tr>
<tr>
<td>-high</td>
<td>e</td>
</tr>
</tbody>
</table>

In Y nouns, the internal vowels found in most simple stems are e and a. The modified stem is formed from the simple stem by shifting all central vowels to corresponding front vowels, i.e. $[\text{e}] \rightarrow [\text{i}]$.

<table>
<thead>
<tr>
<th>Simple stem</th>
<th>Modified stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVC(C)-</td>
<td></td>
</tr>
<tr>
<td>?'al-cá</td>
<td>?'el-á</td>
</tr>
<tr>
<td>náf-cá</td>
<td>nef-á</td>
</tr>
<tr>
<td>hlàr-cá</td>
<td>hlèr-à</td>
</tr>
<tr>
<td>xwàrèm-cá</td>
<td>xwàrm-à</td>
</tr>
<tr>
<td>[xwàrèm'cá]</td>
<td>[pàxèmcá]</td>
</tr>
<tr>
<td>pàxèm-cá</td>
<td>pèxm-à</td>
</tr>
<tr>
<td>bèb-cá</td>
<td>bèb-á</td>
</tr>
<tr>
<td>hlèm-cà</td>
<td>hlèm-à</td>
</tr>
<tr>
<td>CVCVCV-</td>
<td></td>
</tr>
<tr>
<td>dákwań-cá</td>
<td>dékwèn-á</td>
</tr>
<tr>
<td>kèlèr-cá</td>
<td>kìlèr-à</td>
</tr>
<tr>
<td>pèpèf-cá</td>
<td>pìlpìf-á</td>
</tr>
<tr>
<td>kèlèngòr-cá</td>
<td>kìlèngèr-à</td>
</tr>
</tbody>
</table>

(P rule: $C_1C_2C_3 \rightarrow C_1\varepsilon C_2C_3$)$^6$

By contrast, the round vowels u and o in simple stems remain unchanged in modified stems:

---

$^6$The tone of the epenthetic $\varepsilon$ is a copy of the preceding one.
kútɔ̀r-cá kútɔ̀r-á 'chief'
còxwʌ̀h-cá còxwʌ̀h-á 'frog'
mbo?əm-cá mbo?əm-á 'flea'

There are a number of nouns with [u] in the simple stem which change to i in the modified stem, thus appearing to be counterexamples. In all these cases, however, this [u] is either preceded or followed by w and is therefore analyzed as ø, there being no contrast between ø and u in this environment.

wùm-cá [wùmcá] wùm-á 'rat'
còwɔn-cá [còwɔncá] cìwën-á 'elephant'

Stems which already contain front vowels remain the same:

kwày-cá kwày-á 'hole'
shèmèd-cá shèmèd-á 'spirit'

Another kind of change between simple and modified stems of Y nouns concerns the consonant s. All occurrences of s in the simple stem are changed to sh in the modified stem. The examples below show s initially, medially, and finally.

sà?-cá shè?-á 'leaf'
sùmâncá shìmèn-á 'fig tree'
ʔùsèn-cá ʔùshln-á 'type of grass'
wàssàn-cá wèshshèn-á 'squirrel'
kósàx-cá kìshɛ́x-á 'yam'
wàss-cá [waás `sá] wèsh-á 'hair'
fàs-cá [fàssà] fìsh-á 'salt'
èrs-cá [pòréssà] pìrsh-á [pìrshà] 'horse'
(P rule: s + c → ss)

At first glance, it appears that the s + sh change is a simple case of assimilation resulting from the shift from central to front vowels, i.e. that there is a rule of s-palatalization in the environment of front vowels. In the case of sh preceded by a front vowel, this explanation could hold since, in Ga'anda, only (i)ish and (e)esh are found, never *(i)is and *(e)os, e.g. xéshîl 'outside', míshtà 'co-wife',
tèeshá 'to bury (waste)'. Thus a progressive s-palatalization rule could account for sh occurring in kishèx-á, wèesh-á, etc., but it is less satisfactory in cases like pírshà where sh is not immediately preceded by a front vowel. One may next ask whether a regressive s-palatalization rule exists which could explain the occurrence of sh in examples like shèʔá, shèmènà, and ʔùshìnà. It is true that a number of words have a lexical sh (i.e. those not derived from s as above) occurring before a front vowel, e.g. shìytà 'to beg', shèrtà 'to be old'. But there also exist words and constructions where the sequences si and se are never realized as [shi] or [she], e.g. fàr-hlàasì 'day after tomorrow', kòmslcá 'youths', háusècà 'Hausa people', kòsì só 'help me!', ò si-tò ñòm'á 'he drank water'. From these examples, it is clear that palatalization of s before front vowels is not automatic. Its occurrence in the modified stems of Y nouns is thus not explainable in terms of a simple phonological process. Rather, the palatalization here must be treated as one of the changes associated specifically with a morphological inflectional pattern of Y nouns.

The other consonant change found in modified stems of Y nouns has to do with stem-final ñ. In addition to vowel fronting, words with final ñ in the simple stem change the ñ to y in the modified stem.

| daga-cá     | déy-á      | 'fly'        |
| dèg-cà      | dìy-á      | 'bird'       |
| sèg-cá      | shìy-á     | 'stirring stick' |
| xèrìq-cá    | xìrèy-á    | 'nose'       |
| cèrìq-cá    | clìrèy-á   | 'crocodile'  |
| kùmbàq-cá   | kùmbèy-á   | 'type of melon' |

This change could possibly be described in terms of a particular type of palatalization conditioned by a preceding front vowel. But sequences of ñg and ñq occur elsewhere in Ga'anda, e.g. fìqàn 'dye it red!', shèqù 'count!', kètègrèqà 'storks'. Such examples clearly show that the ñ → y shift is not phonologically conditioned.

There is an interesting historical aspect to the ñ/y alternation. Most nouns with stem-final ñ in Ga'anda have cognate forms with a nasal in
closely related languages, e.g. G. cəraŋ- 'crocodile', cf. Tera jiraŋ; G. xəraŋ- 'nose', cf. Fidlimndi hadan. Some ƞ words, however, have cognate forms with y in other languages, e.g. G. ƞən- 'bird', cf. Gisiga diyəw; G. rəŋ- 'bow', cf. Hona riye. The explanation is that in present-day Ga'anda the simple stems ƞən- and rəŋ- are reinterpretations based on a process of back-formation. The existence of an alternative Ga'anda plural form for 'bird', diyca - ƞəŋca, supports this analysis.

The set of changes described above all pertain to Y nouns ending in a consonant; they do not apply to vowel-final Y nouns (which only end in -i, as stated earlier). For reasons not yet apparent, i-final Y nouns do not undergo any internal vowel/consonant changes. Rather, the modified stem is formed from the simple stem by dropping the final -i, with no further changes.

<table>
<thead>
<tr>
<th>Y Stem</th>
<th>Modified Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ngàmsål-cà</td>
<td>ngàms-à</td>
<td>'spider'</td>
</tr>
<tr>
<td>bëbí-cà</td>
<td>bëb-á</td>
<td>'fever'</td>
</tr>
<tr>
<td>ndérí-cà</td>
<td>ndér-á</td>
<td>'moon'</td>
</tr>
<tr>
<td>kúfí-cà</td>
<td>kúf-á</td>
<td>'river'</td>
</tr>
</tbody>
</table>

There are two exceptions however; the two -i nouns below show both vowel fronting and palatalization of s in addition to -i deletion:

<table>
<thead>
<tr>
<th>Y Stem</th>
<th>Modified Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>kàmsål-cà</td>
<td>klmsh-á</td>
<td>'youth'</td>
</tr>
<tr>
<td>fàrdí-cà</td>
<td>fird-á</td>
<td>'mosquito'</td>
</tr>
</tbody>
</table>

At present, there seems to be no explanation why these two i-final Y nouns exhibit changes normally associated with consonant-final Y nouns.

In summary, the various changes required for deriving modified stems from simple stems in Y nouns are as follows: (a) central vowels change to front vowels (higher, closer to the palate); (b) s changes to the palatal sh; (c) ƞ changes to the palatal semivowel y. The overriding feature shared by these changes is palatalization or "Y-coloration", functioning in the morphology as "Y-prosody". It is viewed as a prosodic feature because it applies to the entire noun stem, affecting all relevant segments within this domain. The modified stem
of Y nouns thus consists of the simple stem marked with Y-prosody, which manifests itself by means of a set of interrelated phonological shifts, none of which is individually explainable in terms of synchronically productive phonological rules. Rather, they are all related to a prosodic feature specifically associated with an inflectional formation of Y nouns.

Verb stems

The Y-prosody as a morphologically determined process is also found in the inflectional system of Ga'anda verb stems. Here, it is a property of verbal constructions in a particular set of tenses where the subject is either a second or third person singular pronoun. The verbal construction has the following basic order of morphemes in the aorist, perfective, and subjunctive tenses:

\[ \text{tense marker} + \text{verb stem (object pronoun)} + \text{subject pronoun} \]

In addition to the object pronoun, other suffixes can be attached to the verb stem (to be illustrated below). The aorist tense is marked by \( \emptyset \), the perfective by \( \partial \), and the subjunctive by \( \emptyset \) in the affirmative and \( \partial \) in the negative. The simple verbal construction in these three tenses is presented first with subject pronouns other than second and third person singular. (Canonical shapes of verb stems are CV, CVC, CVCC, and CVCa.)

\[
\begin{align*}
\text{cè-} & \quad \text{è cè-ndá} & \text{'they shot'} \\
\text{kàr-} & \quad \emptyset \text{kàr-ndá} & \text{'they refuse'} \\
\text{xád-} & \quad \text{è xád-íncé} & \text{'I got sick'} \\
\text{táxs-} & \quad \text{è táxs-íncé} & \text{'I got ready'} \\
\text{sèn-} & \quad \text{è sèn-mén} & \text{'we (incl.) knew'} \\
\text{ràkà-} & \quad \text{kè ràkà-wén} & \text{'you (pl.) should run'} \\
\end{align*}
\]

In these tenses, when the subject pronoun is the second person singular \(-ən \ (-n)\) or the third person singular \(-ə\), then Y-prosody must be applied. The verb stem undergoes vowel fronting and s-palatalization in exactly the same way described for Y nouns. The examples below are limited to the second person singular pronoun \(-ən\), since the third
person singular entails special problems of form unrelated to the present discussion.

kàr- à kér-òn 'you refused'
fàd- à fid-òn hlìmbìrà 'you beat a drum'
sèn- ø shèn-òn xà tè ndé 'you are used to him'
kòs- mò kìsh-ìcò-ò sò wà 'don't help me'

(cf. kòs-ì fò 'help me!', which is a simple imperative with no subject pronoun, hence no Y-prosody)
tàxs- kò téxsh-òn 'you should prepare'
pàrà- mò pèrè-ò ndé 'don't follow him'
pèdà- kò pìdè-ò kò làmbò 'you should go to market'

If the verb stem contains a round vowel o or u, such a vowel remains unchanged (as was also true in Y noun stems):

còk- mò còk-òn xà wà 'don't sit down'
xùnà- kò xùné-òn xà 'you should lie down'

There is a restriction on the application of the Y-prosody with verb stems ending in final -a. In the perfective tense only, final -a is replaced by -i, e.g.

èdù- à bì-ndá 'they came'
ràkà- à ràkì-mèn 'we (incl.) ran'
pèdà- à pèdì-òn 'you (pl.) went'

When the subject pronoun is the second person singular, the expected fronting and palatalization do not take place, somehow being blocked by the a → i change:

pèdà- à pèdì-òn 'you went'

(cf. kè pìdè-òn 'you should go')

màsà- à màsì-òn 'you laughed'

(cf. mò méshè-òn wà 'don't laugh')

What seems especially interesting about this is that the a → i change produces a natural phonological environment, final i, where vowel fronting and s-palatalization might well be expected to happen, as, for example, in the verb màsà- above. The fact that they do not take
place here is further evidence that fronting and palatalization are not simple phonological processes in Ga'anda but result from morphological conditions.

In connection with the above, there is one telling exception to the rule about -a verbs. With the monosyllabic verb stem sä- 'to drink', palatalization does occur (in addition to the a → i shift), but only in those pronouns where Y-prosody normally functions, cf. the following paradigm:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>ò sì-incó [sìncí]</td>
</tr>
<tr>
<td>2nd</td>
<td>ò shì-ń [shín]</td>
</tr>
<tr>
<td>3rd</td>
<td>ò shì-ń [shíí]</td>
</tr>
</tbody>
</table>

(P rule: a → i/ #)

It is the exception that proves the rule.

The one consonantal change in the Y-prosody described for nouns which does not apply to verbs is the η + y change. In verb stems, final η remains η:

tég- ò tíq-ón 'you got stuck'

The domain of application of Y-prosody in verbs is not limited to the simple verb stem. It can also apply to a verb stem expanded by certain bound suffixes immediately following the stem. Two of these, -cán- and -wá-, are briefly illustrated below.

Derived verbs with an adjectival meaning are formed from basic verbs by attaching the stem formative -cán- immediately to the stem:

<table>
<thead>
<tr>
<th>xád-</th>
<th>xád+cán-</th>
</tr>
</thead>
<tbody>
<tr>
<td>'to get sick'</td>
<td>'to be sick'</td>
</tr>
</tbody>
</table>

mbón- | mbón+cán- |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>'to please'</td>
<td>'to be pleasant'</td>
</tr>
</tbody>
</table>

When these derived verbs cooccur with the second person singular pronoun, the expanded stem undergoes vowel fronting (and presumably palatalization, although no examples are presently available). Derived verbs with -cán- only occur in the aorist tense:
xáé- ø xécdén-ón 'you are sick'
mbóné- ø mbínçén-ón kaán 'you are very nice'

Another suffix bound to verb stems is the first negative marker -wá-. Negation in Ga'anda is marked by double, discontinuous markers. The second negative marker is a free form wá which occurs at the end of the sentence. The form of the first depends on the tense. With the subjunctive, it is mà. With the aorist and perfective tenses, it takes the form of a -wá- suffixed to the verb stem preceding object or subject pronouns. Under Y-prosody, -wá- undergoes fronting along with the rest of the verb stem:

có- màa ø dîwê-n wá 'if you don't go'
mbén- ø mbínwe-n wá 'you aren't nice'
ràkà- ò rekewê-n wá 'you didn't run'
táxs- ò téxèshwe-n wá 'you didn't prepare'

In conclusion, it has been shown that the operation of Y-prosody is a particularly striking feature of Ga'anda morphophonemics. Although the various components of this prosody are phonologically interrelated, its application is ultimately determined by morphological factors.

REFERENCES


PHONEMIC VOWEL NEUTRALIZATION IN HAUSA

Bello Ahmad Salim

Introduction

This paper is an attempt to find some plausible explanation for the indeterminate [+ high] vowel that is found in some Hausa words, the correct phonemic nature of which seems to elude even native Hausa speakers. Certain groups of words, nouns and verbs alike, pose special problems in phonemic and orthographic representation. This state of affairs has been realized by both native speakers and linguists. The Working Party on Hausa Orthography (1972:8) reports:

"The Working Party does not think that an additional vowel such as i or u could solve the problem of writing such words as

furtsi or fartsi
samu or sami
fure or fire

So the introduction of a 6th vowel into the language could only cause confusion".

Hoffmann and Schachter (1969:78) also noticed the same problem and noted that even though /i/ and /u/ contrast in certain environments, elsewhere they alternate with one another and often a sound between the two, [i], is heard, e.g.

[teebir] or [teebur] or [teebir]¹

I agree with the Working Party that the introduction of another graphemic vowel would only cause confusion. My aim, therefore, is to try and find a plausible explanation (if any) to help in the phonological

*My thanks to Dr. James Coady of Ohio University and members of his seminar in natural phonology (spring 1976), who patiently lent an ear throughout the preparation of this paper and offered very constructive criticisms.

¹Henceforth, a single letter will be used to represent a "short" phoneme or phoneme and a double one to represent "long".
analysis of the segments that have this indeterminate vowel.

Section 1 of this paper will look at the phonemic "neutralizations" between the Hausa vowels in an attempt to establish the fact that neutralization between /i/ and /u/ does exist in certain situations. In section 2, alternative forms in the "dative" pronouns will be looked at in an attempt to show that a generative phonological approach can be used to explain some of the processes in both sections 1 and 2, and that certain other processes cannot. Section 3 will deal with the words that contain the indeterminate high vowel and the failure of the generative approach to explain the phenomena. Section 4 will propose a hopefully neater solution to all the above, along the lines of natural generative phonology.

Section 1

It is widely accepted that Hausa has twelve vowel phonemes: five short and five long monophthongs, and two diphthongs. Of these, the mid and high monophthongs show a tendency to neutralize to a central vowel in certain positions.

Taking the conventional system of vowel diagramming, we can group /ee/ and /e/, /oo/ and /o/, as the [-high -low] vowels, and /ii/ and /i/, /uu/ and /u/ as the [+ high] vowels. Long /aa/ is decidedly [+low] and so is /a/, which assumes a somewhat central position, almost like a schwa. From this classification, we can make the following observations.

1. /ee/ and /e/ contrast in final position but are neutralized elsewhere, e.g.

<table>
<thead>
<tr>
<th>Word</th>
<th>[IPA]</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>karee</td>
<td>[kəree]</td>
<td>'dog'</td>
</tr>
<tr>
<td>kwalekwale</td>
<td>[kʷaləkʷale?]</td>
<td>'canoe'</td>
</tr>
<tr>
<td>maage</td>
<td>[maag⁷e?]</td>
<td>'cat'</td>
</tr>
<tr>
<td>dagee</td>
<td>[dag⁷e]</td>
<td>'wild feline'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word</th>
<th>[IPA]</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>but</td>
<td></td>
<td></td>
</tr>
<tr>
<td>karen</td>
<td>[kəraŋ]</td>
<td>'the dog'</td>
</tr>
<tr>
<td>kwalekwalen</td>
<td>[kʷaləkʷalan]</td>
<td>'the canoe'</td>
</tr>
<tr>
<td>maagen</td>
<td>[maag⁷an]</td>
<td>'the cat'</td>
</tr>
<tr>
<td>dagen</td>
<td>[dag⁷an]</td>
<td>'the wild feline'</td>
</tr>
</tbody>
</table>
Only /ee/ occurs in the middle of a word, e.g.

majeemii [majeemii] 'tanner'

2. /oo/ and /o/ contrast in final position but are neutralized elsewhere, e.g.

baakoo [baak"oo] 'a stranger'
baako [baak"o?] 'proper name'

but

baakon [baak"aŋ] 'the stranger'
baakon [baak"aŋ] 'the Bako'

Only /oo/ occurs in medial position, e.g.

oodaa [ʔoodaa] 'an order'
makoomaa [mək"oomaa] 'Heaven'

From the above, we realize a sort of four-way process involving the short and long phonemes and the [+ front] and [+ back] phonemes, i.e. /e, ee/ and /o, oo/. All are neutralized to a central vowel [a - ø] in the environment of -n. Note that although the above examples are given phonetic realizations, the neutralizations are phonemic processes and not the result of fast speech (phonetic) rules. And because a short vowel in final position is usually followed by a glottal stop, it would be implausible to claim closed syllable conditioning for the above neutralizations. In other words, instead of

(1) \[ V \rightarrow [+ \text{central}]/__C\# , \]

a more plausible rule would be

(2) \[ V \rightarrow [a]/__n\# . \]

3. Words that have final /a/ or /aa/ always retain /a/, which may optionally be reduced to a schwa in this position, e.g.

karaa [kəraa] 'cane' cf. [kəraŋ], [kəroŋ]
yaya [yaaya?] 'elder brother' cf. [yaayaŋ], [yaayəŋ]

4. /ii/ and /i/ contrast in final and medial open syllable positions but only /i/ occurs in closed syllables and this invariably gets reduced
to [i], e.g.

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>sararii</td>
<td>[sərərii]</td>
<td>'open space'</td>
</tr>
<tr>
<td>sarari</td>
<td>[sərəri?]</td>
<td>'name of a place'</td>
</tr>
<tr>
<td>shigaa</td>
<td>[ʃɪɡaa]</td>
<td>'entering'</td>
</tr>
<tr>
<td>shiikaa</td>
<td>[ʃiikaa]</td>
<td>'winnowing'</td>
</tr>
</tbody>
</table>

but

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>sararin</td>
<td>[sərəɾiŋ]</td>
<td>'the open space'</td>
</tr>
<tr>
<td>sararin</td>
<td>[sərəɾiŋ]</td>
<td>'name of the place'</td>
</tr>
</tbody>
</table>

5. /uu/ and /u/ also contrast in final and open syllable medial positions but before n, they are neutralized and reduced to [u], e.g.

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>duhuu</td>
<td>[duhuu]</td>
<td>'darkness'</td>
</tr>
<tr>
<td>duhu</td>
<td>[duhu?]</td>
<td>'a type of scorpion'</td>
</tr>
<tr>
<td>kuukaa</td>
<td>[k'uuukaa]</td>
<td>'crying'</td>
</tr>
<tr>
<td>kunuu</td>
<td>[k'unu]</td>
<td>'gruel'</td>
</tr>
</tbody>
</table>

but

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>duhun</td>
<td>[duhun]</td>
<td>'the darkness'</td>
</tr>
<tr>
<td>duhun</td>
<td>[duhun]</td>
<td>'the scorpion'</td>
</tr>
</tbody>
</table>

Looking at this, we find the front vowels going to [i] and the back vowels going to [u], i.e. we do not have the type of neutralization as obtains with the [+mid] vowels. But notice:

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>hadu</td>
<td>[hadu?]</td>
<td>'been mixed'</td>
<td>[had'iu]</td>
</tr>
<tr>
<td>kunuu</td>
<td>[k'unuu]</td>
<td>'gruel'</td>
<td>[k'uniŋ]</td>
</tr>
<tr>
<td>jinii</td>
<td>[jinii]</td>
<td>'blood'</td>
<td>[jinin]</td>
</tr>
<tr>
<td>tafi</td>
<td>[təfi?]</td>
<td>'go'</td>
<td>[təfiŋ]</td>
</tr>
</tbody>
</table>

Here we notice that both the [+back] and [-back] vowels become neutralized to the same position regardless of whether they were underlying long or short. Further examples might help to clarify matters:

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>tattabaruu</td>
<td>[tattabəru]</td>
<td>'pigeons'</td>
<td>[tattabəriŋ]</td>
</tr>
<tr>
<td>tsamii</td>
<td>[tsamii]</td>
<td>'sourness'</td>
<td>[tsamiŋ]</td>
</tr>
<tr>
<td>baakii</td>
<td>[baak'ii]</td>
<td>'mouth'</td>
<td>[baak'iiŋ]</td>
</tr>
<tr>
<td>gafakuu</td>
<td>[ɡəfaku]</td>
<td>'satchels'</td>
<td>[ɡəfak'uu]</td>
</tr>
<tr>
<td>jama'uu</td>
<td>[jama'uu]</td>
<td>'peoples'</td>
<td>[jama'uuŋ]</td>
</tr>
</tbody>
</table>
A pattern now begins to emerge regarding high vowels followed by the
genitive linker -n. When the preceding consonant is [+back], the
reduced vowel retains its essential quality of either frontness or
backness:

(3) \[i^u \rightarrow [\acute{i}] /C^{[+\text{back}]}-n\]

When the preceding consonant is [-back], the reduced vowel is always
realized as [i]:

(4) \[\{u\} \rightarrow [i] /C^{[-\text{back}]}-n\]

Since /ii/, /i/ and /uu/, /u/ are all neutralized to a central vowel
phonetically realized as [i] before the genitive linker, a general pro-
cess of centralization before final -n can be claimed for Hausa monoph-
thongs.

Section 2

Next we look at some interesting processes that seem to be limited
only to the Hausa "dative" pronouns. The dative marker wa or ma\(^2\)
is never joined to the following NP when it happens to be a noun, e.g.

na sayar wa/ma Audu hulata 'I sold my cap to Audu'
Abu ta kai wa/ma kawarta goro 'Abu took kolanuts to her friend'

but

na sayar masa da hulata 'I sold my cap to him'
Abu ta kai mata goro 'Abu took kolanuts to her'

As can be seen, the reverse is the case when the following nominal is
a pronoun. The justification for writing the sequence of dative marker
+ pronoun as a single word can be found by looking at the processes that
happen with them. Refusal to accept the sequence as a single word would
mean acceptance of the fact that these processes transcend word bounda-

\(^2\)The choice of a particular marker used with noun objects depends on
the dialect of the speaker. In Kano (my dialect), wa is usually pre-
ferred; in other dialects such as Sokoto, ma is preferred. All Hausa
dialects use ma with pronouns.
ries. No phonologically or phonetically plausible reason can be found to support that claim (see Hyman 1975 on rule naturalness; also Schachter 1969). The sequences will therefore be accepted as one-word sequences and be analyzed as such.

1. mani/mini [mɔni?], [mini?], [miŋ] 'to/at/for me'
2. maka [maka?] 'to/at/for you (masc.)'
3. maki/miki [mɔk̚i?], [mik̚i?] 'to/at/for you (fem.)'
4. masa/mas/mar [məsa?], [məs], [mər] 'to/at/for him'
5. mata [məta?] 'to/at/for her'
6. mana [məna?] 'to/at/for us'
7. maku/muku [məuk̚u?], [mək̚u?] 'to/at/for you (pl.)'
8. masu/musu [musu?], [musu?] 'to/at/for them'

Items 1, 3, 7, and 8 need special consideration because they not only neutralize front/back, but also high/low. In 3 and 7, we observe that the velar consonants participate in a dual process in that after being affected by the vowels after them, they in turn affect the [a] coming before them. Thus:

(5) \[ C[+velar] \rightarrow \left[ +\text{front} \right] \overline{\left[ +\text{round} \right]} \left[ +\text{back} \right] \]

The affected consonants then regressively affect the vowels before them so that we get a diphthongization rule which fronts or backs the vowels concerned depending on whether or not they come before a palatalized or labialized velar. The diphthongs and the non-affected [a]'s then undergo an optional vowel reduction rule where the [a]'s are reduced to schwas and then assimilated to the high vowels following them, as in:

(6) \[ V[+\text{reduced}] \rightarrow V_{\alpha}/CV_{\alpha}[+\text{high}] \]

To summarize, we have an obligatory velar assimilation rule (to get labialized or palatalized velars), plus an obligatory diphthongization rule before the assimilated velars, and the two optional (though pervasive) rules of vowel reduction and subsequent assimilation to the vowel height of the final high vowel.

The next process of final vowel deletion (as with items 1 and 4) might well prove our (traditional) generative approach inadequate.
Notice that in the third variants of items 1 and 4, the final vowel may optionally be deleted where both vowels are of the same vowel height. (In 4, there is further optional variation between /s/ and /r/ in final position, possibly conditioned by Hausa ideophones?) But this deletion rule refuses to work in the case of item 8. Here, after the vowel reduction and assimilation rules, the condition for the operation of the deletion rule is created and so, like in 4, we should expect to get *[mus]* or *[mur]*, but we don't. Also, if the rule would work in 1, why not in 6?

Section 3

As stated earlier, there are certain words where we do get an indeterminate vowel which seems to alternate between [u], [i], and [i]. This process could have happened due to a case of vowel reduction on syllables with least stress, i.e. where a vowel gets reduced and then assimilates to the following vowel. If we expand rule (6) a little, therefore, we might be able to explain the process if it is just due to a case of vowel reduction.

\[
V_{[\text{+reduced}]} \rightarrow V_{\alpha} / \xrightarrow{C^2} V_{\alpha^{[\text{+high}]}}
\]

This can explain words like 'anger' [fushii] → [fushii] → [fishii], etc. if we posit either a definite /u/ or /i/ as the underlying phoneme and so derive the other two alternants from that, as in [turmi] → [turmii] → [tirmii] 'mortar'.

Various other words can also be explained that way, with the explanation that the above rules of vowel reduction and then assimilation have now become so pervasive that they are no longer optional. If we accept this, then we are able, in the same way as we explained the phonemic neutralizations before the genitive linker, to extract the under-

---

3Notice that this seems to be a case where a phonetic process takes place in both heavy and light syllables. Does this mean that though syllable weight serves as a phonological variable (Newman 1972), it has no phonetic relevance? Also see Hyman (1975) on the possibility of tone languages having stress.
lying phoneme in each of these indeterminate cases, e.g.

fushii/fishii  [fushii]  [fushii]  [fishii]  'anger'
bukii/bikii  [bukyi]  [bukyi]  [bikyi]  'celebration'
surukii/sirikii  [surukyi]  [surukyi]  [sirikyi]  'in-law (male)'

But, as we shall see, there are still cases where the underlying and
phonetic realizations still remain just that—indeterminate, e.g.

usurii/usirii  [?usurii]  [?usurii]  [?usirii]  'whistle'
bukaataa/bikaataa  [bukaataa]  [bukaataa]  [bikaataa]  'need'
furee/firee  [furee]  [furee]  [firee]  'flower'
samu/sami  [saamu?]  [saamu?]  [saami?]  'get'
fuskaa/fiskaa  [fuskaa]  [fuskaa]  [fiskaa]  'face'
bunnee/binnee  [bunnee]  [bunnee]  [binnee]  'to bury'
musakki/misaakki  [musaakyi]  [musaakyi]  [misaakyi]  'disabled per-
son (male)'

With 'whistle', we have no explanation as to why the vowel of the first
syllable does not change, except if we claim that the consonants surround-
ing it are blocking the process. But this has no phonetic motivation.
With the other examples, the vowel(s) supposed to influence the process
are all [-high], so even if the vowel reduction rule does apply (which
it does), there is still no explanation for the other process which
leads to the alternation. The generative approach has therefore failed
in this instance too, since we are still left with the problem of decid-
ing what the underlying vowel of the stem is, i.e. we must make an ab-
stract choice.

Section 4

We have seen how it is possible to isolate the underlying vowels in
cases where we have phonemic neutralizations between either short or
long, front or back vowels. This has also helped us establish the fact
that, in certain environments, /u/ and /i/ are neutralized to a single
entity, [i]. We have established that this is entirely a phonological
process and not the result of fast speech rules even though [i], unlike
[a], is not accepted as a phoneme in Hausa.
Next we considered a process that could be entirely the result of fast speech rules (i.e. the alternations of the dative pronouns) and yet we were still able to posit an underlying vowel in cases where the phonetic realization was different from the underlying phoneme. In each case, we have instances where certain vowels are realized as [i] but we have been able to explain the process through the traditional generative approach. With the words considered in section 3, it appears as if the vowel alternations are a result of a process which may have been phonetically or phonemically motivated or, as with the case of [saam̩?] [saamu?] [saamu?], have no valid motivation at all. In either case, whatever process may have motivated the alternations, it has now become so pervasive as to completely distort whatever vowel was the underlying one in each case. We are therefore left with alternants which have no plausible explanations either from historical⁴ or synchronic evidence.

One way of getting around this impasse is to accept Vennemann's (1972, 1974) proposal of natural generative phonology. His approach posits two main principles (1974:346-47):

1. The No-Ordering Principle: rules of grammar cannot be extrinsically ordered.

2. The Strong Naturalness Condition:
   Part 1. Lexical representations of non-alternating parts of morphemes are identical to their phonetic representations.
   Part 2. Lexical representations of roots are identical to one of the radical 'allomorphs' of the paradigm, plus an (often empty) set of suppletion rules."

This therefore entails a lexicon of "paradigms" with rules "which function entirely as redundancy rules for forms already registered in the lexicon, and as generative rules only when unknown words are adapted to the lexicon, or new words are created by a speaker..." (1974: 349).

⁴I doubt if there will be historical evidence that can explain these particular alternations, although this does not necessarily mean that I agree, as with Swadesh (1957), that historical evidence has no relevance at all in determining the phonemic system of a language.
If we accept this hypothesis completely, then all the alternating forms will be included in the lexicon and there will be no cases of vowel neutralization—whether phonemic or phonetic. Note that the alternations in section 3 cannot be considered "fast speech" rules (Vennemann 1974:350) because they are so persistent as to cause confusion even in orthography. On the other hand, we might consider incorporating Hudson's modification (1974:179) of the aforesaid hypothesis and try positing an "archiphoneme", which is just a step away from full specification.\(^5\) In either case, we do away with cases of absolute neutralization, are able to explain the non-generatable alternations in the dative pronouns and the indeterminate cases in section 3. We therefore get to keep our rules as they are intrinsically ordered. They will serve as redundancy rules in the case of all the forms accepted into the lexicon and as generative rules when new words are accepted into the language. An argument can be given that this solution is no better than the traditional generative approach but notice that we have no way of predicting the other radical alternations as in the dative pronouns such as [miŋ] but not *[maŋ], except by accepting all the different alternations in the lexicon. Also, whereas it can be claimed that native Hausa speakers are capable of saying [masu?] in careful speech as opposed to [mesu?] and so could be expected to be aware of the underlying phonological /a/ in the given environment, this claim cannot be made in the case of the forms in section 3.

On the strength of the above evidence, therefore, our claim that the only plausible approach towards explaining these phenomena is the natural generative approach seems adequately justified.

\(^5\)Note that this treatment is neither completely similar to the concept of "normalisation" as proposed by Swadesh (1957), nor the "archiphoneme" of the Prague school, nor the "morphophoneme" of the structuralists (e.g. Harris 1951), as this "archiphoneme" does not meet the full specifications defined for any of the above cases.
REFERENCES


WEST CHADIC VERB CLASSES

Russell G. Schuh

1. Chadic verb classes

1.1. Newman's Proto-Chadic classes. Parsons (1960/61) proposed a classification of Hausa verbs called the "Grade System". In this system, a verbal "base" composed of a verb minus tone and final vowel potentially "operates" seven "grades", each of which carries a characteristic tone pattern and final vowel. Thus from the base say- 'BUY', we have Grade I sàyàa 'buy for', Grade II sàyàa 'buy', Grade IV sàyèe 'buy all of', etc. The grade system has become the standard framework for discussing Hausa verb classes, even for those not wholly in agreement with the system. Moreover, the concept of abstract lexical bases which are supplied with tone and final vowel only in specific morpho-syntactic contexts has been widely applied in other Chadic languages such as Bolanci (Lukas 1970-72).

Newman (1975) argues that this system gives an inaccurate picture of verb classes in particular Chadic languages and is not a system which should be reconstructed for Proto-Chadic. In his reconstruction, based on data from eight Chadic languages, Newman argues that tone pattern and final vowel are part of the lexical specification of a verb. In the case of Hausa (cf. Newman 1973) an abstract verbal base does not operate seven grades. Rather, one of the "grade forms" (Grade I, II, or III depending on the verb) is basic and other grades are derived through replacement of

*Data on both the Bade and Bole groups were collected while working as a Research Fellow with the Centre for the Study of Nigerian Languages, Abdullahi Bayero College/Ahmadu Bello University (now Bayero University College, Kano). Data on Ngizim were originally collected as part of a comparative Chadic syntax project funded by a National Science Foundation Grant GS-2279 (Paul Newman, principal investigator). I am grateful to Paul Newman for many helpful comments on the original draft of this paper.
tone pattern and final vowel, e.g. the verb 'buy' has the lexical form sàyi (= Parsons' Grade II in pre-noun object form) and has derived forms sàyàa 'buy for' (= Parsons' Grade I) and sàyèe 'buy all of' (= Parsons' Grade IV), among others.

The system Newman reconstructs for Proto-Chadic has verbs falling into two final vowel classes, which he terms the "a" class and the "e" class, and essentially two tone classes, a high tone class and a low tone class. For disyllabic verbs, the tone classes are Hi-Hi and Lo-Lo, for monosyllabic verbs, Hi and Lo. The tone and vowel classes are reconstructed as cross-cutting so that for any particular CVCV sequence there could potentially be four different disyllabic verbs, and likewise for any particular CV sequence there could potentially be four different monosyllabic verbs. This is summarized in the tables in (1) with the arbitrarily chosen sequences takV and bV:

<table>
<thead>
<tr>
<th></th>
<th>Disyllabic</th>
<th>Monosyllatic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a</td>
<td>e</td>
</tr>
<tr>
<td>Hi-Hi</td>
<td>táká</td>
<td>táké</td>
</tr>
<tr>
<td>Lo-Lo</td>
<td>tàkà</td>
<td>tàkè</td>
</tr>
</tbody>
</table>

1.2. West Chadic classes. Newman's classification was meant to apply to the proto-language for the entire Chadic family. In order to make the reconstruction valid for this time depth, it was necessary to select languages from diverse Chadic subgroups and to give a general picture of the systems involved, in some cases ignoring details which appeared irrelevant to an overall reconstruction.

The purpose of this paper is to take up the question of how this reconstructed system works for a particular Chadic subgroup when details of the verbal system of that subgroup are taken into account. As we will see, the system reconstructed for West Chadic differs in some res-

---

1The system Newman (1975) reconstructs is actually a bit more complex than this. For example, he suggests that for disyllabic verbs there may have been three tone classes: Hi-Hi, Lo-Lo, and more tentatively, a Lo-Hi class. I do not believe that the divergence which my exposition makes from his violates the spirit of this reconstruction.
pects from Newman’s Chadic system. These differences may, of course, represent innovations that took place after the separation of West Chadic from the remainder of the family, but certainly the facts documented here must be reconciled with any broader reconstructions.

The languages to be discussed here come from two subbranches of West Chadic: the Bole group and the Bade group. Languages from these groups examined in this study are given in (2a–b).

(2) a. Bole group

Kanakuru Karekare Gera Geruma Galambu Kirfi Ngamo Bolanci Bele

b. Bade group

Duwai Ngizim Bade

These two groups of languages represent the most widely divergent subbranches of West Chadic (see Newman 1977), and for the most part they are not in geographical contact. One can therefore justifiably

2 Also part of the Bole group are Tangale and Pero, both fairly closely related to Kanakuru, and Maha, which is close to Bolanci and Ngamo (cf. Newman 1965 for Maha). I did not have access to any grammatical materials on these languages, but data from wordlists do not appear to vitiate the system reconstructed here. Kanakuru data considered were from Newman (1974). Data on other languages are from my own field notes. Lukas (1970-72) was consulted in some cases for Bolanci, mainly to confirm facts in my own Bolanci data.

3 For discussion of Ngizim verbs, see Schuh (1971). However I now look at Ngizim verb classes in a somewhat different way than was presented there. Duwai and Bade data are from my field notes. For remarks on classification, etc., see Schuh (1974/75, 1975).

4 The Ngizim now neighbor the Karekare, but this is the result of a relatively recent move south by the Ngizim.
assume that detailed points of resemblance in the verbal systems of lan-
guages of the two groups are the result of shared retention from Proto-
West Chadic rather than of chance or continued contact. An apparent
major omission from a comparative study of West Chadic is Hausa. The
categorization of Hausa verbs differs significantly from the system re-
constructed here for West Chadic, as a comparison with the system of
either Parsons (1960/61) or Newman (1973) would show. While I believe
the synchronic Hausa system can be historically reconciled with the re-
constructed West Chadic system, a discussion of the developments invol-
ved would exceed the scope of this article.

Returning to Newman's (1975) reconstruction for Proto-Chadic, the
following points of comparison with the present reconstruction can be
made:

(a) I am in agreement with Newman in rejecting the notion that the
lexical form of verbs consists of an abstract base from which all actual
realizations of verbs are derived. In particular, we agree in saying
that the final vowel of a verb must be part of a verb's lexical repre-
sentation, and moreover, that all verbs fall into two and only two final
vowel classes: -ə and -ə.

(b) Newman's Proto-Chadic reconstruction and my West Chadic reconstruc-
tion disagree in essentially two ways: first, in my reconstruction,
tones of verbs are entirely predictable, and second, for a large class
of verbs, final lexical vowel is also predictable. The system I have
reconstructed for West Chadic is given in (3):
(3) Final vowel classes:⁵  *-a for CV and ŃCV verbs
      *-u for CV, ŃCV, and ųCV verbs⁶

Tone: tones on all verbs are (Lo...) Hi, i.e. low tone on
all syllables but the last; monosyllabic verbs are
all high tone since they have only a "last" syllable

Although the reconstructed final vowels have been replaced by some other
vowel or even lost completely in some of the modern languages, there is
never more than a two-way final vowel distinction in verbs, and that
distinction is essentially between a high vowel and a low one.

1.3. What are the verbs being classified? Many Chadic languages have
fairly elaborate systems of tense/aspect marking. Most investigators
agree, however, that Proto-Chadic can be reconstructed as having had
only two or three basic tense/aspect verb forms.⁷ (See Jungraithemayr
(in press) and Newman (in press) for two points of view on this.) The
more elaborate modern systems result from productive use of various
processes involving periphrasis or verb derivation.

The reconstructed Proto-Chadic aspect marking system and the one
found in almost all the languages on which this study focusses involve
differences in the form of the verb stem—normally differences in final
vowel and sometimes in tone. The fundamental question is, then, can any

---

⁵The vowel system proposed for Proto-West Chadic (as well as Proto-
Chadic) is the following:

<table>
<thead>
<tr>
<th>Before pause</th>
<th>Word-initial</th>
<th>Medial</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>/u/</td>
<td>/i/</td>
</tr>
<tr>
<td>/a/</td>
<td>/a/</td>
<td>/a/</td>
</tr>
</tbody>
</table>

/ə/ is a cover symbol for [i], [u], [i], the
choice of which is conditioned by adjacent
segments

⁶Ñ = light syllable, Ń = heavy syllable (Newman 1972). Light syllables
have a short vowel nucleus, heavy syllables have a long vowel nucleus
or are closed by a consonant. In the language groups here, word-
initial light syllables have the structure (C)V, heavy syllables (C)VV
or (C)VC. The initial consonants are parenthesized since both the Bole
and Bade groups must be reconstructed as having had vowel-initial roots,
though some of the modern languages like Bolanci begin all words with a
consonant (this consonant is ? in words with original initial vowel).

⁷To simplify discussion I will use "aspect" as the general term for
distinct verb forms in the tense/aspect dimension.
one of the "basic" aspect forms be considered as "lexical", i.e. "most basic"?

While many details remain to be learned about this dimension of the Chadic verbal system, we can reconstruct three (and probably only three) basic aspects for West Chadic: perfective, subjunctive, and imperfective. The perfective may be looked upon as the "lexical" form since in West Chadic it carries information which is unpredictable and frequently neutralized in other aspects. This information is a lexical distinction in final vowels. Thus in Bade there is no way to predict whether a CVCV verb in the perfective aspect will end in -áw or -ú, whereas all verbs end in -í in the subjunctive, e.g. perfective nà màsí 'I bought', nò gáfáw 'I caught', but subjunctive nà màsí 'that I buy', nà gàfí 'that I catch'.

Section 2 of this paper is devoted to evidence for reconstruction of the perfective aspect form of verbs in West Chadic, which will likewise be evidence for the reconstructed classes given in (3). Section 3 gives evidence for a tentative reconstruction of the subjunctive aspect in West Chadic as contrasted with the lexically basic perfective. Reconstruction of the imperfective is more complicated and will not be attempted here.

2. Reconstruction of perfective verb classes

2.1. The Bole group. The vowel classes and tonal patterns found in the Bole group are given in (4) with examples from three representative languages in (5). All the citations in (5) are the verb as used when immediately followed by the perfective suffix, reconstructed as *kò.

(4) Vowel classes:  

\[ \begin{align*}
\text{C-} & \quad \text{C-aa; ii/-u/\#} \\
\text{SC-} & \quad \text{u} \\
\text{SC-} & \quad \text{u}
\end{align*} \]

Tone classes:  

\[ \begin{align*}
\text{Caa, Cii/uu} & \quad \{ \text{Hi} \} \quad \text{Hi} \\
\text{SCa/\#} & \quad \{ \text{(Hi)} \} \quad \text{Hi} \\
\text{SCaa} & \quad \{ \text{Lo} \} \quad \text{Hi} \\
\text{SCu} &
\end{align*} \]
2.2. The Bade group. The vowel classes and tonal pattern for perfective aspect verbs in the Bade group are given in (7) with representative verbs in (8). The citations in (8) are the verbs in the perfective aspect as they appear before pause. They can be analyzed as having a perfective suffix reconstructable as *-wú (>* -w in Bade and Ngizim, >-wó or -ó in Duwai\(^{10}\)), which is probably cognate with the Bole group *ko. In Bade and Ngizim, this suffix -w combines with a stem final high vowel to give /u/.

(7) Vowel classes:  
C- \[ -a; -u \ (u + [ə, u, i] \text{ depending on phonetic context}) \]  
SC- \[ -u \]  

Tones: verbs in the perfective all fall into the pattern (Lo...) Hi (but see remark on Duwai monosyllabic verbs below)

(8)  
<table>
<thead>
<tr>
<th>Bade (Gashua)</th>
<th>Ngizim</th>
<th>Duwai</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu</td>
<td>jú</td>
<td>júwó</td>
</tr>
<tr>
<td>(taw)</td>
<td>(taw)</td>
<td>tůwó</td>
</tr>
<tr>
<td></td>
<td>(maw)</td>
<td>můwó</td>
</tr>
<tr>
<td>Ca</td>
<td>sáw</td>
<td>sáwó</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>mawó</td>
</tr>
<tr>
<td>ŚCu</td>
<td>bǒnú</td>
<td>bǒnó</td>
</tr>
<tr>
<td></td>
<td>kělú</td>
<td>kěró</td>
</tr>
<tr>
<td></td>
<td>mǎsú</td>
<td>(mǎsó)</td>
</tr>
<tr>
<td>ŚCa</td>
<td>(dǎřú)</td>
<td>dǎřwó</td>
</tr>
<tr>
<td></td>
<td>kědawá</td>
<td>kědáká</td>
</tr>
<tr>
<td></td>
<td>nǎwàwá</td>
<td>nůwàwó</td>
</tr>
</tbody>
</table>

---
\(^{10}\)In Duwai, all verbs ending in -a add -wó. In addition, verbs deriving from original *CV or *SCu whose last consonant is a labial or a palatal add -wó (ěrbu wó 'move', můwó 'take', zǒnyu wó 'tell, shu wó 'lift') while verbs ending in other consonants simply end in -ó (bědó 'close', ǎcko 'extract', nó 'count', ró 'stop'). There are, however, a few unexplained exceptions to this generalization, e.g. tůwó 'eat', where we would expect *tů, and kó 'wrestle', where we would expect * núwó.

\(^{11}\)Duwai has no disyllabic verbs of the structure CaCV since medial short a has shifted to aa or e. The contexts for choosing aa or e are unclear.
In Bade and Ngizim, all CV verbs but the verb 'go' have shifted to the -a class. Duwai retains both vowel classes for CV verbs but deviates slightly from the reconstructed tone pattern. For verbs where the perfective suffix takes the -wó form (cf. fn. 10), this syllable belongs to the (Lo...) Hi tone pattern. CV verb stems with the -wó suffix therefore have two syllables for purposes of tone assignment and take the same tone pattern as those CVCV stems where -wó has been reduced to -ó.

With the slight adjustments just mentioned, the final vowel and tone system of Bade group languages reconstructs to one virtually identical to that reconstructed for West Chadic.

3. The subjunctive

A detailed reconstruction of the subjunctive has not been worked out for West Chadic. As an approximation, one can say that formation of the Proto-West Chadic subjunctive involved adding -i to the lexical stem with retention of the (Lo...) Hi tone pattern. The comparative data strongly suggest that the subjunctive -i was added to the lexical (= perfective) stem, including its final vowel. For -u stems, the -u was elided leaving only -i, but for -a stems, -a was retained to give a diphthong -ai (> -e in some languages). However, a number of modern languages simply replace both lexical -u and -a by -i so the exact form of the proto-subjunctive must remain undetermined at this time.

A number of languages have different tones in the subjunctive from those in the perfective, but in both the Bole and Bade groups the evidence for reconstructing a (Lo...) Hi pattern for the subjunctive is strong. Even where this pattern is not used today, the evidence suggests that tonal differences from the (Lo...) Hi pattern are secondary and do not represent an original lexical distinction.
(5)

<table>
<thead>
<tr>
<th>Bolanci</th>
<th>Karekare</th>
<th>Kirfi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cii/uu</td>
<td>tí-</td>
<td>tí-</td>
</tr>
<tr>
<td>Caa</td>
<td>sáá-</td>
<td>shée-</td>
</tr>
<tr>
<td>ŠCu/Ø</td>
<td>wódú-</td>
<td>?ár-</td>
</tr>
<tr>
<td>sól-</td>
<td>dák-</td>
<td>bírú-</td>
</tr>
<tr>
<td>ŠCaa</td>
<td>kùmáá-</td>
<td>(kwálú-)</td>
</tr>
<tr>
<td>pátáá-</td>
<td>fátá-</td>
<td>(fát-)</td>
</tr>
<tr>
<td>ŠCu</td>
<td>dònáá-</td>
<td>dònó-</td>
</tr>
<tr>
<td>mbàalú-</td>
<td>mbùlmú-</td>
<td>bùmbú-</td>
</tr>
</tbody>
</table>

Comparing the Bole group vowel classes with the reconstructed classes in (3), the Bole -aa class will be seen to correspond to the *-a class and the Bole group -ii/-u/Ø class to the *-u class. Of the languages examined for this paper Gera, Geruma, Galambu, and Kirfi retain the final vowel class distinction only in CV verbs. All other verbs in these languages have been shifted to the -ii/-u/Ø class.

Final -ii is found only with monosyllabic verbs in some languages, but the important fact is that no language has a contrast between verbs ending in -ii and verbs ending in -u(u). For CVCu/Ø verbs, some languages always have final Ø, e.g. Ngamo, Galambu. Other languages have Ø or -u depending on phonological context, e.g. in Bolanci the verb ends in -u except where the second consonant is a semivowel or liquid (wódú-wòo-yíi 'he bit' but sól-wòo-yíi 'he built').

Verbs in the Bole group have the reconstructed tone pattern (Lo...) Hi with one important exception: verbs which are reflexes of the reconstructed *CVCú type have initial high tone in all the languages except Karekare. However, I pointed out above that no modern

---

8Lukas (1970/71:270-71) does not mention that verbs of this class can appear without stem-final -u. The speakers that I worked with could pronounce all such verbs with -u but never did for the first form volunteered when the second consonant was a liquid or semivowel. Verbs in Karekare can also be pronounced with stem-final -u, but all verbs of the CVCu/Ø class, regardless of what the second consonant is, are usually pronounced with no stem-final vowel.

9In Karekare all disyllabic verbs have Lo Hi tone. Original CVCú verbs which have been reduced to CVG- have low tone on this syllable and
Bole language retains a final vowel for all reflexes of *CVCu stems, and indeed some languages never have a stem final vowel for such verbs. It therefore must have been a feature of the proto-language of the Bole group that stem-final -u could be deleted where such deletion was phonologically permissible. Deletion of final -ù gave new CVC stems which followed the canonical (Lo...) Hi pattern and automatically shifted to high tone along with CV stems. In those stems where final -u's, for phonological reasons, were not deleted, the -u's were reinterpreted by speakers as being epenthetic and thus irrelevant to the canonical verb stem tone pattern, with the result that even CVCu verbs were given high tone. CVCaa stems were not subject to final vowel deletion nor were SCo stems (because of the impossible syllable types which would result), and these classes of verbs thus have retained the Lo Hi pattern. Evidence in Bolanci for this explanation of the high tone in CVC(u) stems comes from verbs used with feminine singular and with plural subjects. When a verb has a second or third person feminine singular subject, a suffix -aC' (C' = following consonant) is obligatorily added to make a feminine singular subject stem. When the subject is plural, a suffix -an is added to make a plural subject stem. The resultant ÇVC' and ÇVCán stems always have the tone pattern Lo Hi, e.g.

(6) dúw-wòò-yíi 'he beat'  
dúw-ák-kòò-yíi 'she beat'  
dúw-á'n-gòò-yíi 'they beat'

falling tone on the perfective suffix, e.g. ýàd-kàù 'he bit'. By the reconstruction here, high tone on original *CVCu verbs must be an innovation, which means either that Karekare first split off, then the ancestor to the remaining languages of the Bole group gave high tone to these verbs, or that Karekare has lowered the high tone on these verbs to bring them tonally back in line with the dominant Lo Hi pattern of the large majority of verbs. Some languages other than Karekare have a small number of CVCu verbs with initial low tone. In most cases there is evidence that these are of secondary origin, resulting from either reduction of a long vowel or geminate consonants with retention of the original tone, e.g. Gera hál-mí 'he got wet' (cf. Kirfi àlú-wo), Galambu bày-álà 'he bought' (cf. Kirfi báayú-wò).
In the description below, rules for subjunctive formation for each language are given followed by considerations for a reconstruction for the subjunctive in that group. Examples are the same verbs as those used to illustrate the perfective.

3.1. The Bole Group.

(9) Bolanci: CV verbs replace the lexical vowel with -a and add -i; the tone is low
\[ \text{šCu/∅ verbs end in -i} \]
\[ \text{šCaa and šCa verbs end in -e} \]
\[ \text{Lo Hi} \]

Karekare: CV verbs replace the lexical vowel with -a and add -i as a separate syllable; tones are Lo Hi
CVC∅ verbs become CVCee
\[ \text{šCaa and šCu verbs end in -i; tones are Lo Hi} \]

Kirfi: CV₁V₁ verbs become CV₁V₁?V₁ (V₁ = lexical vowel; tones are Hi Lo)
\[ \text{šC(V) verbs end in -l; tones are Lo Lo (recall that Kirfi does not preserve a CVCa class)} \]
\[ \text{šCu verbs end in -l; tones are Lo Hi} \]

(10) Bolanci          Karekare          Kirfi
Cu   tài          tài          tī?l          'eat'
Caa  sài          sāi          shēe?è        'drink'
šCu/∅ wòdî        yâdê        ?ârî          'bite'
šCaa sòlî         dâkê        bûrî          'build'
šCaa kùmè        kâlî        (kwâtî)       'hear'
pêtè fâtî        (fâtî)       'go out'
šCu dôndê        dândî       ëdônî         'sew'

For many monosyllabic verbs the evidence suggests that -i was added directly to the perfective stem, including vowel. In Kirfi, the

---

12Lukas (1970/71:248) calls this aspect the "Präteritum". Data on monosyllabic verbs come from Lukas. The remainder of the data are from my own notes but agree with those of Lukas.

13One CVV verb, nêe- wā' 'see', was recorded for Kirfi. In the subjunctive, this verb is nêe?è.
added -i assimilated to the preceding vowel (the Gera system is similar), while in Bolanci and Karekare, the ii/uu of the perfective stem was replaced by -a, either as dissimilation from the added -i, or by analogy with verbs having lexical -a, which comprise the majority of monosyllabic verbs.

For disyllabic verbs, the evidence for final vowel is contradictory. Kirfi (as well as Galambu and Gera) replaces the lexical vowel with -i in all cases, but recall that these languages have only a single lexical vowel class, the -a class having fallen together with the -u/Ø class. Bolanci and Karekare each have two vowel classes in the subjunctive (as does Ngamo, whose system is identical to that of Bolanci), but wherever Bolanci has final -i Karekare has final -e and vice versa. At present I have no explanation for this state of affairs. Note that in both languages, SCaa and SCu verbs fall into the same subjunctive vowel class.

Arriving at a historical explanation for the present subjunctive tonal system is as problematic as that for the vowels. As with final vowels, Ngamo patterns with Bolanci, while Galambu and Gera pattern with Kirfi. In no case are subjunctive tones not predictable either from the form of the verb itself or from the tone in the perfective.

3.2. The Bade group.

(11) Bade (Gashua): all verbs replace the lexical vowel with -i; tones are (Lo...) Hi

Ngizim: all verbs replace the lexical vowel with -i; CV verbs have Hi tone if the consonant is voiceless, Lo tone if the consonant is voiced; other verbs have all Lo tones if the first syllable is Co-, all Hi tones otherwise

Duwayi: -i is added to the lexical form (-i elides final lexical -i, but lexical -á is retained to give a diphthong -ái); tones are (Lo...) Hi
<table>
<thead>
<tr>
<th>Bade (Gashua)</th>
<th>Ngizim</th>
<th>Duawai</th>
</tr>
</thead>
<tbody>
<tr>
<td>tì</td>
<td>cí</td>
<td>cí</td>
</tr>
<tr>
<td>ml</td>
<td>àamí</td>
<td>'take'</td>
</tr>
<tr>
<td>(sí)</td>
<td>(shí)</td>
<td>sai</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>mái</td>
</tr>
<tr>
<td>bènì</td>
<td>bènyì</td>
<td>bènyì</td>
</tr>
<tr>
<td>kàlì</td>
<td>kàrlì</td>
<td>àakàlì</td>
</tr>
<tr>
<td>màsì</td>
<td>màshì</td>
<td>(màashì)</td>
</tr>
<tr>
<td>dòrì</td>
<td>dòrì</td>
<td>àadòrì</td>
</tr>
<tr>
<td>kàdì</td>
<td>kàdì</td>
<td>àakàdì</td>
</tr>
<tr>
<td>nàwì</td>
<td>nàwì</td>
<td>àanàwì</td>
</tr>
<tr>
<td>kàlmì</td>
<td>kàrmì</td>
<td>kòrmì</td>
</tr>
<tr>
<td>nàayì</td>
<td>nàayó</td>
<td>nàayì</td>
</tr>
</tbody>
</table>

Only Duawai adds the subjunctive -i directly to the lexical stem, including its final vowel. If this is the system to be reconstructed for the proto-language, replacement of final lexical vowel by -i in all verbs in Bade and Ngizim can be explained by analogical extension from -u verbs (where the -u is elided by the -i) to -a verbs. Numerically, the -u verbs are many times more common than the -a verbs.

The (Lo...) Hi tone pattern seems to be reconstructable in the subjunctive for this group. Ngizim and some Bade dialects have tone patterns other than this one, but in Ngizim tones are determined by initial syllable shape whereas in Bade they are determined by initial consonant type (verbs beginning in voiced obstruents are low, others high). Since tone differentiation depends on entirely different factors in these languages, tonal differentiation in the subjunctive is almost certainly a secondary phenomenon in those Bade group languages which have it.

---

Many (but not all) CV and CoCV verbs in Duawai add a prefix aa-in aspects other than the perfective. This is not a specific property of the subjunctive.
4. The Kanakuru system

Newman (1974) has given a complete description of the verbal system of Kanakuru, a language of the Bole group somewhat more distantly related to the languages documented above than any of them are to each other. The Kanakuru system shows little resemblance to that reconstructed here. In particular, it does not have the correlations noted in (3) between final vowel class and stem shape nor does it use an invariant (Lo...) Hi pattern in the perfective or any other aspect. However, comparative evidence allows us to discover the innovations that have taken place in Kanakuru.

Kanakuru verbs have two final vowel classes: -i and -e, e.g. ỳîři 'stop', kàpè 'sow'. Newman (1975:78-79) equates these vowel classes with the Proto-Chadic -ə and -a classes, respectively, and at first glance this seems correct. However, when subjected to close scrutiny it does not hold up in important details. Frajzyngier (1976) gives us the key for understanding how the Kanakuru system matches the rest of the Bole group. In Frajzyngier's analysis, verbs with final -i all have the root structure CVC- while verbs with final -e have root structure CVCC-, CVVC-, or CVcc- (where cc = a geminate consonant). Thus verbs in -i are those of the structure ŠCV, and verbs in -e are those of the structure ŠCV. In fact the verb roots which Frajzyngier analyzes as CVcc- never appear with a geminate consonant, but the evidence that the consonants in question derive historically from geminates is very strong, even if one rejects Frajzyngier's synchronic analysis. First, comparative evidence from Pero and other Bole group languages shows that gemination of the medial consonant of verb roots, often to show plurality of subject or object, has been a common process in this group. Second, sound changes within Kanakuru allow us to understand what happened to previously geminate consonants. Single stops intervocally have weakened to corresponding sonorants, e.g. *àdî > àrî 'chew' (see Newman 1970). This sound change did not affect geminate consonants, but since there was no longer a contrast between geminate and simple consonants, the geminates were simplified to simple consonants with no reduction in the number of contrasts, e.g. *kàppè > kàpè
'sow' (cf. Bolanci kàppú). Frajzyngier (1976:202-203) assumes that for all verbs of the shape CV Ce, the second C was originally gominate. However, I believe at least some CV Ce verbs in Kanakuru are reflexes of Proto-West Chadic *CV Ca, and that Kanakuru CV Ci are reflexes of Proto-West Chadic *CV Cu.

Let us now compare some Kanakuru verbs with their cognates in Bolanci in both the perfective and subjunctive forms:

(13)

<table>
<thead>
<tr>
<th></th>
<th>Bolanci</th>
<th>Kanakuru</th>
</tr>
</thead>
<tbody>
<tr>
<td>'refuse'</td>
<td>küdú-</td>
<td>kúdí</td>
</tr>
<tr>
<td>'spit'</td>
<td>tūfú-</td>
<td>tūbí</td>
</tr>
<tr>
<td>'sweep'</td>
<td>dāmāa-</td>
<td>dāmè</td>
</tr>
<tr>
<td>'cook'</td>
<td>dīnkú</td>
<td>dīngé</td>
</tr>
<tr>
<td>'sow'</td>
<td>kàppú-</td>
<td>kàpè</td>
</tr>
</tbody>
</table>

It is immediately apparent from these data that the final vowels of the Kanakuru lexical forms correspond not to the Bolanci lexical (perfective) forms, but to the Bolanci subjunctive.

So far the discussion of Kanakuru has centered on disyllabic verbs. Kanakuru has no "true" monosyllabic verbs, but there are verbs of the form CVV. Some of these are reflexes of disyllabic verbs with loss of an intervocalic consonant, e.g. tāi 'go' < *təwí < *təfí (cf. Hausa təfí), but some are cognate with true monosyllabic verbs in other languages. In CVV verbs, the same two final vowel classes, -i and -e, are found as with normal disyllabic verbs. Again, a comparison with Bolanci is instructive:

(14)

<table>
<thead>
<tr>
<th></th>
<th>Bolanci</th>
<th>Kanakuru</th>
</tr>
</thead>
<tbody>
<tr>
<td>'eat'</td>
<td>tíi-</td>
<td>túi</td>
</tr>
<tr>
<td>'return'</td>
<td>máa-</td>
<td>mái</td>
</tr>
</tbody>
</table>

As in (13), the Kanakuru forms correspond to the Bolanci subjunctive forms. Newman equated the final -i of these CVV verbs with the vowel of the Proto-Chadic → class. In the case of reflexes of true monosyllabic verbs, however, the proper identification with the Proto-
Chadic vowels would have been the first vowel. The final vowel is the subjunctive -i added to the original lexical stem, which includes the lexical vowel. The historical path by which Kanakuru began utilizing the subjunctive stem as its lexical stem remains to be discovered.

Tones of Kanakuru verbs have not yet been mentioned. Kanakuru verbs fall into two tone classes, Hi Lo and Lo Hi, largely predictable on the basis of the initial consonant: if the verb begins in a voiced stop it is Hi Lo; if it begins in a voiceless or glottalized stop its tones are Lo Hi; if it begins in a sonorant, tone is not predictable. These tone patterns are subject to considerable contextual modification, however, so that they must be looked upon as underlying tones upon which morphophonemic rules operate, not as some sort of canonical phonetic shape for verbs, which the (Lo...) Hi pattern in other languages appears to be. Without going into further detail here, I will simply say that all the evidence suggests that the present tonal system for verbs in Kanakuru involves considerable modification of the original system since the split of that language from its Bole group relatives.

5. **Summary**

Canonical lexical structures for verb stems in Proto-West Chadic were reconstructed, using data from a number of fairly distantly related languages. As in Newman (1975), two final vowel classes for verbs were reconstructed, a -u class and an -a class, but in contrast to Newman's reconstruction, these two vowel classes were shown not to appear freely with verb stems of any structure. The reconstructed -a class included only verbs of the shape CV or ŠCV though verbs of the -u class could have any of the shapes CV, ŠCV, or ŠCV. In further contrast to Newman's Chadic reconstruction, tone for verbs in the reconstructed West Chadic system was found to follow a predictable (Lo...) Hi pattern.

Finally, a historical analysis of the Kanakuru verbal system was given in the light of the reconstructed Bole group system.
APPENDIX

The following table is a list of fifty verb stems which can be reconstructed with a high level of confidence for West Chadic. They have been grouped according to stem class, and within each class, in approximate order of descending confidence in details of how they should be reconstructed. Cognates from every language where they have been identified are included so that other investigators may have as broad a range of data as possible to compare within this group and with languages outside this group. Most sound changes affecting consonants are either documented or are immediately obvious from the data here. Fairly systematic vowel changes in three languages can be seen in these data: in Gera, medial short *a has usually reduced to i or u, and in Kana-kuru *a has usually reduced to e. In Bolanci *a has usually become o in -u stems. Note that in Bolanci a in verb stems assimilates to final -e in the subjunctive and in verbal nouns. Furthermore, in Lukas' (1970-72) list of about 400 verbs, less than ten have short e as their vowel. The implication is that short e and o, which are fairly common in Bole group languages, may all come from *a. Within the data here, vowel correspondences other than those noted have so far not allowed the establishment of any systematic sound laws.

An interesting observation in identifying cognates is that while CVCCu verb stems are numerically among the most common type in all the languages, very few such stems can be easily reconstructed. On the other hand, a large number of CV stems, of which most languages have less than twenty, can be reconstructed with considerable confidence. For CV stems, even the stem vowel (a or u) can be reconstructed, but among CVCV stems, where the final -u/-a distinction should also be found, very few verbs can be reconstructed with certainty as having final -a.

The vowel system used in the reconstructions is given in footnote 5. The letter V stands for a reconstructed vowel whose quality is uncertain.
<table>
<thead>
<tr>
<th>Cu</th>
<th>'cat'</th>
<th>'ripen'</th>
<th>'do'</th>
<th>'drink'</th>
<th>'return'</th>
<th>'stand up'</th>
<th>'see'</th>
<th>'get'</th>
<th>'put down'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>tú</em></td>
<td><em>nú</em></td>
<td><em>yú</em></td>
<td><em>sá</em></td>
<td><em>má</em></td>
<td><em>tlá</em></td>
<td><em>ná</em></td>
<td><em>bá</em></td>
<td><em>zá</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ca</th>
<th>Karekare</th>
<th>Ngamo</th>
<th>Bolanci</th>
<th>Bele</th>
<th>Kirfi</th>
<th>Galambu</th>
<th>Gera</th>
<th>Geruma</th>
<th>Kanakuru</th>
<th>Bade (Gashua)</th>
<th>Ngizim</th>
<th>Duwai</th>
<th>Hausa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tú-</td>
<td>nú-</td>
<td>yú-</td>
<td>sá-</td>
<td>má-</td>
<td>sá-</td>
<td>má-</td>
<td>má-</td>
<td>mái</td>
<td>tálw</td>
<td>tláw</td>
<td>tláw</td>
<td>tláw</td>
</tr>
<tr>
<td></td>
<td>ná-</td>
<td>wá-</td>
<td>zá-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>báw</td>
<td>báw</td>
<td>báw</td>
<td>bó</td>
</tr>
<tr>
<td></td>
<td>wá-</td>
<td>zá-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>'suffice'</td>
<td>'wrestle'</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ná-</td>
<td>wá-</td>
<td>zá-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ázáá</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>CVCa</td>
<td>'go out'</td>
<td>'wait for'</td>
<td>'hear, feel'</td>
<td>'wash'</td>
<td>'wipe'</td>
<td>'open'</td>
<td>'chase'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
<td>----------</td>
<td>------------</td>
<td>-------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ka</td>
<td>fátá</td>
<td>*dérá</td>
<td>*kémá</td>
<td>*bóná</td>
<td>*sôdâ</td>
<td>*bôdá</td>
<td>*râkâ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ng</td>
<td>hätá</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>rôkô</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bo</td>
<td>pátáa-</td>
<td>kümáa-</td>
<td>bìnáa-</td>
<td>shlddâa-</td>
<td></td>
<td></td>
<td></td>
<td>rôkkû-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be</td>
<td>fétí-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ki</td>
<td>fât-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mbè??yá-</td>
<td>'untie'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ga</td>
<td>páz-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mby-</td>
<td>'untie'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ge</td>
<td>fid-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sâd-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gm</td>
<td>fât-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kn</td>
<td>pòrí</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>wûdê</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ba</td>
<td>vélú</td>
<td>dérú</td>
<td>kámâw</td>
<td>sôdû</td>
<td></td>
<td></td>
<td>lâlkû</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nz</td>
<td>vérú</td>
<td>dêráw</td>
<td>kómâw</td>
<td></td>
<td></td>
<td></td>
<td>râkâw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Du</td>
<td>vêrô</td>
<td>dêrawô</td>
<td>kêmûwô</td>
<td>sêndô</td>
<td>bêdô</td>
<td>rërkô</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ha</td>
<td>fitá</td>
<td>jîráa</td>
<td>kûnnée</td>
<td>wànkêe</td>
<td></td>
<td></td>
<td>bûudêe</td>
<td>kòorâa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Notes:*
* CvC is a phonological category in the language.*
<table>
<thead>
<tr>
<th>Language</th>
<th>Word 1</th>
<th>Word 2</th>
<th>Word 3</th>
<th>Word 4</th>
<th>Word 5</th>
<th>Word 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVCu</td>
<td>'burn'</td>
<td>'give'</td>
<td>'complete'</td>
<td>'build'</td>
<td>'get lost'</td>
<td>'clear farm'</td>
</tr>
<tr>
<td></td>
<td>*bàkú</td>
<td>*bàrú</td>
<td>*gàmú</td>
<td>*dàkú</td>
<td>*pàtú</td>
<td>*sàbú</td>
</tr>
<tr>
<td>Ka</td>
<td>bàrú</td>
<td>njàmú- 'be full'</td>
<td>dàkú-</td>
<td>dìkú-</td>
<td>sùrú-</td>
<td></td>
</tr>
<tr>
<td>Ng</td>
<td>bòkò</td>
<td>ngàmí- 'be full'</td>
<td>dìkò</td>
<td>sùr-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bo</td>
<td>bòkkú-</td>
<td>nkomú- 'be full'</td>
<td>dìw-</td>
<td>sùrrú-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>hùrú-</td>
</tr>
<tr>
<td>Ki</td>
<td>bár-</td>
<td></td>
<td></td>
<td>dìe-</td>
<td>shùrú-</td>
<td></td>
</tr>
<tr>
<td>Ga</td>
<td>bár-</td>
<td>ngànd- 'be full'</td>
<td></td>
<td>sér-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ge</td>
<td>bùr-</td>
<td>ngìmtì- 'be full'</td>
<td>dìw-</td>
<td>dìù-</td>
<td>sùr-</td>
<td></td>
</tr>
<tr>
<td>Gm</td>
<td>bùr-</td>
<td>qāmt- 'be full'</td>
<td></td>
<td>sùr-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kn</td>
<td>?(boi)</td>
<td>gömì  'be full'</td>
<td>dìhí</td>
<td>dìwì</td>
<td>wùrì</td>
<td></td>
</tr>
<tr>
<td>Ba</td>
<td>bàkú</td>
<td>bàlú  'roast'</td>
<td>gàmàw  'meet'</td>
<td>pàtú</td>
<td>sàvìyù</td>
<td>ìtkú 'kill'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nz</td>
<td>bàkú</td>
<td>bàrú  'ndàagàmù 'meet'</td>
<td></td>
<td>zàbìyù</td>
<td>tàkú   'kill'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Du</td>
<td>èpkó</td>
<td>bàrò  'hìagàmò meet'</td>
<td>èpcùwó</td>
<td>zàapàrò</td>
<td>tègò   'kill'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ha</td>
<td>bàbbakàa báa, bái gàmàa 'hut'</td>
<td>dàakli</td>
<td>bátà</td>
<td>sàssàiìe</td>
<td>dòkáa</td>
<td>sóoyàà</td>
</tr>
<tr>
<td>Language</td>
<td>Word 1</td>
<td>Word 2</td>
<td>Word 3</td>
<td>Word 4</td>
<td>Word 5</td>
<td>Word 6</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Ka</td>
<td>mëetú-</td>
<td>kúdú-</td>
<td>cüú-</td>
<td></td>
<td>gûyáa-</td>
<td></td>
</tr>
<tr>
<td>Ng</td>
<td>tûp-</td>
<td>màtí-</td>
<td>kũú-d-</td>
<td>shir-</td>
<td>jìjì-</td>
<td>'running'</td>
</tr>
<tr>
<td>Bo</td>
<td>tûfû-</td>
<td>mótú-</td>
<td>kû-d-</td>
<td>shir-</td>
<td>jìi-</td>
<td></td>
</tr>
<tr>
<td>Be</td>
<td>mótú-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ki</td>
<td>mútt-</td>
<td>kúd-</td>
<td></td>
<td></td>
<td>ljjú-</td>
<td></td>
</tr>
<tr>
<td>Ga</td>
<td>móz-</td>
<td>kúr-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ge</td>
<td>múbû-</td>
<td>kûd-</td>
<td></td>
<td></td>
<td>zìi-</td>
<td></td>
</tr>
<tr>
<td>Gm</td>
<td>mútt-</td>
<td></td>
<td>shëshërgâ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kn</td>
<td>tûbî-</td>
<td>múrî-</td>
<td>kûrî</td>
<td>shirî</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ba</td>
<td>tûkû-</td>
<td>mût-</td>
<td>kûlû</td>
<td>këlû</td>
<td>èkkû-</td>
<td>èkkû</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nz</td>
<td>tûkû-</td>
<td>mût-</td>
<td>kûrû</td>
<td>këlû</td>
<td>bêddû</td>
<td>nàwàw</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>'dig'</td>
<td></td>
</tr>
<tr>
<td>Du</td>
<td>tûkô-</td>
<td>mûtô</td>
<td>kûrô</td>
<td>kôrô</td>
<td>èkkô-</td>
<td>èkkô</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>'dig'</td>
<td></td>
</tr>
<tr>
<td>Ha</td>
<td>tûofàa</td>
<td>múttû</td>
<td>kîyàa</td>
<td>bìràa</td>
<td>bîsǹnée</td>
<td>gûdû</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Word</td>
<td>Translation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
<td>----------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ka</td>
<td>sùnì-</td>
<td>*təfú</td>
<td>*fVSú</td>
<td>*sVFú</td>
<td>*sÀnù</td>
<td>*télù</td>
</tr>
<tr>
<td>Ng</td>
<td>dàyí-</td>
<td>jèerò</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bo</td>
<td>dòw-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ki</td>
<td>shán-</td>
<td>tùlù-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ga</td>
<td>sán</td>
<td>tél-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ge</td>
<td>sìsì-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gm</td>
<td>sànàá</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kn</td>
<td>àní</td>
<td>dùwó</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ba</td>
<td>tòrdú</td>
<td>kàkèlú</td>
<td>màsù</td>
<td>dàah’ú</td>
<td>gàlù</td>
<td>(West Bade)</td>
</tr>
<tr>
<td>Nz</td>
<td>kàkèrù</td>
<td>màsù</td>
<td>dàawú</td>
<td>gàrù</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Du</td>
<td>kòrèrò</td>
<td>màsò</td>
<td>dìyò</td>
<td>gòorùwó</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ha</td>
<td>cìrèe</td>
<td>kái</td>
<td>mùsáayàa</td>
<td>gírmá</td>
<td>‘exchange’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘grow up’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVVCu</td>
<td>CVCCu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'step on' belch'</td>
<td>'forget' 'sell' 'sex' 'laugh'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*tàakú</td>
<td>*màntú</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*gàatlú</td>
<td>*dèbtú</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*màadú</td>
<td>*dànkú</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*tàasú</td>
<td>*gàmsú</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Ka**

<table>
<thead>
<tr>
<th>Ng</th>
</tr>
</thead>
<tbody>
<tr>
<td>*màntànú-</td>
</tr>
<tr>
<td>dèbatú</td>
</tr>
<tr>
<td>ìnkú-</td>
</tr>
<tr>
<td>'cook'</td>
</tr>
</tbody>
</table>

**Bo**

<table>
<thead>
<tr>
<th>Be</th>
</tr>
</thead>
<tbody>
<tr>
<td>tàawú-</td>
</tr>
<tr>
<td>'stray from road'</td>
</tr>
</tbody>
</table>

**Be**

<table>
<thead>
<tr>
<th>Ki</th>
</tr>
</thead>
<tbody>
<tr>
<td>*mòntú-</td>
</tr>
<tr>
<td>'cook'</td>
</tr>
</tbody>
</table>

**Ga**

<table>
<thead>
<tr>
<th>Ge</th>
</tr>
</thead>
<tbody>
<tr>
<td>*mònè</td>
</tr>
<tr>
<td>dìberé</td>
</tr>
<tr>
<td>dìngé</td>
</tr>
</tbody>
</table>

**Ge**

<table>
<thead>
<tr>
<th>Gm</th>
</tr>
</thead>
<tbody>
<tr>
<td>*mùnù-</td>
</tr>
</tbody>
</table>

**Gm**

<table>
<thead>
<tr>
<th>Kn</th>
</tr>
</thead>
<tbody>
<tr>
<td>tàà 'shoe'</td>
</tr>
</tbody>
</table>

**Kn**

<table>
<thead>
<tr>
<th>Ba</th>
</tr>
</thead>
<tbody>
<tr>
<td>tàagdú</td>
</tr>
<tr>
<td>gàdlú</td>
</tr>
<tr>
<td>màdùwú</td>
</tr>
<tr>
<td>dáasú</td>
</tr>
<tr>
<td>dèbdú</td>
</tr>
<tr>
<td>dànkú</td>
</tr>
<tr>
<td>gàmsú</td>
</tr>
</tbody>
</table>

**Ba**

<table>
<thead>
<tr>
<th>Nz</th>
</tr>
</thead>
<tbody>
<tr>
<td>tàkdú</td>
</tr>
<tr>
<td>gàdlú</td>
</tr>
<tr>
<td>màadú</td>
</tr>
<tr>
<td>dáasú</td>
</tr>
<tr>
<td>dèbdú</td>
</tr>
<tr>
<td>dànkú</td>
</tr>
<tr>
<td>gàmsú</td>
</tr>
</tbody>
</table>

**Nz**

<table>
<thead>
<tr>
<th>Du</th>
</tr>
</thead>
<tbody>
<tr>
<td>gàaglyó</td>
</tr>
<tr>
<td>gàdlùwó</td>
</tr>
<tr>
<td>màadó</td>
</tr>
<tr>
<td>dáasó</td>
</tr>
<tr>
<td>dèbdó</td>
</tr>
<tr>
<td>dènkó</td>
</tr>
<tr>
<td>gàmsó</td>
</tr>
</tbody>
</table>

**Du**

<table>
<thead>
<tr>
<th>Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>tàakàa</td>
</tr>
<tr>
<td>gyaatsàa 'belching'</td>
</tr>
<tr>
<td>màatsàa</td>
</tr>
<tr>
<td>töoshèe</td>
</tr>
<tr>
<td>màntàa</td>
</tr>
<tr>
<td>dìmkàa mòrmùshìi, mûrnàa 'smiling, gladness'</td>
</tr>
</tbody>
</table>
REFERENCES


GENDER IN PA'A

Margaret G. Skinner

The presence of grammatical gender in some but not all Chadic languages has been of historical significance to the study of the family. Many linguists have used this criterion as the basis for its inclusion in the larger Hamito-Semitic family, or, in the absence of grammatical gender, its exclusion. In an early linguistic use of the term "Hamitic", Lepsius (1863) included Hausa among those African non-Semitic languages which distinguish gender. Nearly a century later, Lukas (1936) used primarily the presence of grammatical gender to distinguish his so-called "Chado-Hamitic" group from other languages, his so-called "Mandara" group (including languages now generally recognized as Chadic) which, according to him, constituted a separate grouping because of the absence of grammatical gender.

Such classification on the basis of purely typological criteria has been widely discounted since that time.¹ Yet, though not as a basis for subgrouping, I think it of interest to consider the wide range of

¹Viz. Greenberg (1966:45): "Here [in Lukas], once again, we meet the typological thinking which has produced such confusion in regard to linguistic relationships. Lukas excludes languages which do not have sex gender".

*Pa'a, called fúucókà by speakers of the language, is spoken by some 20,000 Nigerians concentrated in eight villages southeast of Ningi, Bauchi State. After the initial discovery that 'god' took feminine gender attracted me to the language, I stayed ten months in 1973-74 researching Pa'a, funded by Fulbright-Hays Doctoral Fellowship OEG 0-73-5396. I made one follow-up trip in the summer of 1975, assisted by the Hibbard Award of the Wisconsin chapter of the Phi Kappa Phi honorary society.

This paper has benefited from the helpful suggestions of E. Wolff and C. Hoffmann at the Colloquium, and R. Newman, whose editorial suggestions resulted in considerable revision of the nominal analysis. Only the author is, of course, responsible for the errors which remain.
degrees of gender distinction made in Chadic languages.

At the one extreme, languages such as Gisiga (Lukas 1970:17) make no gender distinctions of any kind. Similarly in Margi (Hoffmann 1963: 66-67), sex is not a morphological category, though there are occasional words which refer to the male or female of a species. Tera has a relic of what might have been an earlier gender system in the words which take the linker versus what Newman calls the "I" linker (Newman 1970:154-55). Other languages such as Ngizim (Schuh 1972) distinguish sex gender of animates, with a bit of fuzziness in the area of animal characters in oral narratives, while lumping all inanimates into the category "feminine". Conversely, Kanakuru (Newman 1974:85-86), in which grammatical gender is closely tied to semantic sex, distinguishes words which refer to females, lumping all others into the category "masculine" for demonstrative and pronoun agreement.

In languages such as Hausa and, as we shall see, Pa'a, words with no semantic sex are assigned masculine or feminine gender in a seemingly arbitrary fashion. As Parsons (1960, 1961, 1963) has dealt exhaustively with the question of gender in Hausa, I shall refer to Hausa only for comparative purposes in outlining the system of gender in Pa'a.

Pa'a has what I would describe as a full gender system, with the gender of the noun governing the choice from two sets of possessive pronouns, masculine or feminine equalizer-stabilizers, and, in the case of subjects, of the second and third person preverbal pronouns. Additionally, there are fairly regular endings for masculine and feminine nouns though, like Hausa, there are several common exceptions. The one aspect of the Hausa gender agreement system which Pa'a lacks is the linker, for possession is expressed in Pa'a by the noun possessed followed by the possessor, with no phonological change in either.

I shall begin outlining the specifics of Pa'a with the set of possessive pronouns suffixed to masculine nouns followed by those suffixed to feminine nouns.
### Suffixixed Possessive Pronouns

<table>
<thead>
<tr>
<th>Suffixixed to Masculine Noun</th>
<th>Suffixixed to Feminine Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Singular</strong></td>
<td><strong>Plural</strong></td>
</tr>
<tr>
<td>1st</td>
<td>-näñi</td>
</tr>
<tr>
<td>m</td>
<td>-nù</td>
</tr>
<tr>
<td>f</td>
<td>-nìq</td>
</tr>
<tr>
<td>2nd</td>
<td>-niñi</td>
</tr>
<tr>
<td>m</td>
<td>-sù</td>
</tr>
<tr>
<td>f</td>
<td>-sìq</td>
</tr>
</tbody>
</table>

As can be seen, the difference between the two sets is neutralized in the third person pronouns, masculine, feminine, and plural. Thus we have hârâ-yávi 'compound-my' and mûtsì-nù 'chest-your (n.sg.)', but hârâ-sù and mûtsì-sù for 'his (or her) house' and 'his (or her) chest', respectively. The n for masculine and y for feminine dichotomy is apparent in this set, and is carried through in the following paradigm, the independent possessive pronouns (‘mine, yours’, etc.). It is interesting to note, however, that here there is a difference between the masculine and feminine third person pronouns when referring to a feminine singular noun, as the voiceless lateral fricative shows up to distinguish the feminine possessor. (The voiceless lateral fricative appears in other paradigms combined with a to mark feminine, and with i to mark plurality.)

---

2The accent ' indicates mid tone, though the tone of this pronoun varies considerably with the tone of the preceding vowel.
## Independent Possessive Pronouns

<table>
<thead>
<tr>
<th></th>
<th>Masculine Referent</th>
<th>Feminine Referent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Singular</td>
<td>Plural</td>
</tr>
<tr>
<td>1st</td>
<td>ṣa'náí</td>
<td>ṣa'ní</td>
</tr>
<tr>
<td>2nd</td>
<td>m ṣa'ú'</td>
<td>ṣa'ní</td>
</tr>
<tr>
<td>r ṣa'íŋq</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>m ṣa'sú</td>
<td>ṣa'íŋq</td>
</tr>
<tr>
<td>r ṣa'sú</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The masculine, y feminine dichotomy is carried through to the equalizer-stabilizers, the equivalent of Hausa nee/cee, which can also serve in both languages as enclitics of emphasis. In Pa'a, the forms are na masculine and ya feminine, as in the following front-shifted emphatic sentences: hàrâ viâ tî-kâ ãwà̀nô kà 'house it-is they-[rel] are-building [rel]', and ákì nà ná ndàrî cîntâ kà 'here it-was he did-for-him work [rel]'. Adverbials of time, place, etc. usually take the masculine na form. The na form is also used almost invariably for sentence-level emphasis.

The preverbal pronoun-tense-aspect markers are differentiated for gender in the second and third person singular in agreement with the subject, whether the subject is manifest in the surface structure or underlying. Unlike the possessive pronoun paradigms, there is no neutralization of the third person pronoun masculine/feminine dichotomy, as the following paradigm will show. The masculine/feminine distinction of the second and third person singular is, however, neutralized in the plural.

³For ease in typing, the voiceless lateral fricative [t] is written as tl, the voiced [ŋ] as dl. They are of course unit phonemes, as are the prenasal consonants mb, nd, nj, etc.
### Preverbal Pronouns

<table>
<thead>
<tr>
<th>Completed</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Singular</strong></td>
<td><strong>Singular</strong></td>
</tr>
<tr>
<td>1st</td>
<td>2nd</td>
</tr>
<tr>
<td>má</td>
<td>ú</td>
</tr>
<tr>
<td>mí</td>
<td>[vb]...ña(nì)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plural</strong></td>
<td><strong>Plural</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this set, i marks feminine and plural, while ú and e are found in masculine and/or singular pronouns.

In the nominal system, on the other hand, polysyllabic feminine nouns, with few exceptions, end in -a. Polysyllabic masculine nouns end in vowels other than a, in diphthongs, and in resonant consonants. There are, however, as is the case in Hausa, a number of common masculine nouns which end in a. Monosyllabic nouns are also less regular in correspondence between final vowel and gender.

Plurals are formed on phonological grounds, such that polysyllabic nouns which end in -a form their plurals by replacing the -a with -i, and polysyllabic nouns which end in any other vowel, diphthong, or consonant, add the plural suffix -aani, with or without the final vowel. All monosyllabic nouns form their plurals with the -aani suffix.

---

4. The impersonal pronoun is a suspected Hausa borrowing, though in common usage in Pa'a.

5. The second person plural completed preverbal pronoun is a discontinuous one, surrounding the verb with or without its attached pronoun object. If a noun object follows, the final -ni is never used.

6. The difference in tone between the completed and continuous is a redundant tense-aspect marker, as the form of the following verb—the continuous takes the verbal noun—gives as much information.
### Pa’a Nouns

#### Polysyllabic Feminine Nouns

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>tàkà</td>
<td>tàkí</td>
<td>'arrow'</td>
</tr>
<tr>
<td>dǐl̀kòrkùmà</td>
<td>dǐl̀kòrkúmí</td>
<td>'bee'</td>
</tr>
<tr>
<td>bǐnzà</td>
<td>bǐnzí</td>
<td>'beard'</td>
</tr>
<tr>
<td>hìỳèlà</td>
<td>hìỳèlí</td>
<td>'dish'</td>
</tr>
<tr>
<td>tásèlàkà</td>
<td>tásèlákí</td>
<td>'okra'</td>
</tr>
<tr>
<td>tìlvùdà</td>
<td>tìlvùdí</td>
<td>'fine sand'</td>
</tr>
<tr>
<td>kwàttàrà</td>
<td>kwàttàrí</td>
<td>'squirrel'</td>
</tr>
</tbody>
</table>

#### Polysyllabic Masculine Nouns

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>bǐmí</td>
<td>bǐmíyàánì</td>
<td>'ashes'</td>
</tr>
<tr>
<td>bàgàltí</td>
<td>bàgàltiyàánì</td>
<td>'bark'</td>
</tr>
<tr>
<td>ápí</td>
<td>ápíyàánì</td>
<td>'breast'</td>
</tr>
<tr>
<td>jìnkí</td>
<td>jìnkìyàánì</td>
<td>'cooking pot'</td>
</tr>
<tr>
<td>tlàrì</td>
<td>tlàràánì</td>
<td>'root'</td>
</tr>
<tr>
<td>jòmbò</td>
<td>jòmbòwàánì</td>
<td>'toad'</td>
</tr>
<tr>
<td>gàmbèl</td>
<td>gàmbèlàyàánì</td>
<td>'rat'</td>
</tr>
</tbody>
</table>

#### Gender Exceptions

(Plurals regular)

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>ñìlá</td>
<td>ñìlá</td>
<td>'axe'</td>
</tr>
<tr>
<td>jàmì</td>
<td>jàmí</td>
<td>'beans'</td>
</tr>
<tr>
<td>cìrí</td>
<td>cìrí</td>
<td>'moon, month'</td>
</tr>
<tr>
<td>kòotì</td>
<td>kòotí</td>
<td>'shoe'</td>
</tr>
<tr>
<td>gàculí</td>
<td>gàculí</td>
<td>'ulcer'</td>
</tr>
</tbody>
</table>

#### Gender and Plural Exceptions

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>gùnjuwà</td>
<td>gùnjuwàánì</td>
<td>'special ceremonial wine'</td>
</tr>
<tr>
<td>bàdàkèlà</td>
<td>bàdàkèlàyàánì</td>
<td>'bushbuck'</td>
</tr>
</tbody>
</table>

#### Monosyllabic Nouns

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>nàa</td>
<td>nààní</td>
<td>'antelope'</td>
</tr>
<tr>
<td>zàa</td>
<td>zààní</td>
<td>'bow'</td>
</tr>
<tr>
<td>wèi</td>
<td>wèyàánì</td>
<td>'grass'</td>
</tr>
</tbody>
</table>
yēi m  yēyānī 'mountain'
kēi f  kēyānī 'wind'
blī f  bliyānī 'bag'
bīn m  bīnānī 'anthill'
kān f  kānānī 'sauce'
njīr m  njīrānī 'anus'

It should be noted that the lists, even of exceptions, are by no means exhaustive, but are representative of categories of Pa'a nominals.

There are, additionally, two nominal suffixes -cēka and -ciki which, while no longer fully productive, serve to differentiate gender.

**Nominal Suffixes**

<table>
<thead>
<tr>
<th>Feminine</th>
<th>Masculine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Singular</strong></td>
<td><strong>Plural</strong></td>
</tr>
<tr>
<td>gāncēkā</td>
<td>gāncēkī</td>
</tr>
<tr>
<td>gūdāncēkā</td>
<td>gūdāncēkī</td>
</tr>
<tr>
<td>rīncēkā</td>
<td>rīncēkī</td>
</tr>
<tr>
<td>ndīncēkā</td>
<td>ndīncēkī</td>
</tr>
<tr>
<td>vākācēkā</td>
<td>vākācēkī</td>
</tr>
<tr>
<td>fūucēkā</td>
<td>fūucēkī</td>
</tr>
</tbody>
</table>

One indication of the suffixal nature of the -cēka/-ciki element is found in the following examples in which plurals are formed without the suffix:

| fārcēkā | fārwī | 'cow' | sāmbūrcēkī | sāmbūrí | 'guest' |
| ndīncēkā | ndīntī | 'jaw' | wūrācēkī | wūrānī | 'leopard' |
| (alternative plural) | | | ngīlācēkī | ngīlānī | 'lizard' |
| | | | kokīncēkī | kokīnānī | 'land monitor' |
| | | | wūdācēkī | wūdānī | 'monkey' |
| | | | mūkūrcēkī | mūkūrānī | 'thief' |

There is generally no change in nominal modifiers, whether they modify masculine or feminine nouns, except for the deictic 'that', for
which the masculine nouns take káká, and the feminine káká, the opposite final vowel of most singular masculine and feminine nouns. In contrast to the Hausa case, adverbs generally take masculine pronouns and equalizer-stabilizers when used as subjects. Verbal nouns do likewise, possibly because verbal nouns usually end in o, normally a masculine noun ending.

In conclusion, Pa'a is a language with a fully developed system of grammatical gender, including a separate set of suffixed possessive pronouns for masculine and feminine nouns, two distinct equalizer-stabilizers, and differentiation by gender in the second and third person singular preverbal pronouns. All of this does not, of course, make Pa'a any more or less Chadic than a language such as Gisiga or Ngizim which does not have grammatical gender but which has many other lexical and syntactic features in common with other members of the Chadic family.

REFERENCES

DOMESTIC ANIMALS IN CHADIC

Neil Skinner

The following eighteen etymologies are an attempt to bring together data at present available, both for Chadic and for other branches of Afroasiatic, and to suggest, very tentatively, what might have been the etymon for each. The extent to which any of this may be relevant for (a) Proto-Chadic forms and (b) the subclassification of Chadic languages depends largely on the relative dating. Which of the modern forms are in fact direct reflexes of Proto-Chadic forms and which of them are later borrowings, these are the questions which this collection of data prompts us to ask. If goats, sheep, and cattle all were introduced to Africa from Asia in Neolithic times (Murdock 1959), and if Proto-Chadic was spoken in Africa before that period, then probably only the forms for 'dog', 'chicken', and, possibly, 'guinea-fowl' are strictly relevant evidence for Proto-Chadic.

Apart from Afroasiatic languages, Kanuri (or Daza-Teda-Tubu) figures in the etymologies for 'camel', 'cat', 'dog', 'horse', 'ram', and 'sheep'. (Kanuri also has kaji, which may be Hausa kaajii 'chickens', for 'guinea-fowl'.) Proto-Niger-Congo too figures in those for 'chicken' and 'goat'. On the assumption that an Afroasiatic language served as the vehicle of transfer of the name for the newly introduced animal, it seems likely that these--except for 'camel'--were all borrowings from such a language. Of course, there have been more recent borrowings the other way, by Chadic languages from Kanuri, such as the forms for 'donkey', 'cat', and 'camel', used by several languages spoken in the neighborhood of Kanuri.

*Thanks are due to the University of Wisconsin African Studies Program for enabling me to travel to the Colloquium; to Th. Schumann and K. Ebert for correcting my data for Masa and Kera, respectively; and to R. Hetzron, who kindly drew my attention to the Dolgopol'skij reference.
The trouble with the older words here, especially 'd cg', 'chicken', and 'goat', is that there is such variety among the modern forms, that at this stage one must be in doubt whether they are all, in fact, related. I have also made assumptions as to which consonant to enter under C1 or C2 or C3, and which as prefix or suffix. However, most prefixes hypothesized seem to be *k-/g-, and this is unlikely to be a coincidence. Suffixes are more variable, but there seem to be a significant percentage of *N and *T, as one would expect in Afroasiatic.

So far, to my knowledge, no generic term for 'domestic animal' is reconstructable, but there is some interesting overlapping with terms for individual species, see 'cow' (1) and 'horse' (1).

The starred form at the head of each etymology contains what appear to be the common consonants underlying the modern forms and which may have figured in the etymon.

Data have been taken from standard sources listed in Skinner (in press), except for the Cushitic citations, which have been taken from Dolgopol'skij (1973). In one instance, I have deliberately departed from the spelling of the source, writing e for € and o for ⊙ in the Sura and Tumak data.

Languages from which data have been quoted have been numbered as follows. The grouping is based on Hoffmann (1971).

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Dangla</td>
<td>18 a) Bata</td>
<td>c) Mada</td>
<td></td>
</tr>
<tr>
<td>c) Jegu</td>
<td>18 b) Bachama</td>
<td>d) Zelgwa</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>18 c) Zumu</td>
<td>e) Mboko</td>
<td></td>
</tr>
<tr>
<td>14 a) Tera</td>
<td>19 a) Hitkala</td>
<td>f) Matakam</td>
<td></td>
</tr>
<tr>
<td>b) Ga'anda</td>
<td>19 b) Lamang</td>
<td>g) Mofu</td>
<td></td>
</tr>
<tr>
<td>c) Jara</td>
<td>19 c) Vizik</td>
<td>h) Gisiga</td>
<td></td>
</tr>
<tr>
<td>15 a) Bura</td>
<td>20 a) Wandala</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Margi</td>
<td>20 b) Paduko</td>
<td>23. Musgoi</td>
<td></td>
</tr>
<tr>
<td>c) Kilba</td>
<td>20 c) Glavda</td>
<td>24. Gidar</td>
<td></td>
</tr>
<tr>
<td>16. *Higi</td>
<td>20 d) Dghwede</td>
<td>25 a) Kotoko</td>
<td></td>
</tr>
<tr>
<td>a) Higi Kamale</td>
<td>20 e) Gvoko</td>
<td>b) Buduma</td>
<td></td>
</tr>
<tr>
<td>17. *Fali</td>
<td>20 f) Guduf</td>
<td>c) Logone</td>
<td></td>
</tr>
<tr>
<td>b) F. Mucella</td>
<td>22. *Matakam</td>
<td>27 a) Masa</td>
<td></td>
</tr>
<tr>
<td>c) F. Gili</td>
<td>a) Hurza</td>
<td>b) Banana</td>
<td></td>
</tr>
<tr>
<td>d) F. Jilbu</td>
<td>b) Udlam</td>
<td>c) Peve</td>
<td></td>
</tr>
</tbody>
</table>

'meat, wild animal' (1)  *L/TL - W

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3b</td>
<td>l u w a a</td>
<td></td>
</tr>
<tr>
<td>3c</td>
<td>l u w a</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>*l o</td>
<td></td>
</tr>
<tr>
<td>5a</td>
<td>l o</td>
<td></td>
</tr>
<tr>
<td>5b</td>
<td>l o</td>
<td></td>
</tr>
<tr>
<td>5c</td>
<td>l u</td>
<td></td>
</tr>
<tr>
<td>5f</td>
<td>l u</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>*tl u w i</td>
<td></td>
</tr>
<tr>
<td>8a</td>
<td>tl u w ai</td>
<td></td>
</tr>
<tr>
<td>9c</td>
<td>ku s u</td>
<td></td>
</tr>
<tr>
<td>10b</td>
<td>b a</td>
<td></td>
</tr>
<tr>
<td>12a</td>
<td>s u u</td>
<td></td>
</tr>
<tr>
<td>12c</td>
<td>s u u t</td>
<td></td>
</tr>
<tr>
<td>14a</td>
<td>dl u</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>*tl i</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>*TL u/i</td>
<td></td>
</tr>
</tbody>
</table>

ku- and -ki are affixes
not cognate
voicing uncertain
18 *s e  cf. *segurte 'domestic animal' and sekaakey 'wild animal'
19a tl u w i
20b tl o b a
22h i š e
27a tl i w n a
Arabic l i y a a ḥ 'wild bull'? pl. < sg. *luuḥ
Akkadian l u 'wild bull'
Berber l u a f š 'wild animal'
Cushitic *l (i) Aw 'cow', etc.

'meat, wild animal' (2) *k - r
4e k i r y e t
5f a r a also has root (1)
6f/g *kw a r -
18b h a r a also has root (1)
Cushitic
Gawwada g u r s e ? suffix cognate with root (1)
Gobeze k u r s -
Werize k u r s e

'meat, bull' (3) *k u m -
5a kw a m 'cow'
8b kw a m a n 'bull'
12b k u m a
12c g i m o 'bull'
13 k o m e
15b k u m

I crave indulgence for including this word in a list devoted to
domestic animals, but root (1) in particular seems particularly well
documented and tempted me. However, as can be seen, there are indica-
tions that reference to 'wild' and 'domestic' was blurred in the earlier forms. If Chadic languages are any guidance, 'wild' may be been indicated by a suffixed word meaning 'bush, savannah, desert', and this may be the explanation of C₃ and C₄ in some cases. Roots (1) and (2) can usefully be compared with roots (1) and (2) for 'cow' below. For 'wild animal' root (1), non-Chadic has *l₁, where for 'cow' root (1), non-Chadic has *tl₁, yet the Chadic evidence seems to point to a common proto-phoneme. If, in fact, *l₁ is the proto-C₁ for 'wild animal' (1), then the s of 12a and 12c looks like a secondary development through tl₁; similarly for 18b. The 22h form, on the other hand, may relate better with Cushitic *jAqq 'meat', Hausa tsokaa 'meat', Musgu ksog 'meat', and Tamazight ksum 'meat'. In root (1), *w seems well supported for C₂. The b of 20b is presumably a later development. As for C₃, it seems to have been lost in Chadic.

'camel'  
\[ *l₁ - g - m \]

1
\[ r \ a \ a k u m i \ i i \]

5a
\[ d l u k u m o \]

6
\[ *l₁ a k u m i \]

? borrowed from Hausa before Hausa l > r occurred

8a
\[ d l \ o g o m a u \]

10b
\[ l o g u m a \]

11
\[ l u g u m o \]

12b
\[ l o k u m o \]

12c
\[ l o g o m \]

19a
\[ d l \ o g w a m a \]

25c
\[ k u r g u m a \]

26
\[ 1/tl i(g)i/u n e/i \]

Berber
\[ a l y m \]

Egyptian
\[ g m l o \]

Semitic
\[ *g m l \]

Bedauye
\[ k a m \]

This is the only one of the eighteen etymologies that we are fairly certain is a loanword. Its borrowing is--in terms of the others--
comparatively recent, not more than 1,000 years ago. The Kano Chronicle
notes that the first ruler of Kano to own camels was Abdullahi Barja,
ca. 1440, but presumably they were known in the area for hundreds of
years before that. Camels are said to have been first used for crossing
the Sahara during the early centuries of the Christian era. If Berber
is the source, which seems probable, it is suggested that Berber—as
English—borrowed the word, as did the Berbers the beast, from the Arabs
(Ar. al-gml), incorporating the definite article as part of the word.
Kanuri also borrowed prefixing ka, kaligimo; and one suspects that
Logone borrowed from Kanuri. Perhaps the -o of some languages came
from -al, suggesting that these borrowed directly from Arabic. Lan-
guages further west more usually have *g-1-m, e.g. Fula ngeloba.

The generally close resemblance of all the forms given is in sharp
contrast with a root such as 'dog' or 'goat', where there are wide
divergences—so much so that some will deny cognacy to some of the forms.
The root 'guinea-fowl', on the other hand, has forms which (except for
examples quoted from the Plateau) are all clearly related, but it is
still not easy to postulate the initial proto-consonant. A likely
reason for this variation in extent of divergence is that the Chadic-
speaking peoples made the acquaintance of the guinea-fowl at some period
between the times they domesticated the dog and were introduced to the
camel. Thus while less divergent than, for example, the forms for
'goat', the forms for 'guinea-fowl' are not so uniform as the forms for
'camel'.

Two minor points are worth making about this etymology. First,
there is support for the fairly recent date of Hausa 1 > f (Newman
1970); secondly, 1 > d1 is a productive process. This latter is
observable in languages in Adamawa that have borrowed Fula luumo
'market' with initial d1.
'cat' *ŋg - (ž - N)
1 k y a ng w aa
   m aa g y ee  'male cat'
2 ngk y en ngw e
3a g a m s u n  'civet cat'
5f ng a dl a
6 *ŋg a y i m
   *ŋg a ž a m
8a g a y i m
8b ng ee y a m o n
10a k oo j n a
10b k oo j o e n
12b g a a y i m
   g u m s u  'civet cat'
12c g a y a m
18b k o l e t e  ? e < ay < aw
22e m u ng a m o k
22h m a g a m a k
26 nj i i a u
Cushitic *'A ž A HA r  'wild cat'

Do these forms have one source or two? If the following is correct

\[
\begin{array}{c}
\text{ž} \\
\text{y} \\
\text{dl} \\
\text{l}
\end{array}
\]

then one source is indicated. Kanuri has ngam (in addition to patu, which it lends to a number of neighboring languages, including apparently Fula fatu-ru). Daza also has ngam, perhaps borrowed from an earlier stage of a Chadic language. If the Cushitic is cognate, it is possible that -HA r is the second part of a collocation, perhaps related to the *g-r- 'bush' reconstructed by Newman and Ma.
'chicken, hen, cock'  

\*nD - (r)k - r

1  
z a k a r a a  
  k a a z a a  
  'cock'

2  
j a k a r a  
  k a j a  
  'hen'

3a  
d i l k i  
  k i  
  'cock'

3b  
d e e l  
  k w e e  
  'hen'

3c  
d e l k o  
  k w o m  
  'bush fowl' ? cognate

4b  
Š i k o r  
  k o r o ŋ  
  'cock'

4c  
c a a n  
  k o r o ŋ  
  'cock'

5a  
k ə z i  
  'hen'

5b  
g a j a  
  'cock'

5f  
k o l ə k  
  'cock'

6  
\*d l - r k -  
  'chicken, cock'

6i  
c u k u r a n  
  'cock'

8a  
g a a z a  
  'hen'

8b  
g a s k a m e n  
  'cock'

10b  
k ə ŋ  
  'chicken'

12b  
k o k i r a  
  'cock, hen' (distinguished by tone)

12c  
k o k o r  
  'cock'

14a  
k u ŋ a  
  g a c a k  
  'hen'

15a  
m t o k a  
  'hen'

15b  
ə m t a k a  
  'hen'

16  
K a ŋ k a  
  'hen'

17d  
'y u k i y '  
  'hen' probably not cognate

18b  
d e k e y'  
  'cock' probably not cognate

\(\text{d i y e k t e}^{1}\)  
  'hen' probably not cognate

\(^{1}\text{Cf. 'y/d' - 'bird'.}\)
Here too there may be more than one etymon involved. There is certainly more than one morpheme. The core unit seems to be *D-, presumably meaning 'chicken, fowl, bird'. Then possibly a *k-r either prefixed or suffixed meaning 'female'. A *g- 'male' prefix is more dubious. The *D- may be not unconnected with C₁ of 'guinea-fowl', q.v. Incidentally, -tokoro is a Benue-Congo reconstruction also, see Williamson and Shimizu (1968:172).

---

²The pronunciation of d is unclear, see Mouchet (1950).
'cow, bull' (1) *(g-) tl a ȵ
(c.f. 'wild animal' (1))

1 s a a
   b i s a a
   ŋ s a a
   pl. šanuuu
   'domestic animal'

2 ŋ a a
   lo ŋ
   also 'wealth'

3a n i ŋ
3b r a n d o ŋ
   'Fulani cattle', c.f. 10b
3c k u s n i ŋ
   n e ŋ

3d k u s

4a,d r a n d o ŋ

5f l a a

6 *l - m -
6b d l a ŋ g i r
   'domestic animal, wealth'
6c d l a a

8a t l a

8b 'ok t l a n
   tlatl ø r a n
   'cow'

9a s i i d i
   ? not cognate
9c k ø c ø ŋ

10a l a be1

10b d o n
   'meat', c.f. 3b
14a d l a
   g e t l
   'cow'
15b t l a
16 *t l a
17a m u r g u d l ø n
   'bull'
19a t l a
20a ø t l t l a
22b m a aŋ t l a

3Possibly cognate with Benue-Congo -nak-.
There seems little doubt here of a proto-lateral for C₁. The addition of 'male' seems, as for 'cock', to be made with a g- prefix (G is also involved in C₁ of 'ram', see below). Such a prefix may also have been active in Ngizim—see 'goat' (2)—as go- is in Angas. The Ron randeq also occurs in Benue-Congo Plateau languages (Williamson and Shimizu 1968:89).

Newman has suggested that Hausa saa 'bull' cannot be related to a proto TL-, since for Hausa generally proto TL > l > r. If, however, the word was borrowed at a time subsequent to the TL > r change, it might have been borrowed as s (or more likely, *ś, witness the plural shaanuu).

'cow, bull, heifer, calf' (2) *K-r-

| 1        | k a ŋ            | s a n a        | ? sana is root (1) |
| 4d       | ' a r w a        |               |                    |
| 6        | *γ a r w a       |               |                    |
| 19a      | ə l ɣ ə ɣ        | η               | 'cattle'           |
| 22c      | k l a t l a      | ? tla is root (1) |
| 22f      | k ə r t l e      | ? tle is root (1) |
| 25b      | k i r n a        |               |                    |
| 26       | k ə r d a        |               |                    |
| Semitic  | ' A R X          |               |                    |
| Cushitic | *bA c A r (r) -  |               | 'bull'             |

*Cohen (1947) suggested a proto-lateral C₁.
The Hausa, Matakam, and Mada data point to a meaning of 'young female' for the *K-r-, cf. 'chicken' above. But the two parts of the collocation may simply have been repetitive, cf. 'meat' (2) above.

'dog'  

* k - d - r

1  
akaree  
kwi kw iyo  
eeyayeyar  
puppy'

2  
kerere

4a  
kweeeq

4b  
kyara

4c  
cira

4e  
gyara

5a,b  
adda

5c,d  
ada

5f  
yedee

6a  
iyena

6b  
yay

6c  
eedariri

6d  
addaa

6e  
i

6f  
ili

6g  
diya

6h  
i

6i  
aatukiki

7  
akaram

8a  
ja

8b  
jaan

9a  
gera

9c  
kooya

10a  
dogoro  
metathesis

10b  
gaq  
pl. gaarag

11  
kuyo

12b  
kanya

12c  
kan y

Here, at first sight, if one takes Hausa and, say, Miya (N. Bauchi), and suggests a relationship, it would seem—to put it mildly—unlikely. But a careful comparison of over forty forms greatly reduces the scepticism. However, if, as suggested for the second consonant, $d \rightarrow r$ (and even a subsequent $r \rightarrow y$) in many cases, and one of the three has been lost, then it becomes very hard to decide which two consonants we have to deal with in any particular language.

The great variety of forms certainly suggests the antiquity of the root—PAA rather than PC—and, as with 'sheep', 'ram', 'cat', and 'horse' (2), Kanuri is relevant, këri, as in Tubu këdi. This group of Nilo-Saharan may have borrowed from an earlier AA language that had already lost the third consonant.

5Another Afroasiatic root for 'hound' is *AS.
'donkey'  *j/z - (nK) -

1  j a a k i i  ? < Tuareg
4b  n j a  k e  ? loan < Hausa
6  *zy  a  t -  *zy  a  a  k
12b  di r k u l
19a  zu  qa
20b  zu  qwa
20c  a  qy  u  qa
20f  dl  i  qwy  qa
22a  i  z  qwy  qa
22h  zu  qwy
25a  se ne k i  'donkey mare'
Tuareg  e  ja  k
Cushitic  *d  An  kwA r

As with 'horse' (1) and 'sheep', a k- suffix may be involved here, a suggestion previously made by Jungraithmayr (1971), although the only data that supports the idea for this root is from N. Bauchi. Most languages in the Kanuri area have some form of Kanuri koro, borrowed presumably at the same time as the animal. There may be connections with 'waterbuck', for which N. Bauchi has zakumba (Pa'a zakumba 'donkey') and Hausa gwambaza (? < gwamba-za). The suggestion that Hausa may have borrowed from Tuareg may get some support from Hausa ayañii 'caravan' which may be borrowed from Berber iyyalen 'donkeys'.

'egg (testicles)' (1)  *kw - (r)6

1  kw a i
    gw a i  w  a  'testicles'
2  k  o  qy  i
6d  a  k  i  n

6 The subscribed dot indicates an extra feature, either [+emphatic] or [+prenasal].
'egg' (2)  *'-.  ❋ -

The subscribed dot indicates an extra feature, either [+emphatic] or [+prenasal].
If the reconstructed $ in root (2) is cognate with the nD of 'chicken', then these two roots can be brought together. The Tera and Fali Bwagira of root (1) and the Somraï of root (2) provide the links. The joint meaning would then be 'egg-of chicken'. In which case the Bachama root (1) might better have the l corresponding to the Tera dl rather than the proto (r). Evidence from other AA languages supports this, with kw > b:

Hebrew   b e (y) $ a a h
Arabic   b a i $ a h
Akkadian p e $ a u

It is of great interest that all three consonants, $, $, and l, occur within Semitic alone. Perhaps *DL is indicated.

'goat, male goat' (1)  *b - k - r

\[ \begin{array}{ll}
1 & a w a a k ii \\
2 & a k p a k y i \\
3a & a x e \\
3b & a x e e \\
3c & e k \\
4a & o o \\
4b & w o ' \\
4d & h a \\
4e & a a h \\
5a & b u g u r e \\
5b & w o c i \\
5c & o š i \\
5f & kw a a r a \\
6 & *b u h u t \\
8a & a a k u \\
8b & a k u n \\
9c & h a r g a \\
 & k u p u r k i \\
\end{array} \]

'goats'

'Male goat'

'male goat' pl. bukur-in

'goat'

'Male goat'
11  buk/g o
12b  'awko
   b erk -
13  wegi r i
14a  gun o
   bokera
14b  yikwa t a
15b  ku
17a  bag en
18b  boga re
   mbaga te
18c  hu tu
19a  ogo
22f  bok
25a  sebeg e
   mf u
26  begere
27a  hun t a
Cushitic *b A(g)g A
   pl. bok-qa
Arabic  b a q a r

'male goat, goat' (2)  *D ᵇ - GW -²
1  buns u ruu
3c  do g u q
3e  buu s
4a  ndaku s
4b  ši ky en
6  'ts - G -
8a  gab u zu ru
8b  maza re n
10b  jii g

---
²The subscribed dot indicates an extra feature of some sort, perhaps [+prenasal].
As with 'dog', the great variations of both roots suggest antiquity. The initial labial, part of the root in (1), apparently a prefix in (2), common to both, suggests that this meant 'goat'. In that case, \( k-r \) may have meant 'female' (as was suggested for 'chicken') and \( \text{Ʌ}z \) - \( \text{GW} \) - 'male'. Williamson and Shimizu (1968) suggest a Proto-Niger-Congo \( -\text{bi-} \) 'goat'.

'guinea fowl' \( *\text{Ʌ}z - b - n^9 \)

1 \( z \ a b \ oo \)
2 \( j a b u w a \)
3a \( t o o m \)  probably not cognate
3b \( t o \gamma o m \)  probably not cognate
6b \( j a v u n a \)
6g \( 'c a p u r \)
6i \( s a a b u n \)
8a \( z a a b a n u \)
8b \( s a a v a n y i n \)
10a \( s i b i r \)
10b \( h i i \ b e l \)

\(^9\text{The subscribed dot indicates an extra feature, perhaps } [+\text{palatal}].\)
The remarkable uniformity of these forms suggests that the word spread through the group of languages at a not too distant period—perhaps when the speakers moved into an area where the bird was found; or, if already domesticated, when the bird was first imported (cf. 'camel'). Again, on the analogy of Arabic which calls it "Abyssinian chicken" (and, indeed, English), it is suggested that the first consonant may be cognate with the nd of 'chicken', in which case the Angas and Sura might be cognate after all, and b might be derived from gw. But what did the second half mean? 'Tree'? The name of another people? No Cushitic evidence is available.

'horse' (1)  *d - w -

1  
  d a waa k ii  'horses'
  d u kuš ii  'pony'
  g oo d i y aa  'mare'
  d uu ki y a  'wealth'

3a  d aa
5e  t uu je  or tooje
5f  d o k
6  *d - w k -
6b  d a kw a  'mare'
8a  d uu k a  'pony'
     k u s t a
8b  d uu w un
     d ii kw a n  'mare'
9c  d a a ñ a  'mare'
14a  d o x  'stallion'
<table>
<thead>
<tr>
<th></th>
<th>taugu</th>
<th>gi/uduwi</th>
<th>ju xun</th>
<th>duwe</th>
<th>duu te</th>
<th>'mare'</th>
</tr>
</thead>
<tbody>
<tr>
<td>15b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27b</td>
<td>gēduuu</td>
<td>ha ta i</td>
<td>? not cognate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Egyptian</th>
<th>Bedauye</th>
<th>'horse' (2) *P - r(s -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a</td>
<td>b rəq</td>
<td></td>
<td>also has root (1)</td>
</tr>
<tr>
<td>3b</td>
<td>bəriq</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a</td>
<td>buri</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4b</td>
<td>mbiri</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4c</td>
<td>puri</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4d</td>
<td>piriš</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8b</td>
<td>waza nan</td>
<td>? not cognate</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>pis oo</td>
<td>'stallion'</td>
<td>'horse, mare'</td>
</tr>
<tr>
<td>12b</td>
<td>pis o</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12c</td>
<td>pě so</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14a</td>
<td>pər se</td>
<td>also has root (1)</td>
<td></td>
</tr>
<tr>
<td>18b</td>
<td>mb urs e</td>
<td>'male donkey'; also has root (1)</td>
<td></td>
</tr>
<tr>
<td>19a</td>
<td>pιəlisi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20a</td>
<td>bal sa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22b</td>
<td>piliš</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22h</td>
<td>paloš</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25a</td>
<td>peli</td>
<td></td>
<td>'male donkey'</td>
</tr>
<tr>
<td>26</td>
<td>piliš</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hebrew</td>
<td>paraš</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td>faraš</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cushitic</td>
<td>*far d/z/s -</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As Newman and Ma (1966) pointed out for Tera, it is of interest that several of the languages have both roots. For root (1), it seems fairly clear that the k- is a suffix (cf. 'donkey' and 'sheep'). Root (2) is complicated by the existence of Kanuri far, Songhai bari and Mande so, and yet it is also the root that is clearly widespread in AA—though not one of Dolgopol'skij's reconstructions in Cushitic, cf. Cohen (1947). Perhaps root (1) referred to an older breed of animal, later widely replaced by a new arrival, perhaps of Semitic provenance.

\[ \text{'ram'} \]

\[ *G - m - l^{10} \]

\[ 1 \]

\[ r \quad a a \quad g \quad o \quad o \quad oo < *aw \]

\[ 3a \]

\[ g \quad e \quad m \]

\[ 3b \]

\[ n g \quad a a \quad m \]

\[ 4e \]

\[ n z \quad a \quad m \]

\[ 5b \]

\[ n g \quad a \quad m \]

\[ 5f \]

\[ g \quad a \quad m \]

\[ 6b \]

\[ g \quad a \quad n \]

\[ 6d \]

\[ a \quad g u g \quad a \quad m \]

\[ 6g \]

\[ d \quad a \quad r \quad n g y \quad a \quad d l \quad i \]

\[ 8a \]

\[ g \quad o o \quad m \quad a \quad k \]

\[ 8b \]

\[ g w \quad a \quad m \quad a \quad n \]

\[ 9c \]

\[ g \quad a \quad m \quad l \quad a \]

\[ 10b \]

\[ g \quad u \quad b \quad l \quad i \]

\[ 14a \]

\[ g \quad a \quad m \]

\[ 15b \]

\[ a \quad g \quad a \quad m \]

\[ 16a \]

\[ g \quad a \quad m \quad \varepsilon \quad y \]

\[ 17b \]

\[ n g y \quad e \quad l \quad o \quad b \quad a \quad \text{metathesis} \]

\[ 17c \]

\[ g \quad a \quad m \quad w \quad u \]

\[ 19a \]

\[ n g \quad a a \quad m \quad a \]

---

\[ ^{10} \text{The subscripted dot indicates an extra feature, probably [+prenasal].} \]
The major difficulty here in positing one rather than two roots is the loss of C₂ in a number of languages, but there is evidence in them of *aw (⇒ ay ⇒ ee) or, more simply, *aw ⇒ o. Again Kanuri is relevant with ngalaro.

'sheep'  *D - m
1  tum ak ii plural
3a  tu/ə m
3b  tum
4a  tan ng aš
4c  tam o
4e  timba h
6  *t - m akw - -akwa is a feminine suffix in N. Bauchi
8a  təm ak u
8b  taam an
9c  taam e ga
10a  dəm ai
10b  də m a
12b  tam ga tone patterns distinguish sex
12c  tɑŋ k o
13  tum ak
14a  ndəbəq
14c  nd o m o x
The Tera C₂ ɓ and the Ron-Kulere C₂ mb raise the interesting question whether *D-m is Proto-Chadic or not. In general, both these languages have PC *m > m. Yet for this root, where every other language quoted, except Cushitic (which has lost C₂ or is not cognate) but including Berber, has m, these two languages do not. Again one suspects a word borrowed into many languages at a stage later than Proto-Chadic.

Again Kanuri dimi 'sheep' is obviously relevant, borrowed, it is suggested, from one of the earlier languages. But if so, why no prefix ka-, which was added when 'camel' was borrowed? Is prefixing a later development in the language? Daza has a different word, which may strengthen the suggestion that Kanuri borrowed. Again in this root, the k- is clearly a suffix, but not by any means limited to domestic or other animals (as suggested by Jungraithmayr), compare the following:

<table>
<thead>
<tr>
<th></th>
<th>'in-law'</th>
<th>'king'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angas</td>
<td>sur</td>
<td>Ron-Daffo</td>
</tr>
<tr>
<td>N. Bauchi</td>
<td>*c-y</td>
<td>N. Bauchi Warji</td>
</tr>
<tr>
<td>Bachana</td>
<td>șewu</td>
<td>Akkadian</td>
</tr>
<tr>
<td>Musgu</td>
<td>sula</td>
<td>Hausa</td>
</tr>
<tr>
<td>Hausa</td>
<td>surukii</td>
<td>sarkii</td>
</tr>
<tr>
<td>Tera</td>
<td>sørvæki</td>
<td></td>
</tr>
</tbody>
</table>

The meaning of the suffix was more likely 'individual, animate being', possibly [+male] with a vowel change for [+female].
REFERENCES


Hoffmann, Carl. 1971. "Provisional check list of Chadic languages", *Chadic Newsletter* [Marburg], special issue.


1. Introduction

This presentation centers around the concept of "plurality" in the Chadic language family. A general study of expressions of plurality has to take into account the difference between at least two distinct subsystems: "nominal plurality" on the one hand, and "verbal plurality" on the other. It of course also has to attempt to discover and establish the interrelationship between the two. In this paper, focus is on verbal plurality.

The study of the manifestations of <plural> within verbs could be organized in terms of at least four major areas:
(1) "lexical plurality", i.e. expression of plural through choice of lexemes, e.g. Ron-Fyer mot : ëwaar 'die (sg:pl)';
(2) "base level plurality", i.e. expression of plural by modifications of the underlying ("base") form of the same lexeme, e.g. Migama maat : mātt 'die (sg:pl)';
(3) "stem level plurality", i.e. expression of plural by thematic derivation, e.g. Ron-Sha ci : cy-an 'eat (sg:pl)';
(4) "aspectual plurality", based on a quantitative interpretation of verb aspects in a dichotomous system ("aspect I" : "aspect II").

*This study was partially supported by grants (Lu 2/26-27; Wo 216/1) from the Deutsche Forschungsgemeinschaft for research on Lamang and adjacent Chadic languages in 1973/74, in connection with a linguistic research program in the Lake Chad area directed by Johannes Lukas, principal investigator (Hamburg).

This is a slightly modified version of the draft which was distributed to the participants of the Colloquium. Some valuable comments put forward at the meeting and in subsequent discussions (especially with P. Newman) have been incorporated and are gratefully acknowledged. Certain modifications reflect the continuing effort to increase our knowledge and gain deeper insights into the complex problems raised in this paper.
Within this framework, this presentation is limited to the observation of manifestations of "base level plurality" and its interrelationship with "aspectual plurality".

In section 2 of this paper, I shall first attempt to outline a model utilizing the distinction between "root", "base", and "stem" which I have found to be useful for the comparative study of Chadic (and Afroasiatic) morphology. In sections 3-5, form, function, and distribution of a set of base-level formatives of verb and noun systems of 12 selected Chadic languages will be analyzed. Section 6 contains a summary and concludes with the formulation of a tentative hypothesis concerning the historical development of the synchronic patterning of related formatives in noun plurals, verb plurals, and aspect formations.

Three hypotheses are fundamental to this presentation:

(1) the hypothesis of Chadic as a valid linguistic entity within the Afroasiatic (Hamito-Semitic) phylum;
(2) the hypothesis of a fundamental dichotomy of aspect in Chadic (and Afroasiatic) verb systems;
(3) the hypothesis of base formation being independent of and prior to word class subcategorization.

The first hypothesis rests on Greenberg's classification (1966) of African languages, which has remained unchallenged in any serious way ever since it was first proposed more than 20 years ago.

The second hypothesis is commonplace in at least one branch of Afroasiatic, Semitic, and has been well argued for in Chadic over the past 10 years, especially by H. Jungraithmayr. He assumes a semantic contrast of "perfective/imperfective" and maintains that "compared with the perfective aspect form the imperfective aspect form is, in general, marked; in other words, the ipf.asp. form appears as an extension of the pf.asp. base" (Jungraithmayr in press, section 3.1.2). For the purposes of this paper, I shall follow Jungraithmayr insofar as relating the semantic category of the non-imperfective aspect (henceforth referred to as the unmarked aspect A-I) to simple, and the imperfective aspect (henceforth referred to as the marked aspect A-ll) to extended "base level" formations (see section 2 below).
The third hypothesis on which this presentation is based is one that C. Brockelmann introduced into Semitic studies at least as early as 1908 (see quotation in section 2 below), but which to my knowledge has not yet been made use of in comparative Chadic. It is this third hypothesis which allows us to compare similar or identical formations in the morphology of verbs and nouns and which does not a priori confine the concept of "plural" to nominals nor the concept of "intensity" as distinct from the former to verbals. Based on this hypothesis, I am arguing that a semantic relationship can be assumed to exist between nominal and verbal expressions of plural, and between these and the marked A-II ("imperfective/habitual/durative/frequentative/etc.") within the binary aspect system. (This A-II can be conceived of as being semantically marked in comparison with A-I in the same sense that "plural" is marked in opposition to "singular" in the nominal system.)

Accordingly, I have attempted in this paper (a) to adduce evidence for the wide distribution of obviously related formatives of plural/intensive verb formations, certain manifestations of aspect, and noun plurals; and (b) to verify the hypothesis of original semantic identity of verbo-nominal plurals and A-II aspect formations through observations of (i) syntacto-semantic "collisions" of these categories in verbal systems of modern Chadic languages, and (ii) obvious processes of restructuring of the verbal systems in order to avoid these collisions—such as neutralization of the sg:pl contrast in bases underlying A-II stems, shifting from segmental to suprasegmental aspect marking, A-II stem replacement by verbal noun stem, etc.

A quick glance at languages of the other branches of Afroasiatic suggests that the hypothesis of the plural/A-II relationship may be

---

1 Only after the first version of this paper had been drafted did I see W. Dressler's excellent study (1968) on verbal plurality. In his general introduction, Dressler argues in favour of a basic identity of nominal and verbal plurality and an affinity between verbal plurality and imperfective aspect. His results are based on a typological comparison of more than 40 languages from all over the world. It contains a sketch of verbal plurality in Hausa (pp. 95-101), which is based on Frajzyngier (1965) and his own informant work in Paris in 1965/66.
supported by Semitic and Berber evidence too. We are possibly dealing with structural traits of Proto-Afroasiatic which could be interpreted as reflecting cognitive processes in the early history of syntacto-semantic category development in this language family.

The languages selected for illustration have been drawn from each of the three recognized branches of Chadic (cf. Hoffmann 1971, Newman 1977):

1. Migama represents the Eastern branch of the family on which only very little material is available so far;
2. Lamang, which is spoken along the Nigeria-Cameroon border in the southeastern part of Nigeria's Borno State, is the main representative of the Central ("Biu-Mandara") branch. Reference will be made to some other Central branch languages, such as Ga'anda, Kapsiki, and Bachama.
3. The Ron languages (Fyer, Bokkos, Daffo-Butura, Sha, Kulere) of the Jos Plateau of central Nigeria represent the Western branch of Chadic, supplemented by some contrastive data from Kanakuru and Hausa.

2. Methodological preliminaries

Before discussing the interrelationship of base level and aspectual plurality, a few preliminary remarks may be appropriate with regard to the model that I have found to be useful for comparative studies of Chadic (and Afroasiatic) morphology. The units of this model shall be defined as follows:

1. "Root" shall denote the unit which contains only the indispensable elements of a lexeme. For comparative Afroasiatic, the root is assumed to contain no vowels. There is only one root for each lexeme.

The term root as it is used here reflects its usage in Semitics. Whether the root as traditionally conceived of in Semitic languages really merits the status of a unit within the morphology of the languages or whether—as non-Semitic studies have suggested—we ought to start

---

\(^2\)This section has greatly profited from an exchange of ideas with Bernhard Pelzl (Graz) in general, and also with specific regard to its applicability to Semitic languages.
with vocalized roots, i.e. "bases", at the very bottom of the system is a question for further comparative Afroasiatic studies. As long as the root is not eliminated as a unit and still serves descriptive purposes in at least one branch of Afroasiatic, it will add to clarification in comparative Afroasiatic study to distinguish between "roots" and "bases" in the way suggested here.

(2) "Bases" shall be all vocalized manifestations of roots, i.e. all possible shapes of roots after rules of vocalization and (optional) augmentation (see below) have been applied. Vocalized roots without any modification of their radical structure are referred to as "simple" bases. Vocalized roots with simultaneous modifications of radical structure, i.e. augmented by consonant or vowel lengthening, segment addition, reduplication, etc., are called "extended" or "augmented" bases. As each root may form several bases, each base may underly more than one stem.

The term base as it is used here is not a newly coined term. The triple hierarchy of root-base-stem had already been introduced into Semitics by Brockelmann at the beginning of this century:

"Already in Proto-Semitic most word forms displayed a stable foundation of 3 consonants, which one calls the root following the practice of the Jewish grammarians. But the only value of such a root is for the systematic artificial ordering of the vocabulary in a dictionary. It is an abstraction, and the assumption that the historical word forms have grown out of these roots dangles entirely in the air. The analysis of the nouns as well as the verbs leads us rather to certain simple basic forms, in all cases already furnished with vowels, which in contrast to those abstract roots we are calling bases. Such bases serve...as nouns as well as verbs, and are presumably older than these grammatical categories" (Brockelmann 1908:137-38, translation mine).

(3) "Stems" are word-level manifestations of bases in the sense of syntactically free forms. So-called "simple stems" carry no additional extension or modification; their morphological shape is identical to that of the postulated underlying base whether the latter is "simple" or "extended". The terminological distinction between "base" and "simple stem" is merely a question of descriptive focus, so that we say that bases may "function" as simple stems. So-called "extended stems" are derived from underlying bases through affixation of further morphemes.

The relevance of the distinction of simple vs. extended at the stem level in Chadic was first recognized by Hoffmann (1963). For our pur-
poses, the following classification of stems is suggested:

(i) "simple stems": unaffixed "lexical" stems, unmarked for aspect/mood/tense/etc.;

(ii) "extended stems":
    (a) inflectional stems (e.g. aspect/mood/tense stems, verbal
        noun stems, participial stems, etc.);
    (b) derivational/thematic stems (applicatives, causatives,
        totality/intensives, conatives, benefactives, reflexives,
        partitives, various locatives, etc.).

Obviously, a simple stem may serve in a given language as an inflectional
unit. Within a binary aspect system, it may serve as the unmarked oppo-
sition to the marked stem.

The model allows the "base"/"stem" distinction to be used to dis-
tinguish lexicon-internal formations (bases) from syntactic formations
(stems). For morphological analysis, it helps to separate two kinds of
formational processes: apophony and augmentation at a base level, and
affixation at a stem level.

2.1. Summary. More for comparative purposes within Afroasiatic than for
the synchronic description of modern Chadic languages, I am suggesting
that one should keep distinct the following formational process types and
their resulting morphological categories:

Formational Processes

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOT</td>
</tr>
<tr>
<td>Simple BASES</td>
</tr>
<tr>
<td>Extended BASES</td>
</tr>
</tbody>
</table>

A. Base formation, with the formational processes of

1. Vocalization which forms bases from underlying roots;
2. Augmentation which forms extended/augmented bases from non-
   extended, i.e. simple, bases;
3. Apophony which derives or accompanies the derivation of
bases from each other.

B. Stem formation, with the formative process of

4. Affixation which derives extended stems from underlying
(simple and extended) bases.

3. Evidence from the Eastern branch: Migama

In Migama (cf. Jungraithmayr 1975), a subset of biradical verbs
displays number-differentiation (Wolff 1976). These verbs show four
bases, each with related vocalization patterns:
(1) a simple base which is used in A-II "imperfective" stems, e.g.
for the verb 'die': *mat
(2) a number-sensitive <-pl> base with long internal vowel: *maat <-pl>
(3) a number-sensitive <+pl> base with reduplicated final radical
consonant: *matt <+pl>

Both these number-sensitive bases are used in the verbal noun and in
the A-I "perfective" stem.
(4) a disyllabic base used in A-II stems which is characterized by a
reduplicated augmented third radical consonant /k/, sequence of
identical vowels, and apophonic change of all [+high] vowels to
[-high]: *matakk

(These are characteristics of this type of A-II base which is shared by
all biradical verbs whether they display number-sensitive verb base
differentiation in A-I or not.)

All other verbs have only two bases and must be considered number-
insensitive:

<table>
<thead>
<tr>
<th>Simple base</th>
<th>Augmented base</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-radical verbs</td>
<td>*ti</td>
</tr>
<tr>
<td>2-radical verbs</td>
<td>*pan</td>
</tr>
<tr>
<td>3-radical verbs</td>
<td>*lipid</td>
</tr>
<tr>
<td>4-radical verbs</td>
<td>*rawt</td>
</tr>
<tr>
<td>4-radical verbs</td>
<td>*garkiy</td>
</tr>
</tbody>
</table>

These number-insensitive verbs of Migama show very regular formations of
verbal noun and "perfective" stems deriving from the simple base, and
"imperfective" stems derived from the augmented base.

As regards the number-sensitive subset of biradical verbs, observe that the plural base is formed by reduplication of the final radical: $C_2 \rightarrow C_2C_2$, which obviously can be interpreted as a marker of plurality. Yet, reduplication of the final radical is also one of the several markers used in bases which underly imperfective stems, only that the final radical there is necessarily $C_3$. The regular pattern for these imperfective stems of "polyverbs" (as opposed to "monoverbs"--terminology taken from Newman 1975) also includes a common suffix -a, e.g.

<table>
<thead>
<tr>
<th>Bases</th>
<th>A-III stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>monoverbs</td>
<td>*ti *tee</td>
</tr>
<tr>
<td>polyverbs</td>
<td>*mat *matakk</td>
</tr>
<tr>
<td></td>
<td>*pan *panakk</td>
</tr>
<tr>
<td></td>
<td><em>lipi</em> <em>lepduk</em></td>
</tr>
<tr>
<td></td>
<td>*rawt *rawtt</td>
</tr>
<tr>
<td></td>
<td><em>kekkid</em> <em>kekked</em></td>
</tr>
<tr>
<td></td>
<td>*garkiy *garkayy</td>
</tr>
<tr>
<td></td>
<td>*turguw *torgoww</td>
</tr>
</tbody>
</table>

'tickle'

'travel'

What, may we ask, has become of the number-differentiation of the bases of the number-sensitive subset of biradical verbs, such as *maat/*matt? Should we not expect two instances of radical consonant reduplication when a plural base is used in the imperfective, i.e. cooccurrence of $-C_2C_2-$ marking <+plural> and $-C_3C_3-$ to mark <+imperfective?> The formation we expect ought to look like **mattakk-a. But this form does not exist, and obviously not because of any phonological restriction against two long consonants within a single stem (cf. kekked-a).

---

3This requirement of triradical structure in the imperfective affects biradical verbs as well since they are--irrespective of number-sensitivity--augmented by a consonant /k/ in $C_3$ position before the final radical reduplication rule is applied. Monoverbs are exempted from augmentation and reduplication, but display (compensatory?) vowel lengthening instead.

4This is probably an assimilated form of a completely reduplicative base of the type also observed in, e.g. cepcip 'crush'.
Apparently verb base plurality and imperfective aspect are in some way incompatible because we have reason to assume that the imperfective stems of the type matakk-a serve for the plural verb base *matt, since the singular verb bases form their own imperfective aspect stems. They do this without augmentation by C₃ radical and without subsequent reduplication, but with lengthening of the suffix vowel instead. Thus for 'die', for example, we find two imperfective aspect stems: (i) matakk-a corresponding to *matt, and (ii) mat-aa corresponding to *maat. I have concluded and argued (Wolff 1976) that the imperfective aspect inherently has a plural-like semantic feature, possibly the feature ⟨plural⟩ itself, marked by final radical reduplication. (This feature of A-II of the proto-language is traditionally described by terms such as "linear/durative/frequentative/habitual/etc." in opposition to a non-plural-like "punctual" connotation of A-I.) Following this line of argument, an "imperfective + plural stem" which maintained the plural base formatives would be rejected as a pleonastic formation. Modern Migama's differentiation of sg:pl in the imperfective stems may thus be the result of restructuring the system in analogy to the perfective and verbal noun stems, cf.

<table>
<thead>
<tr>
<th>ROOT</th>
<th>BASES</th>
<th>STENS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AUX(+imp)</td>
<td>VN</td>
</tr>
<tr>
<td>p-n</td>
<td>pan-</td>
<td>panakk-</td>
</tr>
<tr>
<td>m-t</td>
<td>matt-</td>
<td>matakk-</td>
</tr>
<tr>
<td></td>
<td>maat-</td>
<td>mat-</td>
</tr>
</tbody>
</table>

Unfortunately, no data on Migama noun plural formation are available to me. It would be interesting to know whether some or all of the formatives used in base and stem formation of AUX(+imp), such as final radical reduplication, vowel lowering and vowel copying, base augmentation by consonant addition, and possibly even suffix -a, are also used in the formation of noun plural bases and stems.
4. **Evidence from the Central (Biu-Mandara) branch: Lamang, Ga'anda, Kapsiki, Bachama**

We now turn our attention to the Central branch of Chadic (also known as Biu-Mandara).

4.1. **Lamang.** In Lamang, verbs are not just simply marked + or - for the feature <intensive>, but rather have various verb bases which mark different degrees of intensity. The aspectual dichotomy is marked in several ways: by opposition of simple vs. extended stems, shift from verb bases (for A-I) to verbal noun bases (for A-II) accompanied in some cases by tonal changes (Hi tone pattern for A-I vs. Lo tone pattern for A-II). If we work on the assumption that in Lamang the proto-language's A-II stem has been substituted by or merged with the verbal noun stem (as presumably in Hausa and a number of other Chadic languages), we are left to compare the formation of the different intensity-sensitive verb bases with the reflexes of A-II stem and noun plural formations in other languages of the family.6

In Lamang, as in Migama, not all verbs share the same base extension potential. Whereas monoverbs and polyverbs that are primarily vocalized with a in their first syllable display four degrees of intensity, some polyverbs seem to use as their "normal" degree a base primarily vocalized with a in their first syllable, which corresponds to Degree II of verbs with first syllable a vocalization. Similarly, a subset of biregical verbs with first syllable high vowel i/u lack the possibility of forming intensive bases by means of internal

5Under the label <intensive>, various functional variants are subsumed of what I consider to be a single semantic feature. It is manifested in optional number agreement with subject or object, or in the indication of repeated, frequentative, or even habitual action. Form and function are discussed for the first time for Lamang in Wolff (1972: 25-40) where "intensity grades" have been interpreted as extensions of the "root" (= "bases" in the terminology advocated in this paper).

6Since Lamang regularly forms its noun plurals with a suffix -xa, nothing of comparative value can be gained by cross-word class comparison within the language. This is also true for the small set of "internal" and "repetitive" noun plurals which have been observed.
vowel change alone, and thus also appear to use Degree II as their "normal" degree. (As seen from examples such as ghili 'theft' and xini 'sleep', this group contains denominative verbs.)

The first set of Lamang intensive verb bases is illustrated by the following examples:

```
Degree I    *kela            *m-n-  'do'    *s-1-  'fry'
Degree II   *kala             *mana    *sula
Degree III  *kalala           *manana  *sulala
Degree IV   *kalakala         *manamana *sulasula
```

These bases underly the various tense stems of A-I ("perfective").

The formation of simple and extended bases in Lamang can be summarized as follows:

1. Simple base-formation through Degree I vocalization ("unmarked"):  
   - monoverbs:  \( C_1a \)  \( tsa \)  'cut'  
   - polyverbs:  \( C_1aC_2a \)  \( kela \)  'take'  
                 \( C_1aC_2\omega C_3a \)  \( tl\omega gela \)  'stab'  
                 \( C_1aC_2\omega C_3a \)  \( ghambasa \)  'laugh'  
                 \( C_1aC_2C_3a \)  \( gwerva \) [gurva]  'dance'  

2. Simple base-formation through Degree II vocalization ("marked"):  
   - polyverbs:  \( C_1aC_2a; C_1i/uC_2a \)  
                 \( C_1aC_2aC_3a \)  

3. Extended base-formation through reduplication of final radical consonant and "marked" vocalization (Degree III for polyverbs; Degree II and III for monoverbs which apply this formation twice; verbs of internal vocalization type \( i/u \) retain the vowel of the first syllable of their simple base):  
   - monoverbs:  \( C_1aC_1a \)  (Degree II)  
                 \( C_1aC_1aC_1a \)  (Degree III)  
   - polyverbs:  \( C_1aC_2aC_2a; C_1i/uC_2aC_2a \)  
                 \( C_1aC_2aC_3aC_3a \)  

4. Extended base-formation through complete reduplication of the Degree II base:
monoverbs: $C_1aC_1aC_1aC_1a$

polyverbs: $C_1aC_2aC_1aC_2a; C_1i/uC_2aC_1i/uC_2a$

$C_1aC_2aC_3aC_1aC_2aC_3a$

The corresponding verbal nouns, which also serve as "imperfective" aspect stems, take a suffix -o and use a second set of bases characterized by the change of a occurring before the final consonent to o. Note that the internal vowel -o- is not dependent on the occurrence of the suffix -o, which is replaced by the subject pronoun in all but the third person singular, e.g. 'kol-i, kol-ka, kol-o, etc. 'I, you, he take(s)'. (The completely reduplicative Degree IV base derives no separate verbal noun stem, and denominative verbs substitute their nominal base in their normal degree.)

<table>
<thead>
<tr>
<th>Verbal noun stems</th>
<th>Degree I</th>
<th>Degree II</th>
<th>Degree III</th>
</tr>
</thead>
<tbody>
<tr>
<td>kol-o</td>
<td>mon-o</td>
<td>manon-o</td>
<td>sulol-o</td>
</tr>
</tbody>
</table>

The following chart of Lamang verb bases (with verbal noun stems added in parentheses) contains all structural types of Lamang verbs. (Examples not translated above are the roots s-wl- 'walk', gh-l- 'steal', and the Hausa loanword yarda 'agree'.)

<table>
<thead>
<tr>
<th>Degree</th>
<th>Monoverbs</th>
<th>Polyverbs (given by first syllable vocalization type)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tsa</td>
<td>kola</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(kolo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tlægela</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td>(tlægelo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ghømbasa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ghømboso)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gwærva(^7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>yarda(^7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sawla(^7)</td>
</tr>
<tr>
<td></td>
<td>tsatsa</td>
<td>kola</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(kolo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tlagala</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(tlagolo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ghømbasa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ghømboso)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gwærava</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(gwæravo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>yarada</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(yarodo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sawla(^7)</td>
</tr>
<tr>
<td></td>
<td>tsatsatsa</td>
<td>kalala</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(kalolo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tlagalala</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(tlagalolo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ghømbasasa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ghømbasoso)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gwæravava</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(gwæravovo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>yaradada</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(yaradodo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sawalala(^7)</td>
</tr>
<tr>
<td></td>
<td>tsatsatsatsa</td>
<td>kalakala</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tlagalatlagala</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ghømbasaghambasa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gwæravagwærava</td>
</tr>
<tr>
<td></td>
<td></td>
<td>yardayarda/yanadaya/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>yaradaya/yanadaya/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sawalasa/yanadaya/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sawalasa/yanadaya/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>manamana</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ghilaghila</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sulasula</td>
</tr>
</tbody>
</table>

\(^7\)One set of lexically intransitive verbs and some verbs of foreign origin do not form verbal nouns with -o in Degree I; another set of intransitive verbs does not form morphologically distinct verbal noun stems at all.
4.2. Ga'anda. In order to document differing usages of the same set of formatives marking identical semantic features, I quote the following paragraph and examples from R. Newman's stimulating grammar of Ga'anda, a Central branch language belonging to the Tera subgroup (1971:34-35):

"Another optional verb feature is <intensive>. The presence of <+int> is marked by a reduplicative verb stem. The intensive form usually reinforces the number of times the action is performed, particularly if the object acted upon is plural....This reduplication can be represented by the following formula:

\[ [C_1VC_2(V)]_{VB}\quad \text{<+int>} \quad C_1\in C_1aC_2(V) \]

- ebäl-ince cinica 'I killed lions'
- ebäl-ince cinica 'I killed lions (many of them)'
- ce-nda merta xa 'they shot up the corpse'
- coca-nda merta xa 'they shot up (many times) the corpse'
- tle necan 'yar-i-ta
  'he is (hab.) insulting me'
- tle necan 'ye'yar-i-ta
  'he is (hab.) insulting me (without letting up)'

The 'internal -a-' vowel change of the root is no doubt a reflex of the 'internal -a- plurals' found in other Chadic (and Afroasiatic) languages. In Ga'anda, however, it is not considered as a formation of a plural verb stem agreeing in number with plural objects, since (a) the object may be singular, and (b) a non-intensive verb stem can be used with plural objects."

4.3. Kapsiki. Different from Lamang and Ga'anda, Kapsiki, a language of the Higi subgroup, does not seem to exploit the possibilities of internal vowel change to mark intensive verb bases, but rather seems to use only partial and complete reduplication to indicate intensity/plurality (Smith 1969:111ff.). Kapsiki verb stems occur with both completely and partially reduplicated bases. Simple stems with partially reduplicated bases usually denote habitual action. Extended stems with partially reduplicated bases seem to indicate that the action was done several times or was directed toward several goals, e.g.

- mene 'do': ka-memené tlené nde 'he works all the time'
- pese 'grow': 'a ké-pesé 'it has been growing (at least some of it)'
- zeme 'eat': 'a ké-zezemáké 'he has eaten (a little of several things: -aké),'

Complete reduplication of the base is used to show "emphasis":

...gwezé...ke-pesépesé '...the grass...has really grown'
4.4. **Bachama.** This Bata subgroup language has long been looked at rather suspiciously because it "untypically" shows grammatical gender in the nominal system. Interpreting this to mean that Bachama has succeeded in retaining this grammatical feature from Proto-Chadic days, we should not be surprised to find equally ancient remnants in the verb system. And indeed, Bachama does make use of the inherited principle of internal vowel change to form plural verb bases. The following is quoted from Carman (1970:101ff.):

"A large number of verbs show internal vowel changes from singular to plural forms, often correlating in intransitive clauses with a singular or plural subject, and in transitive clauses with a singular or plural object. Sometimes, however, the singular or plural form of the verb is at variance with the number of the subject or object, and appears to be independent of such concords, and to relate directly to semantic factors in the situation. For many verbs, there are distinct singular and plural forms, and the speaker has to make a choice. He does so according to whether he wishes to focus attention on the unity or disparity of action or state in the situation...In general, the vowel in the plural forms is more open than that in the singular. There is a similar relation between the vowels in the stems of singular and plural nouns...In general, verbs with -a- or -aa- in the stem have no distinct singular and plural forms..."

The sg:pl verb base contrast in Bachama can be illustrated both with verbs in the "Normal Grade" and with "Adessives" (verbs indicating action in the direction of the speaker):

<table>
<thead>
<tr>
<th>Underlying singular base</th>
<th>Normal Grade</th>
<th>Adessive Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pírè</strong></td>
<td>pírā</td>
<td>'thatch'</td>
</tr>
<tr>
<td><strong>blyè</strong></td>
<td>blyā</td>
<td>'break'</td>
</tr>
<tr>
<td><strong>tùulè</strong></td>
<td>tùulá</td>
<td>'chew'</td>
</tr>
<tr>
<td><strong>'úsè</strong></td>
<td>'úsā'</td>
<td>'cook'</td>
</tr>
<tr>
<td>Underlying plural base</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>pyèr</strong></td>
<td>pyáarā</td>
<td></td>
</tr>
<tr>
<td><strong>bèyè</strong></td>
<td>bāyā</td>
<td></td>
</tr>
<tr>
<td><strong>tòolè</strong></td>
<td>twàalá</td>
<td></td>
</tr>
<tr>
<td><strong>'ösè</strong></td>
<td>'wasā'</td>
<td></td>
</tr>
</tbody>
</table>

As regards cross-word class distribution of formatives, cf. the following set of Bachama sg:pl noun stems:
dimséy : dyémshé 'song'
dùwéy : dáwyé 'horse'
vùnányé : vényé 'hut'

5. Evidence from the Western branch: the Ron languages, Kanakuru, Hausa

5.1. The Ron languages. Verb stem formations in the Ron languages have been treated extensively in a series of articles by H. Jungraithmayr since 1965. Used as evidence of common retentions of Afroasiatic traits, Ron verb stems have been frequently listed alongside Berber and Semitic verb formations. Once only, in what I take to be his first approach to the subject—a supplementary article to Greenberg's (1955) "Internal a-plurals in Afroasiatic"—Jungraithmayr (1965) dwelled on the cross-word class distribution of the formative under consideration:

"Within the system of verbal aspects in Ron the relationship between Imperfective-Subjunctive and Habitual-Plural stems may well be compared with the singular/plural relationship between nominals discussed above. At least Daffo-Butur, Sha, and Kulere employ the same means and patterns when forming a Habitual-Plural stem from the respective Imperfective-Subjunctive stem, i.e. either intercalation (Daffo-Butura and Kulere) or reduplication (Sha)" (1965:106ff.).

From the list of examples given, only a few shall be cited here.

Daffo-Butura  ngóor : ngwánar 'bite'
              halái : háálái 'hear'
Sha          fud : fwa’daf 'blow'
              bol : bólól 'come'
Kulere       sùm : swámam 'catch'
              dîk : diyàak 'touch, taste'

Compare the following set of corresponding noun plural formations cited from the same publication:

Daffo-Butura  mór : mwår 'slave'
              hwám : hwám 'ear'
Sha           hai : haayî 'head'
              matól : matyàl 'hen'
Kulere        kôdd : kwàad 'fowl'
              sumóor : sumwår 'hare'
The fascinating term "Habitual-Plural Stem" used in this early publication was subsequently eliminated by Jungraithmāyr because, as he argued a few years later in his more extensive treatment of the Ron languages (1970), just like any other thematic derivational verb stem, "plural stems" ought to be kept distinct from "aspect stems". This is a strictly synchronic distinction made at the expense of the generalizations concerning the relationship of plural and habitual (A-II) verb formations which the former term implied.

If, for the moment, we follow Jungraithmāyr's analysis, we find that actually the only language of the group that uses identical formations simultaneously in both categories, i.e. "derivation" and "inflexion", seems to be Sha:

<table>
<thead>
<tr>
<th>Simplex : plural stem</th>
<th>A-I : A-II stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>'break'</td>
<td>'come'</td>
</tr>
<tr>
<td>gol : golol</td>
<td>bol : bōlōl</td>
</tr>
</tbody>
</table>

The other Ron languages (just like Sha with its other verb stem formation types) seem to avoid straightforward morphological ambiguity of this kind. Nevertheless, the common use of identical formatives is apparent once we look at the overall picture of plural verb stems and habitual aspect stems in the whole group. Compare the following chart in which the items are arranged according to types of stems and underlying bases:
<table>
<thead>
<tr>
<th>Derivational-Thematic (&quot;plural&quot;)</th>
<th>Aspectual-Inflexional (&quot;habitual&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daffo bîl : ëyàl</td>
<td></td>
</tr>
<tr>
<td>Sha shum : shwàm</td>
<td></td>
</tr>
<tr>
<td>Fyer pun : pwaan</td>
<td>Bokkos lûl : lwâl</td>
</tr>
<tr>
<td>Sha shîsh : shàash</td>
<td>Daffo shit : shyaàt</td>
</tr>
<tr>
<td></td>
<td>Kulere ndim : ndysâm</td>
</tr>
<tr>
<td>Sha gol : golol</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sha bol : bólòl</td>
</tr>
<tr>
<td></td>
<td>kûk : kwákàk</td>
</tr>
<tr>
<td>Daffo hwi : hwy-ëy</td>
<td>Kulere mom : mom-ëy</td>
</tr>
<tr>
<td>Sha ci : cy-an</td>
<td></td>
</tr>
<tr>
<td>Fyer ìol : ìwal-an</td>
<td>Kulere dyef : dyaf-ëy</td>
</tr>
<tr>
<td></td>
<td>ci : cá-ëy</td>
</tr>
<tr>
<td></td>
<td>Bokkos cu : cwâ-ëy</td>
</tr>
<tr>
<td></td>
<td>Daffo cuh : cwâ-ëy</td>
</tr>
</tbody>
</table>

Within the framework of this important contribution, Jungraithmayr nowhere discusses the relationship of these formations to each other. As was seen in the case of Migama (section 3), the assumed incompatibility of <+plural> and <+imperfective> within a single stem formation prevented the occurrence of an "imperfective + plural" stem. This was in turn compensated for by innovation of a "non-plural imperfective stem". The Ron languages, in at least three of which a situation comparable to that of Migama exists, shall now be submitted to an analysis as to their way out of what appears to be an inherited syntacto-semantic dilemma (all examples drawn from Jungraithmayr 1970).
5.1.1. The case of Fyer. This is the only one of the five Ron languages in which <plural> is marked both at base and stem level (Junggrafthmayr 1970:60ff.):

(i) base level only:

\[ \text{munî : mwinî} \quad \text{'}love\]
\[ \text{qgôr : qgwâr} \quad \text{'}bite\]
\[ \text{pun : pwaan} \quad \text{'}circumcise\]
\[ \text{--- : ñwaar} \quad \text{'}cut/die\]

(ii) stem level: (*bôhô ?) bôô : bôh-à  \quad \text{'}stab\]
\[ \text{bol : ñwal-an} \quad \text{'}shoot\]

(In addition, there is an extended thematic stem marking "intensive/totality" by the suffix -áq.)

Since Fyer has chosen thematic derivation to be marked at both base and stem level, the aspectual dichotomy remains to be marked suprasegmentally, i.e. by tonal distinctions. As there are no cooccurrence restrictions:

\[ \text{qgôr/qgôr : qgwâr/qgwâr} \]
\[ \text{pun/pún : pwaan/pwân} \]
\[ \text{munî/munî : mwin-/mwin-} \]
\[ \text{bol/bol : ñwalan/ñwalân} \]

5.1.2. The case of Bokkos. This language has taken the alternative option if compared with Fyer: it has given up the productive formation of extended thematic verb stems altogether. Instead, postpositional particles are used—but none to mark <plural>! The morphological means of base and stem formation are thus freely available to mark exclusively the aspectual category. It is worth noting that monoverbs with a high base vowel make use of a stem level extension by a suffix -ay, whereas all

---

8As a matter of fact, the interpretation of the two tonally distinct verb stems as a "dichotomy of aspect" remains somewhat doubtful (cf. also Jungrafthmayr [1970:62], where he assumes "the powers for this 'confusion' to have originated from Angas by which Fyer is surrounded").

9There are examples of non-productive base augmentations attested in Bokkos but they are irrelevant for the topic under discussion.
other verbs use base extensions only.

<table>
<thead>
<tr>
<th>Polyverbs</th>
<th>Monoverbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>lûl</td>
<td>(a)</td>
</tr>
<tr>
<td>lwaâl</td>
<td>do</td>
</tr>
<tr>
<td>fu'</td>
<td>sha</td>
</tr>
<tr>
<td>fwaâ'</td>
<td>shâá 'refuse'</td>
</tr>
<tr>
<td>musâs</td>
<td>(b)</td>
</tr>
<tr>
<td>músaâs</td>
<td>cu</td>
</tr>
<tr>
<td>pipel</td>
<td>di/ði</td>
</tr>
<tr>
<td>pîpyâál</td>
<td>dyá-ay</td>
</tr>
<tr>
<td>'become white'</td>
<td>'eat'</td>
</tr>
</tbody>
</table>

5.1.3. The case of Daffo-Butura. In his description of this Ron language, Jungraithmayr simply forgot to mention that "plural verb stems" do exist, as we know from the vocabulary (pp. 212-23), e.g.

<table>
<thead>
<tr>
<th>bil</th>
<th>byâl</th>
<th>'draw water'</th>
</tr>
</thead>
<tbody>
<tr>
<td>cu(h)</td>
<td>cwây</td>
<td>'eat'</td>
</tr>
<tr>
<td>ndus</td>
<td>ndâwâs</td>
<td>'close (a hole)'</td>
</tr>
<tr>
<td>ngôôx</td>
<td>ngwâr</td>
<td>'bite, chew'</td>
</tr>
<tr>
<td>hwi</td>
<td>hwây</td>
<td>'throw'</td>
</tr>
<tr>
<td>lamo'</td>
<td>lamâ</td>
<td>'skin'</td>
</tr>
<tr>
<td>řagot</td>
<td>řagwât</td>
<td>'throw'</td>
</tr>
<tr>
<td>shu(h)</td>
<td>shwây</td>
<td>'pour into'</td>
</tr>
</tbody>
</table>

Synchronously, polyverbs form plurals by insertion of /a/ with subsequent diphthongization, whereas monoverbs take an extension suffix -ay (cf. Bokkos above in the category of aspect). Note that the inserted vowel is short /a/. The regular A-II formation in Daffo-Butura works along exactly the same lines except that the inserted vowel is long /aa/. In the case of a few monoverbs, long âa at the surface may go back to either double formation (e.g. CV + a + ay) or plain analogy, e.g. byâal, ndâwâs, ngwâr, lamâ, řagwât; cwaây, hwây, shwaây. It is left to our imagination whether the distinction in vowel quality represents an old or rather relatively recent device to distinguish between "plural stems" and "habitual stems". However, we cannot expect anything but neutralization of the sg:pl distinction in the A-II formation under these circumstances.

Thus Daffo-Butura marks both <plural> and <A-II> exclusively at the base level with the exception of monoverbs, which use a stem level extension. Leaving the latter aside, there is a thematic derivation available.
which uses a homophonous suffix -ay to mark predominantly applicative or conative modifications of the verbal meaning at the stem level, e.g.

\[ \text{shit : shyaát / shit-ay} : \text{shyaát-ay} \quad \text{'see'/'look at'} \]
\[ \text{taar : taar} / \text{taar-ay} : \text{taar-ay} \quad \text{'break'/break off'} \]

(As in Bokkos, further thematic derivation is achieved by use of various postpositional particles.)

5.1.4. The case of Sha. For this language, the existence of three derivational thematic verb stems were suggested by Jungraithmāy: a stem ending in -o to mark "motion towards speaker/action at a distance"; a stem ending in -ay to mark, among others, "totality/intensive" or "applicative" functions; and thirdly, a "plural stem" for which only five examples could be found:

\[ \text{ci : cyan} \quad \text{'eat'} \]
\[ \text{du : dwan} \quad \text{'go'} \]
\[ \text{shum : shwàm} \quad \text{'catch'} \]
\[ \text{shîsh : shāash} \quad \text{'slaughter'} \]
\[ \text{gol : golol} \quad \text{'break (tr.)'} \]

 Whereas the -o and the -ay stems freely occur in the "habitual" (A-II), e.g. lwagá-gő '(hab.) rise and come', lyandand-ay '(hab.) box someone's ears', there are no examples of "plural stems" in the habitual! For ci, we find a habitual formation càyay only, i.e. without the plural suffix -an (cf. Fyer ñwá-an above), but containing the suffix -ay which is so typical of the A-II formation of monoverbs not only in Sha but also in Bokkos and Daffo (see above). For du, there is unfortunately no A-II formation quoted at all. In the case of gol : golol, no aspect or tense stems whatsoever are labelled as such in the description. According to the rules (1970:271), the habitual of

---

10 There are a few non-productive base augmentations attested in Daffo-Butura. These do not pertain to (plural/intensive).

11 The analysis of càyay and all other monoverbs as containing the suffix -ay, is contrary to Jungraithmāy (1970), who explains all habitual formations of Sha in terms of final radical reduplication and does not consider monoverbs to require special treatment.
any CoC₂ verb is CoC₂oC₂, i.e. golol must contain both indication of A-II as well as of plural. Thus we may speak of base level neutraliza-
tions of the sg:pl contrast in A-II stems. In the cases of shum : shwam
and shîsh : shâash, there too is no sg:pl contrast in the A-II forma-
tions:

\[\text{(-pl)} \text{ shum } \}
\{\text{A-II} \text{ shwamam} \text{ shîsh}
\{\text{A-II} \text{ shishâash}

In the five cases cited, the lack of "A-II + pl" stems in the data could
be accidental and due to failure to elicit these forms—but it could also
be due to a systematic gap caused by the incompatibility of A-II and
(+pl) formatives within the same base.

5.1.5. The case of Kulere. According to Jungraithmayr (1970), there are
no productive thematic stem extensions at all in this language since he
treats the verb stems ending in -o(he) as belonging to the category of
aspect/tense. Yet traces of thematic derivation have been noted.¹² The
A-II ("habitual-progressive") stems in Kulere (again according to Jung-
raithmayr) employ the following:

(1) -aa- infix (polyverbs with high base vowel)

(2) -ay suffix (monoverbs, and polyverbs with non-high base vowel)

(Jungraithmayr's third type (= both -aa- infix and -ay suffix) is
based on overdifferentiation of varieties of type 2 above.)

The existence of "plural stems" is definitely ruled out—but compare
the following quotation concerning the formation of passive and active
participles:

"Comparable to the Arabic maf'ūul form, Kulere forms a passive
perfective participle of transitive verbs in such a way that a

¹²These rudiments of thematic-derivational extensions of the stem are
marked by a suffix -an. Yet this suffix has not persistently been
lexicalized as Jungraithmayr seems to imply (pp. 323, 341). This can be
seen from the habitual stems where at times the final n is valued as a
radical consonant, i.e. a long -aa- occurs in front of it:

ryadān : ryadaān 'draw, write'
lanzaān : lanzaān 'box someone's ears'

(cf. without suffix: nī lanz-āyah 'I box your (m.sg.) ears')

but at times is treated as a suffix to the stem which, in the case of mono-
verbs, may already carry the A-II suffix -ay: ɣ(i)y-ān : ɣa-āy-ān 'see'.
high tone prefix má-, which is reduplicated in the case of mono-
syllabic verb stems, occurs in front of the shortened perfective
stem (in the singular) or in front of the habitual stem (in the

Examples are:

fakyen má-má-gyöl 'broken pot'
fakyêñ má-má-gywáál 'broken pots'
côh má-má-tûr 'broken walking stick'
côh má-má-twáár 'broken walking sticks'
zâr má-má-sîky 'cut-off rope'
zâdr má-má-syááky 'cut-off ropes'

Compare also the following parallel formations of "passive" and "active"
participles:

dafál má zyêl 'a killed person'
naaf mú zyâl 'killed persons'
dafál má zyêl 'a killer'
naaf mú zyâlây\textsuperscript{13} 'killers'

The conclusion is apparent: to use the aspectual dichotomy of the verb
system to mark the number distinction of sg:pl in agreement with the
number of the nominal head of a construction would seem to be a silly
thing to do for any language if the number distinction were not
inherent in the aspectual dichotomy!

5.1.6. Summary of Ron languages. The following chart summarizes the
segmental markers of <+plural> and <+A-II> found in the Ron languages.

\textsuperscript{13}As regards the two forms zyaâl (extended base) and zyâl-ây
(extended stem), the first of which violates the rules of Aspect-II
formation in Kulere, we are left to mere guesswork as to whether
zyaâl might reflect a formerly productive "plural" base formation.
This is the only contrasting pair which I have found in the data.
<table>
<thead>
<tr>
<th></th>
<th>&lt;+plural&gt;</th>
<th>&lt;A-II&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fyer</td>
<td>1. -i-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. -a(a)-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. -a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. -an</td>
<td></td>
</tr>
<tr>
<td>Bokkos</td>
<td></td>
<td>1. -aa-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. -aa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. -ay</td>
</tr>
<tr>
<td>Daffo</td>
<td>1. -a- / polyverbs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. -ay / monoverbs</td>
<td>3. -aa-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. -a-ay</td>
</tr>
<tr>
<td>Sha</td>
<td>1. -a(a)-</td>
<td>4. -VC₂/C₁VC₂</td>
</tr>
<tr>
<td></td>
<td>2. -VC₂/C₁VC₂</td>
<td>5. -ay</td>
</tr>
<tr>
<td></td>
<td>3. -an / monoverbs</td>
<td></td>
</tr>
<tr>
<td>Kulere</td>
<td>(1. -aa- )</td>
<td>2. -aa-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. -ay</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As regards cross-word class usage of these base and stem level formatives within the same languages, there are only a few exceptions:

(a) Fyer has no noun plural to match the formation of Ṇḥ-a and uses the suffix -an only in combination with -i- insertion;
(b) Bokkos uses short a (internal or suffixed) in noun plurals as opposed to long aa in the verb system;
(c) Sha does not use the suffix -an in noun plurals (there are no monoradical nouns contained in the data anyway!);
(d) Kulere does not use the suffix -ay in noun plurals.

In general, the phonological conditions under which some of the formatives are or are not applied in the verb system are only in a few cases identical to the conditions under which they are applied in the noun system. (It ought to be noted here that the individual Ron languages may use up to eight different noun plural formations through various types of apophonic, suffixal, reduplicative, and tonal processes.) Types of noun plurals found in Jungraithmayer (1970) which match those
verb formations as numbered in the chart above are illustrated below.

Fyer
1. feèr : fyèèr
   yuør-ù : yir
2.
3.
4. yuør-ù : yir-án

Bokkos
1. ’àakòt : ’àkwàt
   mwal : mwaal
2.
3.
4. yuør-ù : yir-án

Daffo
1. cìíراح : cìíراح
   kúsúm : kúsùm
2.
3.
4.
5.

Sha
1. matèl : matyål
2/4.

Gish
1. gìsh : gishash
   bur : burår
   ’atôn : ’atonôn
   bàcèn : bacenen
   gágår : gágarår
5.

Kulere
1. sísíři : sisíyaár
   kìggyëř : kìggyaár
   sumóř : sumaár
4.

The situation in the Ron languages cannot be taken to be representative of the Western branch of Chadic. For contrastive purposes, I
shall therefore quote from the description of the plural verb bases and
one type of noun plural in Kanakuru, and then turn to a discussion of
some reduplicative formations in the Hausa verb and noun systems.

5.2. Kanakuru. In his comprehensive treatment of the Kanakuru lan-
guage, P. Newman (1974:72) described a synchronic process of "consonant
hardening" ( [+son] → [−son]) for both verb and noun plurals:

"A small subset of Kanakuru verbs are number-sensitive and obliga-
torially agree in number with the direct object of a transitive
sentence, or with the subject of an intransitive sentence. There
is never agreement between the verb and the agentive subject of a
transitive sentence. These plural verb stems are formed from the
singular by "hardening" the second consonant of the underlying root."

It is worth noting that "consonant hardening" is a synchronic rule
whereas comparative evidence suggests that historically we are witness-
ing results of a "weakening" rule in the singular stems of Kanakuru (cf.
Newman 1970). We may thus say that weakening has occurred in bases
underlying the unmarked stems of modern Kanakuru while the marked (=
plural) stems still show the consonants of the historical bases. 1

Cf. a few selected examples from both systems:

<table>
<thead>
<tr>
<th>Verb system</th>
<th>Noun system</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg : pl</td>
<td>sg : pl</td>
</tr>
<tr>
<td>dôwé : dôpê</td>
<td>'tie'</td>
</tr>
<tr>
<td>pôrî : pôdê</td>
<td>'go out'</td>
</tr>
<tr>
<td>múrl : mútê</td>
<td>'die'</td>
</tr>
</tbody>
</table>
|             | lîwê : lîp-ón 'calabash'
|             | shérê : shêd-iyân 'gazelle'

1. In an interesting article which I saw only after the draft of this
paper was finished, Frayzyngier (1976) advocates an alternative analysis
for Kanakuru verb (and noun) plurals. He has good reason to relate the
non-weakening of obstruents in the plural forms to underlying consonant
reduplication (!). The quality of the final vowel then becomes predict-
able from the structure of the first syllable, cf., for instance, the
verb 'die':

<sg> : <pl>  
*muti : *mutte  
↓  ↓
mûrî : mute

In this way, Kanakuru provides excellent evidence for the type of plural
base augmentation by consonant reduplication which we have already
encountered in Migama and, with vowel insertion between the reduplicated
radicals, in Hausa, Ron-Sha, and Lamang.
As regards A-II formation in this language, Kanakuru makes use of a nominalized verb stem ("gerundive").

5.3. Hausa. When we turn to Hausa for the discussion of bases that are marked for \(<\text{plural/intensive}\>\), we find that the situation in this Western branch language is again quite different from that of the Ron languages and Kanakuru. In Hausa, simple bases are in regular contrast with extended bases formed by means of reduplication. The resulting "intensive forms of the Hausa verb" have been exhaustively discussed by Frączyngier (1965). In Hausa we find several extended bases, i.e. the formations which Parsons (1960/61) has distinguished as "denominative verbs", "extended verbs", "post-reduplicated derivative verbs", and "plural (or frequentative) verbs". According to Frączyngier's analysis, the "intensive forms" of Hausa verbs are manifested in two of Parsons' classes as (1) "plural verbs", and (2) "post-reduplicated derivative verbs". In addition, there are a fair number of "verbs intensive in shape" (Frączyngier), i.e. without any simplex being found in the dictionaries—a situation not uncommon in other Chadic languages (cf. Lamang discussed in section 4.1).

The types of reduplicative verb base formation can be illustrated by the following set of stems in Grade IV:

<table>
<thead>
<tr>
<th>Underlying simple base</th>
<th>Underlying extended base</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>mààkùr-èe 'strangle'</td>
<td>mààmààkùr-èe</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td>mààkùrkùr-èe</td>
<td></td>
</tr>
<tr>
<td>tárts-èe 'smash'</td>
<td>táràràràts-èe</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>tártsòts-èe</td>
<td></td>
</tr>
</tbody>
</table>

As the chart above shows, \(<\text{intensive}\>\) verb base formation involves two distinct types of reduplicative processes, type (1) based on syllable reduplication, and type (2) based on final consonant reduplication. Type (1) reduplication based on syllable means addition of a closed syllable to the simple base. The onset consonant of the added syllable and its vowel are copied from the syllable to be reduplicated. The syllable is closed by a coda consonant which is copied from the onset of
the following syllable, if the syllable to be reduplicated is open.
Closed syllables are reduplicated completely. Compare:

(i) máakùr-éé : mámmáakùr-éé (< *maːk+maːkura < *maː-ku-ra)₁⁵
    hàif-áa : hàhháif-áá (< *hay+hayfi < *hay-fi) 'give birth'
(ii) máakùr-éé : máakùrkùr-éé (< *maːk+ur+ura < *maː-ku-ra)

As the examples demonstrate, this type of reduplication may work on the
first syllable as well as the second syllable (in the case of trisyl-
labic simple bases). Triradical but bisyllabic simple bases of the
type CVCCV can be transformed into underlying bases of the type CVCCV
with open first syllable, by insertion of a vowel copied from the first
syllable into the second syllable between C₂ and C₃, cf.

(iii) hàif-áá : hàyàyyàf-áá (< *haːyaf+yafī < *ha-ya-fi/*hay-fi)
    tárrts-éé : tárràrûts-éé (< *ta:r+rats+ratsa < *ta-ra-tsa/*tar-tsa)

We now turn to type (2) of reduplicative verb base formation, i.e.
Parsons' "post-reduplicative derivative verbs". Frajznygier (1965) had
mentioned four cases in which these extended bases serve as "intensives"
(quoted in the official orthography from Bargery and Taylor):

<table>
<thead>
<tr>
<th>verb</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>tartsa</td>
<td>take a bee-line to a place'</td>
</tr>
<tr>
<td>tartse</td>
<td>'smash'</td>
</tr>
<tr>
<td>girma</td>
<td>'grow big': 'respect someone'</td>
</tr>
<tr>
<td>daukaki</td>
<td>'respect someone'</td>
</tr>
</tbody>
</table>

(Whether the last two examples can be accepted as <intensive> formations
remains somewhat doubtful.)

These Hausa formations, of course, bear very close resemblance to
formations discussed earlier in this paper, although their use as
intensive bases may be of minor importance in modern Hausa. This type
involves base level augmentation by means of reduplication of the final
radical consonant plus insertion of -a(a)- between the final two rad-
cals. The length of the inserted vowel seems to depend on the structure

---

₁⁵The abstracted "bases" of Hausa verbs are quoted with a final vowel
(following Newman 1975).
of the first syllable of the bases (cf. the examples for "post-replicative" verbs in Parsons (1960/61:7, note 14)).

Reduplicative base formation can be found in the noun system of Hausa as well. The reduplication of the first syllable seems to apply to singular forms of semantically marked "non-singular/non-simple" referents, e.g. fíffíkè 'wing (sg.)', kakkaur- 'thick', but its use may not be entirely related to semantic properties. Reduplication involving the second syllable as well as the final consonant plus -a(a)- insertion are well attested in base formations which underly certain types of nominal plural stems, e.g.

(i) líttaafli : lîttàttàafáí (< *littaafəaf-) 'book(s)'
    gàjéer- : gàjàjjëeerùù (< *gajerjeer-) 'short (things)'
(ii) gidāa : gidàajee (< *gidaad-) 'compound(s)'
    bák- : bákàakée 'black (things)'

As regards A-II formation in Hausa, this language makes use of a nominalized verb stem. Since base level is thus not involved at all, there is no reason why <plural/intensive> verb bases should not occur in the various forms of A-II ("continuous, relative continuous, negative continuous") which are all based on the verbal noun.

6. Summary and conclusion

With this presentation, I hope to have shown the wide distribution in Chadic of related formatives in plural/intensive and aspect-II verb formations and in noun plurals. At the same time, it was our intention to demonstrate how the distinction between "bases" and "stems" facilitates the analysis and identification of relevant units in the rather complex verb systems of selected Chadic languages, and how it can provide a framework for the comparative study of verb systems.

As concerns the hypothesis or original identity of <plural> and <A-II> in the proto-language, the salient observations made with regard to the selected Chadic languages can be summarized in the chart below.
<table>
<thead>
<tr>
<th>Language</th>
<th>Predominantly or exclusively marked at</th>
<th>Related noun plural formatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASE level &lt;pl&gt; aspect-II</td>
<td>STEM level* aspect-II</td>
</tr>
<tr>
<td>Migama</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Lamang</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Ga'anda</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Kapsiki</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Bachama</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Ron-Fyer</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>-Bokkos</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>-Daffo</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>-Sha</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>-Kulere</td>
<td>(+)</td>
<td>+</td>
</tr>
<tr>
<td>Kanakuru</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Hausa</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

* Includes suprasegmental marking, verbal noun stem substitution, and affixational marking.

Three important generalizations can be drawn from the comparative analysis:

1. Verb systems and noun systems make use of either identical or at least very similar formatives to indicate markedness in binary oppositions, both <sg> vs. <pl> in noun as well as verb systems, and <A-I> vs. <A-II> in the category of verb inflexion. (This has been observed for Bachama, the Ron languages as a whole, Kanakuru, and Hausa—marked + in the last column in the table above. For Migama no data on noun plurals were available, and the three remaining Central branch languages generally use an innovated suffix to mark noun plurals.)

2. When marking of verbal <pl> and <A-II> takes place at the base level, the two formations are likely to "collide", i.e. they cannot co-occur in one and the same verb stem without the "neutralization" of the <sg:pl> contrast in the <A-II> formations. (This happens in Migama, Ron-Sha, Ron-Daffo, and probably Ron-Kulere—marked by ++ under "base level" in the table above. None of the four Central branch languages was found to
mark \langle A-II \rangle at the base level.)

(3) The "collision" of these two inherited categories can be avoided without necessarily giving up one of the two. The type of solution to the dilemma depends on choosing which of the categories shall remain marked at the base level. If \langle A-II \rangle continues to be marked in the bases, verb plurals can be expressed by thematic derivation at the stem level (cf. the monoverbs of Ron-Daffo and Ron-Sha). If the feature \langle plural/intensive \rangle is marked in the verb base, then \langle A-II \rangle marking may be shifted completely to the stem level, for instance, by use of special suffixes, by shifting from segmental to suprasegmental marking, by shifting from verb stem to nominalized verbal noun stem, or by any combination of these devices. (Languages of this type are Lamang, Ga'anda, Kapsiki, Bachama, Ron-Fyer, Kanakuru, and Hausa—marked + under "base level \langle +pl \rangle" and "stem level \langle A-II \rangle".)

I shall not close this presentation without venturing a possibility—though admittedly highly speculative—interpretation of the observed phenomena, i.e. propose a hypothesis on the historical development of the synchronic patterning of related formatives in noun plurals, verb plurals, and the semantically marked aspect. For the purposes of this paper, I shall mainly follow Klingeneheben (1928/29, 1956) for Proto-Afroasiatic, and Moscati et al. (1969) for Proto-Semitic (which I take to represent the closest approximation to Proto-Afroasiatic available at the present time).

According to Klingeneheben (1928/29:262ff.), the "one and only Proto-Semitic verb form (= East Semitic "preterite", West Semitic "im-perfectum") was put into contrast with a second, younger form which was built on a nominal base (= East Semitic "present-habitual"). Within this opposition, Klingeneheben and others view the fundamental contrast as being one of an "aorist" (our \langle A-I \rangle) vs. a "durative-progressive" (our \langle A-II \rangle). Thus a prior threefold distinction at the base level of

\[
\begin{align*}
\text{noun base I : noun base II} & \quad \text{verb base (I)} \\
\langle \text{unmarked} \rangle & \quad \langle \text{marked} \rangle
\end{align*}
\]

was expanded into a symmetrical fourfold distinction of

\[
\begin{align*}
\text{noun base I : noun base II} & \quad \text{verb base I : verb base II} \\
\langle \text{unmarked} \rangle & \quad \langle \text{marked} \rangle & \quad \langle \text{unmarked} \rangle & \quad \langle \text{marked} \rangle
\end{align*}
\]
The marked bases were characterized by such formatives as possibly redu-
plication of the base (partly or completely, including consonant redu-
plication especially of 2nd or final radical, with or without [= "gemina-
tion"] vowel insertion), segmental augmentation by consonant addition
and/or vowel insertion, and/or apophonic vowel changes, to mark plural-
like semantic features in both the noun and the verb systems. All
bases were allowed to combine with stem-forming affixes, such as gender
and number markers in the nominal system, and various inflexional and
thematic-derivational affixes in the verb system. I consider it likely
that—if only by analogy—the concept of the sg:pl contrast had entered
the verb system through this symmetrical reshaping of the base system at
some earlier stage of Proto-Afroasiatic. (For the period in which the
Proto-Chadic split occurred, I assume—following Jungraithmayr in this
respect—that only these two bases operated in the verb system and that
the morphological contrast between these two was primarily that of
"simple" vs. "augmented".) During a following stage of development with-
in the verb system, the cognitive value of the plural-like semantic fea-
ture and its corresponding formatives was lost because the marked base
had begun to be transferred from the derivational into the inflexional
category. This shift may have been supported by (a) the loss of the
binary opposition, i.e. because one of the aspect bases had ceased to
function as a simple stem, i.e. as a real unit in the binary opposition,
having come to serve only as a common underlying form for a set of
affixationally derived "tenses" (in A-II, e.g. for "iterative", "fre-
quentative", "subjunctive", etc.) which, as a group, contrasted with a
single tense or group of tenses based on the opposite aspect; and/or by
(b) the loss of the marked base itself, i.e. because for certain reasons
the A-II base derived stem(s) had been substituted by or merged with
other inflexional stems—in Chadic especially with a nominalized stem
built on the unmarked (⟨A-I⟩) base. Thus A-II was either no longer
felt to carry plural-like semantic features or the A-II base had
ceased to function as a grammatical unit altogether. In any case, a

cognitive category of verbal plurality had developed in competition with
the aspectual dichotomy where the latter became more and more interpreted
in terms of "completed" vs. "incompleted" action. Syntactically, these verbal " plurality" were needed to serve either number concord with subject or object, or agreement with semantic factors in a given situation, such as intensity of effort, duration, etc., of action, or both—factors which could not be indicated in the inflexional category, i.e., by aspect or tense (German "Aktionsarten"). At this particular stage of development, verb "pluralis/intensives" either remained and became lexicalized with a few verbs or, as a productive process, re-enters the verb system, either through thematic derivation at the stem level, or they were reintroduced at the base level—either to contrast only within A-I formations, or in both A-I and A-II if the latter was or could be marked at stem level. This would explain why in some Chadic languages plural/intensive verb bases look so much like bases which underly A-II formations in the same or other widely separated Chadic languages.16 If our assumption of the Proto-Afroasiatic origin of the structural phenomena discussed in this paper is correct, we can say that a number of Chadic languages have preserved these traits of the proto-system until today. Strikingly enough, these languages are not confined to only one or two of the three recognized branches of Chadic. It seems that at least present geographical neighborhood does not play any major role in the preservation, further development, reduction, or substitution of the phenomena under discussion. Even adjacent languages of the same subgroup do not necessarily show a particularly close relationship in this respect. We may take this to indicate great age, as is further indicated by the range of variation in the extent to which these formations are made use of within Chadic as a whole.

I am well aware that this paper can do no more than scratch at the surface of a very complex comparative problem. I am also aware that the danger of premature speculations is still ever present in comparative Chadic—the more so in comparative Afroasiatic—research once we

16 For subsequent comparative research in this field it is thus advisable to analyze manifestations of A-II in Chadic separately at (i) the base level, and (ii) the stem level. Otherwise we are likely to confuse two structurally and historically different "imperfective" stem formations, namely, (i) verb base II (+ affix) and (ii) verb base I + affix.
leave the safer grounds of comparative phonology and lexicon. Nevertheless I am of the opinion that the data available from Chadic languages are today of sufficient quantity and quality to venture comparative "enterprises of great pitch and moment" in the field of grammar too. Many aspects of the problem necessarily had to be left unconsidered, mainly because my inquiry into them has not yet gone far enough. Admittedly this paper raises more questions than it answers. Yet one aim of this presentation has been to stimulate fellow Chadicists and maybe even Hamito-Semiticists to check the hypotheses and, on the basis of their own experience, either reject the approach suggested here or accept it as a promising line of further research in the fields of comparative Chadic and comparative Afroasiatic.

REFERENCES


_____. 1971. "Provisional check list of Chadic languages", *Chadic Newsletter* [Marburg], special issue.


