FINDING COGNATES IN WEST CHADIC[1]

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1. Fifty Years of Comparative Chadic

Comparative Chadic linguistics began just over a half century ago with the publication of Greenberg's (1950) classification of Hamito-Semitic (= Afroasiatic), which presented lexical and morphological evidence in support of the affinity of the Chadic languages to each other and to the Afroasiatic phylum as a whole. The first detailed comparative study focusing on Chadic was Newman and Ma (1966), who laid out a number of sound correspondences between Chadic subgroups and presented a list of 144 proposed reconstructions of proto-Chadic lexical items. Newman (1977) presented additional sound correspondences and a list of 150 proto-Chadic etyma. This paper made two crucial revisions to Newman and Ma (1966), viz. it reconstructed *hl (a lateral fricative) as part of the proto-Chadic phoneme inventory, and it recognized East Chadic (Greenberg's (1950) "group 9") as a distinct sub-group of Chadic rather than being part of a "Plateau-Sahel" group, proposed in Newman and Ma (1966), that comprised the groups now universally referred to as East Chadic and West Chadic. Volume I of Jungraithmayr and Ibriszimow (1994), a revision of Jungraithmayr and Shimizu (1981), presented an extensive sound correspondence table and a list of 171 Chadic "glosses". Volume II of this work listed the data supporting the comparative volume. Stolbova (1996) offered about 600 reconstructed roots as illustrations of claimed regular sound correspondences. While the overall number of Stolbova's proposed etyma is impressive, I find many of them speculative at best. Moreover, many are based on word sets from closely related languages, without evidence that they can be reconstructed to the level of proto-Chadic, reference to suggested cognates in languages in other subgroups of Afroasiatic notwithstanding.

Despite the relatively regular appearance of works on comparative Chadic over the past 40 years, my frank judgment is that the field has seen little progress, either qualitatively or quantitatively since Newman and Ma (1966). The main reason for this is limited data. The first wordlists of Chadic languages appeared in Koelle (1854), but a century and a half later, Hausa is still the only Chadic language with lexical documentation comparable to even "secondary" Indo-European or Semitic languages. A few modest dictionaries of Chadic languages have appeared since the 1960's, but for the most part compilers of lists of Chadic etyma have relied on wordlists comprising fewer than 1000 basic meanings. Imagine if comparative Germanic were based on such lists. Even obvious cognates such as those in (1) between English and German would not have been identified simply because the English words have shifted from the original meanings and would not have appeared in the types of wordlists that Chadicists have relied on:

(1) **hound**   **Hund** 'dog' (English has narrowed the broader original meaning)
    tide   **Zeit** 'time' (time is marked by the regularity of the tides)
    starve   **sterben** 'die' (one cause of death is starvation)

Another reason for lack of advance in comparative Chadic is limited knowledge of the languages themselves. Identification of cognate items has generally relied on eyeballing items and deciding whether they look enough alike to be considered cognate. Using such a "method", would a comparativist who did not have personal knowledge of the languages recognize that German **verlieren** and English **lose** are cognates? To identify the root of the German word, one must know to remove a derivational prefix and an inflection suffix, and to successfully demonstrate the relation of the German root **-lier-** with English **lose**, one must know that **s** and **r** are regularly related in Germanic languages by Verner's Law and moreover, that this nature of this relation has sometimes been obscured by analogical change.

In short, for comparative Chadic to reach a level of sophistication comparable to that of comparative Indo-European, comparative Semitic, or comparative Bantu will ultimately require much more extensive lexical and morphological documentation than is now available. Nonetheless, I believe we are at a point where a more nuanced approach can reveal a substantial number of cognate items not included in the

comparative studies mentioned above. In this paper I will, consider only languages from the West Chadic branch, since this is the area I know best and have worked on most extensively from a comparative standpoint. The methodology has obvious application to other Chadic subgroups.

2. Cognate Items with Minimal Change

The genetic unity of the Chadic family is universally accepted on the basis of several dozen etyma that are identical across most Chadic languages with only trivial sound shifts and essentially no change in meaning. Hausa tends to be the touchstone for comparative Chadic since its lexical documentation is greater by many orders of magnitude than that for any other Chadic language. The data in (2) gives a Hausa word and cognates in two other West Chadic languages.

(2)

	Hausa	Language 1	Language 2
'four'	**huɗu**	Bole: **pòɗɗo**	Ngizim: **fəɗu**
'eye'	**idò**	Bole: **ìdo**	Duwai: **ìdà**
'back'	**bāyā**	Bole: **boi**	Karekare: **bai**
'man, husband'	**mijì**	Bole: **mòjì**	Ngizim: **məsək**[2]
'in-law'	**sùrukī**	Ngamo: **sorkò**	Ngizim: **sàurak**
'horse'	**dōkì**	Miya: **dùwakə**	Ngizim: **dùkà**
'sheep' (plural)	**tumākī**	Bole: **tamka**	Miya: **tə́makwìy**
'goats'	**awākì**	Karekare: **wakài**	Ngizim: **akù** (singular)
'chicken'	**kàzā**	Karekare: **kēzì**	Bade: **kazá**
'python'	**mūɗùwā**[3]	Bole: **mìɗi**	Miya: **múɗuw**
'die'	**mutù**	Bole: **motu**	Ngizim: **mə̀tu**
'eat'	**ci**	Bole: **tī**	Ngizim: **tau**
'drink'	**shā**	Bole: **sā**	Ngizim: **sau**
'know'	**sanì**	Miya: **sən**	Zaar: **yisə́ŋ**

3. Systematic Sound Changes

The items in (2), with only minor shifts, have retained forms close to what must have been their forms in the ancestral language, proto-West Chadic. Typically, however, languages have undergone sound changes that make cognation less obvious. I exemplify just a few changes here. Earlier work has documented those in Hausa. I include a couple in other languages that have not been previously published.

A number of well-documented changes have taken place in the history of Hausa. The data in (3-5) illustrate three changes along with comparative and internal Hausa evidence that the change has taken place. For the change in (3), see Newman (1970), for that in (4), see Schuh (1976), for that in (5), see Klingenheben (1927/28) and Newman (2004).

(3) *r > y

'oil'	**mâi**	Bole: **mòr**	Ngizim: **mə̀ràk** (see footnote 2)
'fish'	**kīfī** (< *kiyfi)	Ngamo: **kerfo**	Karekare: **càràfù**
'fry'	**sōyà**	Bole: **sùrru**	Karekare: **sùru**
'neck'	**wuyà**	Karekare: **wùlo** (see ''Remark'' below)	Ngizim: **wə̀ra**
'give to, gift'	**bâi wà, baiwā**	Ngizim: **bàru**	Zaar: **vər**

(4) *N > Ø /___# (N = any nasal)

'guinea fowl'	**zàbō**	Ngizim: **zābànu**	Zaar: **ɓə̀pm**
'rat'	**kūsù**	Bole: **kòsum**	Miya: **kùsam**
'crocodile'	**kadà**	Bole: **kadàm**	Bade: **ə̀gdəm**

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[2] The final **–k** is a suffix found on many nouns in Ngizim.
[3] The word **mūɗùwā** 'python' is in Bargery (1934) but not in Abraham (1962). During the presentation of this paper at the CSNL in 2002, no one in the audience knew this word (and two or three other words listed in Bargery), though members of the audience represented a fairly broad range of ages and Hausa-speaking regions. Most of the Hausa speakers from whom Bargery collected data would have been born in the 19th century, showing that even within the course of a century shifts in vocabulary can take place, leaving no trace of earlier forms among later generations.

'Nile monitor'	**guzằ**	Ngizim: **gə̀zhàn**	Miya: **gùzən**
'root'	**sâiwā** (pl. **sāyū**)	Bole: **shōrìn**	Miya: **tlèrwan**
	(*N > Ø then *r > y)		

(5)   ***K > w /___\$**   (K = any velar, \$ = syllable boundary)

'*Gardinia e.*'	**gauɗề**	Bole: **gukuɗi**	Ngizim: **gwàguɗ**
'ladle'	**lūdàyī**	Bole: **lekidè**	Bade: **ləgdà**
'foot'	**sau**	Bole: **shèkè**	? Ngizim: **zə̀gər**
'poverty'	**talaucī̀**	cf. **talàkà** 'poor person'	
'Tuareg'	**būzū**	cf. **bugà̀jē** (plural)	
'be confused'	**rūɗề**	cf. **rìkiɗà** 'metamorphose, change'	

  <u>Remarks on (3)</u>: Newman (1970), who was the first to identify the change in (3), proposed that *r > y affected all non-initial *r's in Hausa and that "r" sounds (*rhotics*) in modern Hausa come from a change *l > r and various other sources, such as loanwords. I am sure that the latter suggestion is incorrect, i.e. there are many words where a non-initial rhotic in Hausa corresponds to rhotics in other West Chadic languages. Evidence is mounting that we must reconstruct two rhotics for at least West Chadic, viz. a retroflex flapped [ɽ] and an alveolar tap/trill [r̃], a contrast well-known for Hausa (as in **baɽà** 'servant' vs. **bar̃à** 'alms-seeking'), but also found in the Bade-Ngizim group (Ngizim **kə̀sər̃** 'spouse's younger brother' vs. **kə̀sər̃** 'termite mound'). Nearly all words with rhotic correspondences between Hausa and other West Chadic languages have ɽ in Hausa and ɽ in other languages that maintain the rhotic distinction, e.g. Hausa **gà̀ɽī** 'town', Duwai **gər̃** (cf. Bole **gòr̃u**, where Bole has only r̃); Hausa **sù̀ɽukī** 'in-law', Ngizim **sàuɽak**. (cf. Ngamo **sor̃kò**, where Ngamo has only r̃).

  There is no question that Hausa underwent an *r > y change as proposed by Newman, but we must explain (i) why *r > y has sometimes affected **r** in Hausa and sometimes not and (ii) why **r** in Hausa sometimes corresponds to **l** in the Bole-Tangale group and sometimes to [r̃]. My tentative answer to (i) is that the change should be restricted to *ɽ > y /__]_{syllable}, i.e. to only ɽ in syllable final position. Subsequent changes have obscured the environmental effect, but even today, most of the clearest examples of the *r > y change have the "y" in syllable final position (in (3), see 'oil', 'fish', 'give' and in (4) see 'root'). In answer to (ii), today, the only rhotic of the Bole-Tangale languages is the alveolar tap/trill [r̃].[4] It looks as if West Chadic *ɽ in Bole-Tangale has sometimes shifted to **l**, sometimes to r̃, either sporadically or under unknown conditions. It may be worth noting that an *ɽ > l change has taken place in the Gashua dialect of Bade, but original has r̃ has been left unchanged, and a few cases of original ɽ have also inexplicably been left untouched (Ngizim **kə̀ɽu**, Gashua Bade **kə̀lu** 'steal'; Ngizim **tə̀r̃a**, Gashua Bade **tə̀r̃a** 'moon'; Ngizim **shiɽin**, Gashua Bade **sə̀ɽən** 'two').

  I turn now to a few sound changes that have taken place in languages other than Hausa. One change that has affected Bole-Tangale as a group is *k > c (> **sh** in some languages) before **i**.

(6) **Bole-Tangale *k > sh / ___i**

	Hausa	Bole-Tangale 1	Bole-Tangale 2	Other W. Chadic
'you (f.sg.)'	**kē, kin, ki**	Karekare: **ci**	Bole**: shī**	Ngizim: **kə̀m**
'sheep' (sg.)	**tumkìyā**	Karekare: **tànci**	Bole: **tèmshi**	Ngizim: **tə̀mà̀ku**
'goat'	**àkwiyằ**	Karekare: **ò̀ci**	Bole: **ò̀shi**	Ngizim: **akù**
'baobab'	**kūkằ**	Karekare: **kùci**	Bole: **kùshi**	Ngizim: **kuku**

  Within Bole-Tangale, Bole has changed *P > w between non-nasal sonorants ("P" = any non-glottalized labial obstruent). Though I so far have not found a large number of Hausa/Bole cognates illustrating this change, the fact that it is systematic justifies associating Hausa words with medial **b** or **f** to Bole words with medial **w**.

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[4] Karekare has both rhotics. Currently available data does not make clear what their distribution is. Karekare does appear to represent a separate branch from the remaining Bole-Tangale languages, so it may preserve the rhotic distinction, which was lost elsewhere. Another possibility, however, is that the presence of ɽ in the Karekare phoneme inventory is a result of Ngizim influence. Karekare, but no other Bole-Tangale language, has lateral fricatives, which have transparently been introduced from Ngizim, and the Karekare lexicon is loaded with Ngizim loanwords.

(7) **Bole *P > w /** [+vocalic]___[+vocalic]

	Hausa	Bole	Other Bole-Tangale
'chest'	**gàbā**	Bole**: bɔ̀ gàwa**[5]	Ngamo: **bɔ̀ gàba**
'fish'	**kīfī**	Bole: **kerwo**	Ngamo: **kerfo**
'plum tree'	?	Bole: **dèwe**	Ngamo: **dàbi**
'put, place'	?	Bole: **zowu**	Karekare: **zàbu**
'day after tomorrow'	?	Bole: **tuwwà**	Ngamo: **tūfà**

In Miya, there has been a fairly systematic change of non-initial *T > y ("T" = t or d). This allows us to relate words with non-initial **t** or **d** in Hausa to Miya words containing **y**.

(8) **Miya *T > y /≠ #**___

	Hausa	Miya	Other West Chadic
'die'	**mutù**	Miya: **miy**	Ngizim: **mə̀tu**
'crocodile'	**kadà̀**	Miya: **kiyim**	Bole: **kadàm**
'bite'	?	Miya: **kiy**	Bade: **kàdu**
'dog'	?	Miya: **'íy**	Bole: **àdà**

The word for 'crocodile' is instructive. If we were to compare only Hausa **kadà̀** and Miya **kiyim** in the absence of any knowledge about comparative Chadic, we would probably reject them as being cognate items—they share only an initial **k-**. But we know from data such as that in (4) that Hausa has regularly lost word final nasals, and we know from data such as that in (8) that non-initial ***d** has regularly become **y** in Miya. Not only can we justify claiming that **kadà̀** and **kiyim** are cognates, but moreover the very dissimilarity between the words *strengthens* our claim because our knowledge of Chadic sound changes *predicts* what the cognate items would look like based on a reconstruction ***kədəm**.

4. Changes in meaning between cognate items

One limitation on the number of cognate items that have been identified among Chadic languages is the fact that, for most languages, the items have been drawn from wordlists of just several hundred words. Such lists consist of the words used to express various common *meanings*, but words are subject to change in meaning. The result is that languages may well have cognate items, but they will not appear in limited wordlists because they no longer match the relatively common meanings that such wordlists rely on.

However, if one has relatively extensive dictionaries of the languages in question, one is no longer limited to looking for cognate items by looking for words that have the same *meaning*. Once one has established the expected sound correspondences between languages, it becomes possible to predict what cognate items should look like from language to language. Given sufficient lexical documentation, one can thus find words that have the expected *form*, and if their meanings are plausibly similar, we can be sure that we have identified cognates. Below are just a few such items in Hausa and at least one other West Chadic language. As we assemble larger dictionaries for more languages, allowing us to search for words on the basis of form rather than exact meaning correspondences, it is virtually certain that cognates for these items will be found in other languages.

(9)

Hausa	Language 1	Language 2
bēnē 'multi-story building'	Bole: **bɔ̀nò** 'house'	?Ngizim: **məndùwà**
sōrō 'square house'	Bole: **solu** 'build'[6]	
ɗākì̀ 'hut, room'	Karekare: **ɗàku** 'build'	Bade: **ɗà̀hwu** 'put, place'
kafà̀ 'establish, implant'	Bole: **kàppu** 'plant'	
bisnè̀ 'bury'[7]	Karekare: **bìsnu** 'plant'	Bole: **bòsìnu** 'put seeds in holes"
būɗè̀ 'open'[8]	Bole: **bìɗā** 'untie'	

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[5] The Bole entry literally means "mouth of chest". **Gàwa** is not used alone to mean 'chest'. Bole and Ngamo add **bo** 'mouth' to many expressions having to do with an opening or a facing surface.
[6] For this and other items in (9), recall the suggestion above that there has been a change *ɽ > **l** in the Bole-Tangale languages.
[7] As shown in section 5.3 below, the **–n-** in this word is a remnant affix. This word has either been inherited with this affix into Hausa and Bole-Tangale, or the two language groups have independently innovated by adding the same proto-West Chadic affix.
[8] Paul Newman, in personal communication, has suggested that the **ɗ** in Hausa might be a "remnant" affix (see section 5.3) and the long **–ū-** may come from *-**ik-** by the sound change in (5). He further suggests that the real Hausa cognate with Bole **bìɗā** may be Hausa **bìɗā** 'seek'. My own belief is that Hausa **bìɗā** 'seek' is derived from Hausa **bi** 'follow', with a remant affix **ɗ**,

shāfà̀ 'wipe'	Bade: **ə̀sfu** 'sweep'	?Bole: **shàppu** 'fade'
ƙwācè̀ 'grab, wrest away'	Bade: **ə̀kʷtu** 'pick up'	
rawā 'dancing'	Bole: **làwā** 'shake'	?Bade: **ràwu** 'run'
rāyà̀ 'give life to'	Bole: **layu** 'give birth'	
askā 'razor', **askè̀** 'shave'	Ngamo: **sòki** 'knife'	Bade: **ə̀sku** 'shave; do, perform''
sùmā 'head of uncut hair'	Ngamo: **sòm** 'hair'	
karmāmī 'dried corn leaves'	Bole: **kòrum** 'fodder'	?Bade: **karamən** 'harvesting corn'
fà̀sā 'broad tipped arrow'	Bole: **pocco** 'arrow'	
wurī 'place'	Bole: **òli/wòli** 'earth'	Duwai: **ə̀rài** 'place'
nīshì̀ 'sighing, groaning'	Bole: **nè̀sum** 'breathing'	

5. Changes in Morphology

All the examples above involve comparison of words as they appear basically in their root forms. Often languages will have cognate items where one of the languages uses the basic root alone, but in the other language, the word in which the root appears has additional morphology that must be removed to see the root alone.

5.1. Gender marking morphemes and frozen determiners. A simple and uncontroversial case of "removable morphology" involves Hausa words with the feminine suffix *-**a**. Newman (1979) has shown that Hausa has undergone a process that he calls "overt characterization". At some point in the history of Hausa, ALL feminine nouns added the feminine suffix *-**a**, which, depending on the final vowel of the root, may appear as -**(i)ya** or -**(u)wa**. Overt characterization has not taken place in most other languages, meaning that proper identification of cognate roots requires removal of the feminine suffix. Indeed, even in Hausa we can see that the suffix is not part of the original root, since it is not present in the plurals of the words.[9]

(10)	Hausa singular	Hausa plural	Other language
'sheep'	**tumkìyā**	**tumākī**	Karekare: **tàmci**
'*Acacia nilotica*'	**gàbà̀ruwā**	**gàbàrī**	Ngizim: **gùvàru**
'root'	**sâiwā** < ***saram**	**sāyū**	Bole: **shōrìn**

Other languages have comparable suffixes that have become lexicalized but which must be removed for comparative purposes. Bade has a feminine suffix –**ako**- that is used semi-productively to form feminine nouns, or sometimes diminutives (**kwīstān ~ kwīstakon** 'colt (m ~ f)'). This suffix has become lexicalized as part of some words, particularly various plants and smallish animals.

(11)	Bade	Language 1	Language 2
'star'	**səsakon**	Duwai: **shīshî**	Miya: **áshúwashúw**
'jujube'	**hà̀yàkon**	Bole: **āwe**	Miya: **away**

The final –**n** of the Bade forms in (11) and in the paragraph preceding (11) illustrate another type of affix that must be removed for comparative purposes. This is a suffix called "nunation", first noted for Bade by Lukas (1968). It derives from a pan-Afroasiatic determiner ***n**, which has become frozen as part of the citation form of nouns in the Western dialect area of Bade (Schuh 1973/74). A similar frozen affix with its origin in the determiner system is "kafation", a final –**k**, mentioned in footnote 2, found on many nouns in Ngizim and Gashua Bade, e.g. Ngizim **mə̀ràk** 'oil' (cf. Bole **mòr**), **bə̀zhə̀k** 'trash heap' (cf. Hausa **jibji** > **jūjī** in Standard Hausa). Today, whether or not a final –**k** on nouns in Ngizim and Gashua Bade comes from kafation or is etymological can be determined only through comparative evidence. Compare the words just cited with Ngizim **sàurak** 'in-law' (cf. Ngamo **sorkò**) or **àbak** 'bow' (cf. Hausa **bàkā**). And finally, the Miya word **away** 'jujube' in (11) has a frozen feminine suffix –**y** < *-**t** (see (8) for the sound change involved here). Miya's close relative, Warji, suffixes –**na** to all masculine nouns and

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and hence would probably not be cognate with the Bole word for 'untie', but Newman may well be right that Hausa **būɗè̀** 'open' comes from ***bikɗa**, in which case it would not be cognate with the Bole word either.

[9] In modern Hausa, the feminine suffix is often taken as part of the root and hence appears in the plural. This is evident from words like **kīshìyā** (from a root ***kiyshi**), with an old plural **kiyōshī**, which uses just the original root consonants **k**, **y**, **sh**, alongside the modern plural **kīshiyōyī**, which forms its plural on the basis of the last consonant of the singular, i.e. the –**y**- that is, originally at least, part of the feminine suffix.

-ay (< ***-at**) to all feminine nouns (Warji field notes collected by Paul Newman). Miya has not done this systematically, but a number of feminine nouns end in otherwise unexplained -(V)**y**, e.g. in addition to 'jujube', note **kúmáy** 'ear' (cf. Bole **kùmo**).

5.2. Pluractional verb forms. At least two morphological processes affecting verbs often make it necessary to "undo" morphology in order to extract the cognate part of the verb. One of those processes is "pluractional" formation (Newman 1990). All West Chadic languages can form verbs that indicate plural action—repetition of an action by one subject, repetition of action applied to one or more objects, etc. The productive method for doing this in Hausa is to repeat the first **CVC-** of the verb, e.g. from **dafà** 'cook', one forms **daddàfā** 'cook repeatedly'.

Other languages use somewhat different processes, though pluractional formation usually involves repetition of some part of the root. In Bade, in roots of the form $C_1(ə)C_2$-, C_1**a-** is added to the beginning of the root. Longer roots usually add an infix **-Ca-** using the penultimate consonant.

(12)   Bade pluractionals
    Doubling C₁   **m̀tu**   'die'   **màmtu**
    Infixed –Ca-   **zə̀mtu**   'draw out'   **zə̀màmtu**

In Bole, the productive process is to double the first **CV-** of the root, but some verbs geminate the second consonant, and some verbs infix **-ki-/-ku-** or **-gi-/-gu-** depending on dialect and surrounding stem vowels.

(13)   Bole pluractionals
    Doubling C₁   **lònku**   'hang up'   **lòlònku**
    Geminate C₂   **pàtā**   'go out'   **pàttā**
    Infixed -ki-/-ku-, -gi-/-gu- **duwu**   'beat, kill'   **dùgìwu**

For reasons that are poorly understood, West Chadic languages frequently develop "frozen pluractionals", i.e. the pluractional form replaces the original simple base form. In such cases, in order to properly identify cognate items, one must recognize a form as pluractional and "undo" the pluractional morphology in order to extract the basic root. The task is made more complex by sound changes and meaning shifts that may have also taken place. In (14) are examples where a root shows up as a frozen pluractional in one or more languages. Sound changes and meaning shifts have also affected some forms. The portion added to mark pluractionality is underlined in the examples.

(14) | Basic root | Hausa | Language 1 | Language 2 |
| --- | --- | --- | --- |
| *<u>**b-k-**</u> | <u>**bab**</u>**bàkē** | Bole: **bòk**<u>**ku**</u> | Bade: **bà**<u>**ku**</u> |
| | 'singe' | 'burn' | 'burn' |
| *<u>**m-'y-**</u> | **mātsà** | Bole: **mo'yu** | Bade: **m̀ɗu** 'bind' |
| | 'squeeze' | 'press on' | <u>**mà**</u>**mɗu** 'crowd, hem in' |
| *<u>**z-b-**</u> | **zubà** | Bole: **jùb**<u>**bu**</u> | Bade: <u>**sà**</u>**zvu**[10] |
| | 'pour' | 'pour' | 'spill out large amount' |
| *<u>**g⁽ʷ⁾-ɗ-**</u> | <u>**gàr̃**</u>**gaɗà** | Bade: <u>**kʷ**</u>**àgʷɗu** | |
| 'admonish' | | | |
| *<u>**s-n-**</u> | <u>**san**</u>**sànā** | Bole: **sùn**<u>**kù**</u>**nu** | Miya: <u>**sha**</u>**shən** |
| 'sniff at' | | | |

The last example is interesting because all the languages have the root only in a frozen pluractional form, but the pluractional morphology is different for each language: Hausa reduplicates the first **CVC-**, Bole adds an infix **–ku-**, and Miya prefixes a syllable C_1**a-**.

5.3. "Remnant suffixes". Since at least the 1970's, scholars examining Hausa have identified apparent verbal suffixes that no longer have productive functions (Jungraithmayr 1970, Parsons 1975). The most extensive discussion of these suffixes is Newman (2000:Chapter 76). Newman identifies the following

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[10] Bade regularly devoices obstruents when the next sound in the word is a voiced obstruent. See also the word for 'admonish' below.

base consonants for these "remnant suffixes": **y**, **k**, **g**, **n**, **l**,[11] **s**, **ɗ**, **t**. Internal evidence in Hausa, such as that in (15), clearly shows that suffixes based on these consonants have been added to unextended roots, though the function(s) of these suffixes (if they ever had narrowly definable functions) have been lost. The affix consonants are boxed in the examples.

(15) **kāshī**   'excrement'   **kāsàȳē**   'defile with excrement'
  sākḕ   'change'   **sauȳằ** < *sakya   'exchange'
  fasằ   'shatter'   **faskằ**   'rip'
                               faskằrē   'split wood'
  ƙidằȳā   'count up'   **ƙirgằ** < *ƙidga   'count'
  bisò   'burial'   **bisnḕ**   'bury'
  zama   'remain, become'   **zamnằ**   'sit, stay'
  dāgḕ   'be stubborn'   **daurḕ** < *dagre   'put up with'
  ɗāmḕ   'draw tight'   **ɗamrḕ**   'tie'
  cìka   'be full'   **cikàsằ**   'fulfill'
                               cūsằ < *ciksa   'stuff into, fill by stuffing'
  gayằ   'tell'   **gaisằ**   'exchange greetings'
  shìga   'enter'   **shūɗḕ** < *shigɗe   'pass through'
  tùnkwiȳằ   'butt'   **tunkùɗằ**   'knock aside'
  rāmằ   'pay back'   **ràmtằ**   'borrow (money)'
  rikìtằ   'muddle up'   **rūɗḕ** < *rikɗe   'become confused'
                               rìkiɗằ   'metamorphose'

These suffixes are not unique to Hausa. In Schuh (2003), I surveyed verbs with three or more consonants in Bole and Bade, two languages for which I had access to verb lists of several hundred verbs each. While the consonants that appear as C_1 and C_2 in Bole and Bade comprise a fairly random selection from the entire consonant inventories of the respective languages, the consonants that show up as the third or later consonants of roots are strongly skewed toward the list of consonants that Newman (2000) identified as remnant affixes in Hausa.[12] Moreover, although the available lexical resources for these languages come nowhere near to those available for Hausa, there is internal evidence in these languages, like that in (15) for Hausa, that in some cases, the third or later consonants are additions to a shorter root.

(16) Bole: **lòkku**   'become tangled'   = **lòkkìɗu**
        tằwu   'cut across'   **tàusu**   'pull (curtain) aside'
        ɓìllu   'etch, engrave'   **ɓìltu**   'pierce (boil, etc.)'
   Bade: **gàptu**   'remain, be left'   = **gàptàku**
        dằnu   'stoop over'   **dằnsu**   'lean thing against'
        tằnkùku   'press'   **tằkwàkùɗu** 'massage to remove dirt'

The comparative implication is that one might find a verb root in one language with no suffix whereas the same root may appear in another language, lexicalized with a suffix. It could also be the case that two languages retain the same root, each lexicalized with a different suffix. Using this insight, along with knowledge of sound changes and acceptance of semantic shifts, we can identify many cognate items between Hausa and its West Chadic cousins that might otherwise go unnoticed. The suffixal consonants are boxed in the examples.

(17) Basic root   Hausa   Language 1   Language 2
  *t-k-   **tākằ**   Bole: **takà**   Bade: **tàkàɗu**
          'step on'   'shoe'   'step on'
  *ma   **maȳằ**   Bole: **mā**   Duwai: **màwo**
          'complete a circuit'   'return'   'return'
  *t-m-   **tamkằ**   Karekare: **tàmu**   Bole: **tomu**
          'retort'   'say, tell'   'threaten, warn'

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[11] Newman (2000:697) gives **l**. I think the evidence is better for **r** (or, more accurately, **ɽ**) with **l** appearing when the preceding consonant was an alveolar (cf. **ƙudùrā** = **ƙullḕ** 'to knot') and **r** appearing elsewhere—see examples in (15).
[12] In addition to the consonants Newman listed, the consonants **ɓ** and **m** are relatively common as third or later consonants in Bole and Bade. More investigation might show that these could be added to Newman's list for Hausa as well. Note, for example, **gicìȳā** 'laying transversely', **gittằ** = **gilmằ** 'cross at right angles to'.

*z-n-	zânt̄ā	Bade: zə̀nu	
	'converse'	'say'	
*m-s-	mùsāyā̀	Bole: mbosu	Bade: màsu
	'exchange'	'count'	'buy'
*d-y-	dainā̀	Bole: deyu	
	'cease doing, leave off'	'leave, leave behind'	
*ts-g-	tsugùnā	Miya: tsəgə 'sit'	?Bole: ɗowu
	'squat'		'sit'
*k-w-	kawà̄	Bade: kàuyu	Bole: kàwùltu
	'roasting meat near fire'	'fry'	'boil meat'
*w-r-	wārè̄	Bole: wùlku	
	'separate out'		
*s-k-	sākè̀	Bade: ə̀skùnu	
	'do again'	'increase''	
*s-r-	shirū	**Bole: shìrmu**	
	'silence'	'become calm'	

Finally, languages may share a root but differ in whether the root appears in a frozen pluractional, as in (14), AND/OR with remnant affixes, as in (17). Pluractional additions are underlined and affixes are boxed in the examples.

(18)

Basic root	Hausa	Language 1	Language 2
*s-b-	sassàbē	Bade: sàvìyu	
	'clear land for farm'	'clear land for farm'	
*z-b-	zubà̀	Bole: jùbbu	Bade: ə̀zvàvìyu
	'pour'	'pour'	'wash pounded grain'
*g-r-	gwīgwìyā/gurgùrā[13]	Bole: kò̀kìlu	Bade: gùrmə̀ɗu
	'gnaw'	'gnaw'	'gnaw'
*s-f-	?surfà̀ > *sufra	Bole: sùwwu	Bade: sàpɗu
	'pound to remove bran'	'pound to remove bran'	'pound to remove bran'
*b-r-	burgà̀	Bole: bùkùlu	Bade: və̀rnànìyu
	'whisk'	'roll along'	'roll over and over'
	bìrkiɗà̀	bùrgìlu	vù̀rìrìtu
	'roll about in dust'	'whisk'	'rotate'

5.4. The evolution of monoconsonantal verb roots. Every West Chadic language has a small number of monoconsonantal verb roots. What is of interest from a comparative point of view is the fact that, aside from groups of closely related languages, the inventory of consonants that serve as the basis for monoconsonantal roots differs from language to language, or the same consonants appear in etymologically unrelated verbs, such as Bole **bā** 'pound a nail', Ngizim **bǎ-u** 'get'. Perhaps the only two monoconsonantal roots shared, as monoconsonants, across many languages are *tu 'eat' and *sa 'drink', exemplified in (2). I examine just four roots that are monoconsonantal in some languages but not others.

(##)

Basic root	Hausa	Bole-Tangale	West Chadic B
*ɗa	ɗarā 'exceed'	Bole: ɗā 'mount, climb'	Ngizim: ɗə̀kau 'exceed'
	ɗagà̀ 'lift'	ɗàtu 'lift, raise'	Bade: kə̀ɗau 'exceed'
	ɗau 'pick up'		
	ɗaukà̀ 'pick up'		
*na	hàngā 'espy, spot'	Karekare: nā 'see'	Miya: nay 'see'
		Bole: ìnnā 'see'	

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[13] We can understand how the two Hausa forms have the same etymological source, first, by recognizing the *r > y /__$ change in (3), and second, by a desire on the part of Hausa speakers to make a reduplicated form transparently relatable to its base. The original reduplicated form would have been *gurgura, with the r of the reduplicant in syllable final position (assuming prefixal reduplication). The sound change would have changed this to *gwiygura, where the reduplicant did not match the base. By analogy the form went both possible directions, reforming the base to look like the reduplicant, giving gwīgwìyā (=gwiygwìyā) and reforming the reduplicant to make it look like the base, giving gurgùrā, which is essentially are a recreation of the original.

*nu	nùka 'ripen off vine'	Karekare: nū 'get ripe'	Ngizim: nàwau 'get ripe'
	nǔna 'get ripe'	Bole: nī 'get ripe'	Duwai: nùwàwo 'get ripe'
		nĭtu 'ripen (tr.)'	
*ɓ-ɽ-	ɓi, ɓiyà̰, ɓiyḛ̀ 'refuse'		Ngizim: kùɽu 'refuse'

The root *ɗa can be reconstructed as a monoconsonantal root for proto-West Chadic, with Bole being close to the original form and meaning. From the intransitive monoconsonantal form, Bole derives a transitive form using a causative suffix –t-. Bade-Ngizim have added the remnant affix –k-[14] and seem also to have specialized the original meaning, which was something more like "go above, place above". The Bade form shows how sound change can further obscure relations. In Bade, but not Ngizim, the sequence C(ə)*velar* has quite regularly metathesized. The Hausa words ɗarà̰ and ɗagà̰ have added the remnant affixes –r- and –g- respectively. The form ɗau derives historically from ɗagà̰, with apocope and the sound change *K > w /___$ in (5). This truncated form can be used only with an expressed object. The "free" form is now ɗaukà̰, derived from the truncated form by addition of the remnant suffix -k-.[15]

Karekare is probably closest to the original form for *na 'see'. Miya has added a remnant affix –y-. The Bole form is a frozen pluractional (section 5.2). The source of the initial i- is not clear—it may simply be a prothetic vowel conditioned by the geminate consonant of the pluractional. Inclusion of the Hausa word is somewhat speculative. If, indeed, it is cognate with the other forms, the –g- would be a remnant affix. The initial h- is not etymological—h and glottal stop are variant onsets for vowels that would otherwise be word initial (Newman 1976). The source of the initial vowel is also not clear, but a number of Hausa verbs have initial vowels not found in other languages, e.g. Hausa azà̰ 'put down' but Bole zā, Hausa haɗîyē 'swallow' but Bole ɗolu (< *ɗ-ɽ- with *ɽ > y in Hausa and *ɽ > l in Bole).

The root *nu 'ripen' is of interest because it is in contrast with *na 'see' only by vowels. For CV and CVCV verb roots, we can reconstruct two final vowel classes for West Chadic, *-a, and *-u/ə (Schuh 1977). For CVCV roots, languages have done a considerable amount of shifting of verb class, such that it is difficult to reconstruct a verb with its class for any given root. For monoconsonantal roots, however, the vowel classes have been more stable (cf. *tu 'eat' and *sa 'drink', which retain their respective classes in many languages). Karekare preserves something close to the original form. Bole has shifted the vowel to –i, as it has for most *Cu verbs, and has formed a transitive counterpart with the causative suffix –t- (cf. *ɗa above). Ngizim and Duwai, which are closely related, share an innovation in adding the remnant suffix -w-. In Ngizim, all monoconsonantal verbs have shifted to the –a class (cf. Ngizim ta-u 'eat', sa-u 'drink'—the –u is a perfective suffix). Duwai, however, has preserved the vowel class distinction (cf. tù-wo 'eat' vs. sà-wo 'drink'). The *Cu class source of 'ripen' is still evident in Duwai nù-wà-wo, but not in Ngizim, which has neutralized the classes. Hausa nùka 'ripen off the vine' has a –k- remnant affix. Hausa nǔna, today used in the base meaning, must come historically from *nù-k-na, i.e. the now more marginal nùka plus the remnant affix –n- and application of the *K > w /___$ sound change in (5).

The three examples above are all plausibly reconstructable as monoconsonantal roots for proto-West Chadic, with some languages extending them in various ways, particularly by addition of remnant affixes. It is also possible, however, for longer verbs to become monoconsonantal. Such appears to be the case for Hausa ɓi 'refuse'. Comparative evidence such as the Ngizim form suggests that this verb is reconstructable as a biconsonantal root, with *ɽ as the second consonant. I speculate that this very common Hausa verb (which also means 'dislike, not want to do') was among those verbs that underwent apocope because of frequent use (see footnote 15), then the Hausa *ɽ > y change in (3) changed the apocopated form *ɓiɽ > ɓiy. This form then was interpreted as simply ɓi, parallel to a number of Ci verbs that already existed. The variant forms of the verb with a second consonant –y-, ɓiyà̰ and ɓiyḛ̀, might count as evidence for this derivation, but the –y- in these forms could just as likely be a glide inserted for phonotactic reasons when a derivational vowel suffix is added. Some of the other monoconsonantal roots in Hausa as well as certain monoconsonantal roots in other languages are almost certainly truncated from originally longer forms. It is actually harder to demonstrate this, however, than to identify augmented

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[14] In this and other cases (i) where reconstructable roots have remnant affixes, (ii) where the original bare root is no longer used, and (iii) where the meaning of the root+affix has shifted semantically, it is impossible to know for sure whether the affix is associated with the shift in meaning or whether the affixed verb simply replaced the bare form and shifted meaning as an unrelated development.

[15] Newman (2000:676) lists a number of "clipped" verbs, among them ɗau, which he derives from ɗaukà̰ by "clipping" of the last syllable. While this may be appropriate for a synchronic description of Hausa, it is historically incorrect. The so-called "clipped" verbs comprise a small number of frequently used verbs that have apocopated their final vowels, e.g. kas 'kill' (cf. kashē), sau 'release' (cf. sàkā), and a few others, to which I would add san + object 'know' (cf. free form sanì). Assuming that ɗau does belong in this group, it would have to come from ɗagà̰, with simple apocope, not deletion of an entire syllable from ɗaukà̰.

variants of original monoconsonantal verbs, because once a root is pared down to a single consonant, the "search space" for cognate items becomes much larger and cognate identification more speculative.

4. Conclusion

Despite the fact that comparative Chadic linguistics began over a half-century ago, progress in identifying reconstructable etymons for proto-Chadic has seen only modest advances beyond those of the first comparative publications. The main obstacle to bringing comparative Chadic to a level comparable to, say, comparative Bantu, is the lack of extensive lexical documentation. Almost as important, however, has been reliance on spotting look-alike words drawn from lists of basic vocabulary. This paper has sought to demonstrate that uncovering sound changes and morphological accretions that obscure the historical connections between words is one key to identifying cognate items that escape attention when superficially perusing wordlists. Particularly key is expansion of verbs through lexicalization of pluractional forms and the addition of affixes that cannot be identified as productive in modern languages.

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