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## **INTERNAL RECONSTRUCTION OF THE TOTALITY EXTENSION \*t IN GUDI NGAMO**

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### **1. Ngamo and the West Chadic Languages**

Ngamo is spoken in northeastern Nigeria and is a member of the Chadic family of languages.<sup>1</sup> The Chadic family is a member of the Afroasiatic phylum, which also comprises the Semitic, Berber, Cushitic, and Ancient Egyptian families (Ruhlen 1991:85-95).<sup>2</sup> These latter four families are spread across northern and northeastern Africa, while the Chadic family comprises about 150 languages south of the Sahara desert in an area fanning out from Lake Chad in west-central Africa. According to the classification of Newman (1977), Chadic has four main groups: West Chadic, comprising languages spoken in northern and northeastern Nigeria; Biu-Mandara, comprising languages spoken in northeastern Nigeria and northern Cameroon; East Chadic, comprising languages spoken in western and Central Chad; and Masa, comprising languages spoken mostly in western Chad but with some speakers in eastern Cameroon.

Ngamo is a West Chadic language spoken south of Potiskum, the largest city in Yobe State, Nigeria. Newman (1977) classifies West Chadic as having two major subgroups, “A” and “B”. Ngamo is a member of the “A” subgroup. Ngamo has two main dialects, Gudi and Yaya, which are different enough from each other as to nearly be separate languages. Ngamo is a geographical neighbor of two of its close linguistic cousins in the

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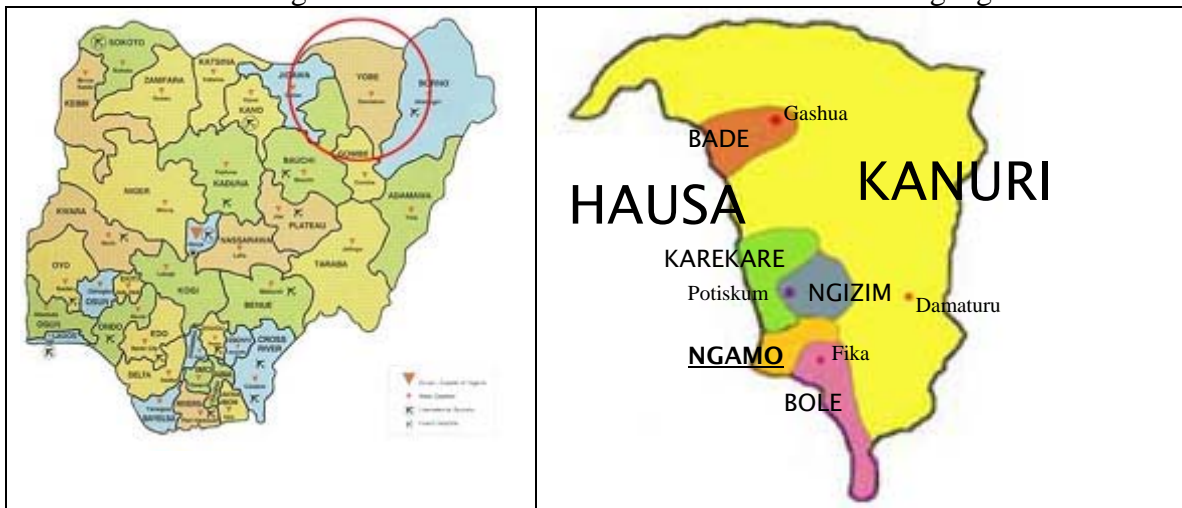
<sup>2</sup> Ruhlen (1991) includes another family, Omotic, within Afroasiatic. Although other scholars accept this classification, I have seen little convincing evidence for the Afroasiatic affiliation of the Omotic languages.

“A” subgroup, Bole and Karekare. Also in contact with Ngamo is Ngizim, a West Chadic language of the “B” subgroup. Ngizim, in turn, is close cousin of Bade, spoken further north in Yobe State. Speakers of each of these languages number in the low six figures at most. Two languages that have had massive influence on all the smaller languages of Yobe State, mainly through lexical borrowing, are Hausa and Kanuri. Hausa is also a West Chadic language, but within West Chadic, it is only distantly related to the Yobe State languages. Kanuri is entirely unrelated to the Chadic languages, being a member of the Nilo-Saharan phylum (Ruhlen 1991:107-114). Figures 1 and 2 show the geographic locations and the genetic relationships of the languages mentioned here.

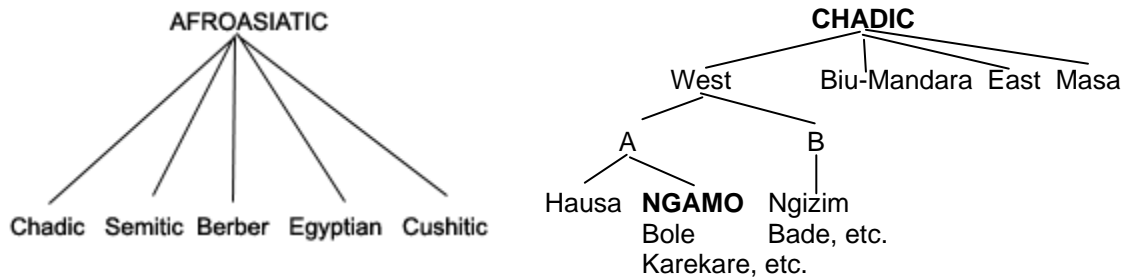
**Figure 1.** Yobe State, Nigeria and the Yobe languages

Yobe State within Nigeria

The locations of the Yobe languages



**Figure 2.** Linguistic relationships



## 2. Background on the Ngamo Verbal System and Ngamo Phonology

Ngamo verb forms have the components in (1). The other Chadic languages of Yobe State have similar systems.

### (1) Components of Ngamo verbs

(Subject Pronoun)+Verb Root+Tense-Marking Vowel(+Extension)(+Completive **ko**)

<b>nè bàs</b>	<b>-á</b>	<b>-t</b>	<b>-kò</b>	'I shot (it) down'
I	shoot	completive vowel	tot. extension	completive

*Subject pronouns* are required only with first and second person subjects. Third person does not use subject pronouns. Verb tenses are marked by a *tense-marking vowel* attached to the verb root. There are several morphological classes of verbs, and for some classes, the completive tense is marked by ABSENCE of a tense-marking vowel. *Extensions* add optional components of meaning. In this paper, we will be concentrating on the Totality Extension, which roughly means “do thoroughly”. Other extensions add meanings of “do hither” and “do more of, do in addition”. In the *completive* tense only, there is a morpheme **-ko** that shows up on some forms. In addition to the components of the verb outlined in (1), direct and indirect object pronoun objects are verbal suffixes in most cases. In this paper, however, we will be considering only verbs without overt objects. Pronoun object suffixes have thus been omitted from the schema in (1).

The consonant system of Ngamo is straightforward and requires little comment other than to note that NC at the beginning of a word, for example, **ngàrkò** ‘he tied’, is a unit phoneme. Ngamo has distinctive vowel length. Long vowels are written here as double vowels, e.g. **ʔùrà** ‘getting down’ with a short **u** vs. **ʔùurà** ‘dust’ with a long **uu**. Like all Chadic languages, Ngamo is a tone language. Ngamo has two basic tones: High (H), marked with an acute accent **á** and Low (L), marked with a grave accent, **à**. H+L can be

associated with one syllable to give a Falling (F) tone, marked with a circumflex accent  $\hat{a}$ . A parallel L+H configuration on one syllable to give Rising (R) tone is rare. No R tones appear in this paper. The possible syllables of Ngamo are CV, CVV, CVC. “Extra-heavy” syllables CVVC (a syllable with a long vowel and a syllable final consonant) or CVCC (a syllable with a final consonant cluster) are not allowed.

### 3. The Ngamo Totality Extension

**3.1. Reconstructing the Totality Extension as \*t.** The Totality Extension has several allomorphs, depending on verb class and verb tense. The data table in (2) shows verbs in each of the five verb classes in two verb tenses, Completive and Subjunctive, with no extensions and with the Totality Extension.

(2) Verb forms with and without the totality extension

		No extension	Totality	
Class A1	Completive	<b>ngàrkô</b>	<b>ngárkò</b>	‘he tied’
	Subjunctive	<b>à ngàrí</b>	<b>à ngàrtì</b>	‘that he tie’
Class A2	Completive	<b>bìskâ</b>	<b>bìskítkò</b>	‘he accepted’
	Subjunctive	<b>à bìskê</b>	<b>à bìskítì</b>	‘that he accept’
Class B	Completive	<b>bàsâ</b>	<b>bàsátkò</b>	‘he shot’
	Subjunctive	<b>à bèsê</b>	<b>à bàsàatì</b>	‘that he shoot’
Class C	Completive	<b>tùkô</b>	<b>tutkò</b>	‘he ate’
	Subjunctive	<b>à tòi</b>	<b>à tùutì</b>	‘that he eat’
Class D	Completive	<b>wâ</b>	<b>watkò</b>	‘he got’
	Subjunctive	<b>à wê</b>	<b>à wàatì</b>	‘that he get’

The basis of the verb classification is the form that a verb takes in the completive with no object: A1 verbs have the form CVC-**ko** (V = a short vowel, **-ko** = completive suffix); A2 verbs have the form  $\bar{s}Ca$  ( $\bar{s}$  = heavy syllable); B verbs have the form CVC**a** (the same type of root as A1 but with a final **a**); C verbs have the form Cu-**ko**; D verbs have the form Ca. Note that those verbs that end in **a** (classes A2, B, D) just end in the vowel whereas the others (A1, C) have the completive suffix **ko**.

From the verbs in (2) we can tentatively extract the Totality allomorphs in (3). We will not attempt to account for tones at this stage of the discussion.

(3) Tentative allomorphs of the Totality Extension

Ø / ] <sub>A1</sub> root_____ko	t / V___ko	ti / ___#
<b>ngárkò</b>	<b>bìskítkò</b>	à ngàrtì
	<b>bàsátkò</b>	à bìskìtî
	<b>tútkò</b>	à bàsàatî
	<b>wátkò</b>	à tùutî
		à wàatî

In the **t / V\_\_\_ko** column of (3), the first verb (A2 class) differs from the others (B, C, D) in that the vowel preceding the **t** of the Totality Extension differs from the vowel of the verb without the Totality Extension (**bìskâ** with no extension but **bìskítko** with the extension). This fact suggests that the final **-a** of class A2 verbs is different from that of classes B and D, the other classes that end in **-a** in the completive without extensions. This suggestion has comparative support. In the Yaya dialect of Ngamo, verbs of classes B and D end in **-a** (Yaya Ngamo class B **bàsáaʔà** ‘he shot’, class D **wáaʔà** ‘he got’) but class A2 verbs end **-o** (Yaya Ngamo class A2 **bìskóʔò** ‘he accepted’). In both Gudi and Yaya, the completive suffix **-ko** in unextended verbs shows up only in verbs of classes A1 and C—the Yaya forms are identical to the Gudi forms in (2) for these verbs. The Yaya forms of A2, B, and D verbs, which end in **-VʔV** rather than **-(V)ko**, suggest that the completive marker may have contracted with the final vowel as in (4):

- (4) A2:<sup>3</sup> \***bìskú-kò** > Yaya **bìskóʔò**, Gudi **bìskâ**  
 B: \* **bàsáa-kò** > Yaya **bàsáaʔà**, Gudi **bàsâ**

That is, the **\*k** of the completive marker weakened to **ʔ** between vowels, the vowels assimilated, and the **VʔV** further contracted to a single vowel in Gudi (contraction can

<sup>3</sup> Reconstruction of **\*-u** as the final vowel for A2 stems is based on languages closely related to Ngamo, e.g. Karekare **bìskú-kò** ‘he accepted’. Neither dialect of Ngamo provides direct evidence for this reconstruction.

also optionally take place in Yaya). The final **-a** of class A2 verbs in Gudi, rather than the expected **-o** seen in Yaya, may be on analogy to the final **-a** of class B and D verbs. With the reconstructions in (4), it looks like we can divide the verbs into two groups: those that have final **-a** in the completive (B, D) and those that have no final stem vowel in the completive (A1, A2, C). We can then propose that the stem final **-u** of C verbs (**tù-kô**) and the reconstructed **\*-u** of class A2 verbs (**\*bìskú-kò**) is epenthic, needed to prevent impermissible consonant clusters **\*tko** (with initial #CC in class C verbs) and **\*biskko** (with a CCC cluster in A2 verbs). These reconstructions for verb roots, suggest that we can reconstruct the Totality Extension as **\*t**, with the changes in (5) accounting for the forms that we see in modern Gudi Ngamo.

(5) **\*t** Totality Extension and changes leading to modern forms

<b>*t &gt; Ø / ]<sub>A1</sub> root___ko</b>	<b>*t &gt; it / s̄C__ko</b>	<b>*t &gt; ti / ___#</b>	<b>*t &gt; t / V___ko</b>
<b>ngàrkò</b>	<b>bìskítkò</b>	<b>à ngàrtì</b>	<b>bàsátkò</b>
	<b>ʔèɛfítkò</b>	(see (3) for other forms ending in <b>-ti</b> )	<b>tutkò</b>
	‘he called’		<b>watkò</b>

In the completive, the completive suffix **-ko** appears with verbs in all classes when the Totality **t** is present because this **t** “protects” the **k** from weakening to **ʔ** as it does between vowels.<sup>4</sup> The environment for **\*t > it** in the second column is a preceding heavy syllable. As noted at the end of section 2, Ngamo does not allow extra-heavy syllables. The epenthetic **i** forces the syllabification **.bìs.kít.kò.** and **.ʔèɛ.fít.kò.**, thus preventing impermissible syllables. (We will slightly revise this account below.)

The data in (5) raise two further issues. First, for A1 verbs in the completive, the difference between the verb with no extensions and the verb with the Totality Extension is just a difference in TONE, not absence or presence of **t**, that is, **ngàrkô** vs. **ngàrkò**

<sup>4</sup> The **k** of the completive suffix does not weaken in class C verbs even when the Totality Extension is not present: **tùkô** ‘he ate’, **tútkò** ‘he ate’ + Totality. I have no non-*ad hoc* account for this.

respectively. Second, two of the environments in (5) list the specific morpheme **-ko**. One would like to know when the environment could be generalized to / \_\_\_C, that is, before any consonant, not just the suffix **-ko**.

**3.2. Explaining the tonal difference *ngàrkô* vs. *ngàrkò*.** Let us propose a reconstruction **\*ngàr-*t*-kò** for a class A1 verb with the Totality Extension, that is, A1 roots add the Totality Extension **\*t** like other verbs. Note that there is a high tone preceding the extension. This is actually part of a L...H pattern that is part of the completive pattern for all verbs and that shows up as the first part of a Falling tone on the last syllable of unextended forms such as **ngàrkô** and **bàsâ**. In a form with the Totality extension like **bàsátkò**, there is an additional syllable with which the H tone can associate alone, and the final syllable bears L rather than Falling. In an A1 form with the Totality Extension, such as the reconstructed **\*ngàr-*t*-kò**, the presence of the Totality Extension has prevented the H from associating with the suffix, thus forcing it to associate with the verb root to give L+H = Rising on the root. In a number of Chadic languages, apparently including Ngamo, Rising tones are not tolerated and are replaced by H. The **t** of the Totality Extension is deleted to avoid a CCC cluster.

(6) **\*ngàr-*t*-kò** DELETION > **\*ngàr-*kò*** RISING TO HIGH > **ngàr-*kò***

There is both comparative support and Ngamo internal support for reconstructing **\*t** in this position, even though it leaves no overt trace. In Yaya Ngamo, a **t** is actually pronounced, i.e. Yaya **ngàrtùkó** ‘he tied’ + Totality. Internally, Gudi Ngamo has an Additive Extension, meaning “do more of, do in addition”, which is identical to the Totality Extension except that the Additive Extension has **d** wherever the Totality has **t**, e.g. Subjunctive+Totality **à ngàrdi** ‘that he tie more’ (cf. **à ngàrti** ‘that he tie’ + Totality).

The A1 completive with the Additive Extension is **ngárgò** ‘he tied more’, with the completive suffixed pronounced **–go** rather than **–ko**. Like Totality **\*t**, Additive **\*d** has been deleted, but the completive suffix has assimilated to the voicing of the Additive Extension **d**, thus preserving a trace of the extension having been there. Since the Totality Extension is voiceless, it does not affect the pronunciation of the completive suffix, and the only evidence for its presence is tonal.

**3.3. The Totality Extension \*t in preconsonantal environments other than /\_\_ko.**

So far, the only preconsonantal environment described for the Totality extension **\*t** has been the completive suffix **–ko**, raising the question of what happens before other consonants. With intransitive verbs, Ngamo (and many other Chadic languages) can add a set of pronominal suffixes, called Intransitive Copy Pronouns (ICP), that copy the subject. In Ngamo, ICPs are used only in the configuration Verb+Totality+ICP.<sup>5</sup>

(7) Gudi intransitive verb without and with intransitive copy pronouns (class A1 verb)

No extensions	Totality + ICP	
<b>nè ʔèrkô</b>	<b>nè ʔèrinnô</b>	‘I stopped’
<b>kò ʔérkô</b>	<b>kò ʔérítkô</b>	‘you (masc. sg.) stopped’
<b>ʃì ʔérkô</b>	<b>ʃì ʔériífî</b>	‘you (fem. sg.) stopped’
<b>ʔèrkô</b>	<b>ʔèrinnî</b>	‘he stopped’
<b>ʔèrkô</b>	<b>ʔèriitô</b>	‘she stopped’

The second person masculine ICP is **–ko**, i.e. it is segmentally identical to the completive suffix **–ko**. Here, the expected **t** of the Totality Extension shows up. Note that the Totality actually shows up as **it**, the form seen in (5) after heavy syllables. This suggests that we should revise the second column of (5) to read **\*t > it /C\_\_C**, that is, add epenthetic **i** before the **t** of the Totality Extension whenever it would form a CCC cluster, not just after a heavy syllable. This will require us to set aside transitive A1 verbs with

<sup>5</sup> We consider only class A1 verbs in the completive with singular subjects. The analysis here extends to verbs of all class in all tenses with both singular and plural subjects.

the totality, such as **ngár-kò** ‘he tied’ + Totality, as in the first column of (5), as an exceptional case.

The ICP data in (7) show two further outcomes of the Totality Extension: before a nasal consonant, Totality **\*t** assimilates completely. Before [+coronal] obstruents (**ʃ**, **t**), **\*t** is deleted with compensatory lengthening of the preceding vowel.

(8) **\*ʔèr-ít-nî**<sup>6</sup> EPENTHESIS > **\*ʔèr-ít-nî** ASSIMILATION > **ʔèr-ín-nî**  
**\*ʔèr-ít-tô** EPENTHESIS > **\*ʔèr-ít-tô** DELETION+COMPENSATORY LENGTHENING > **ʔèr-í-tô**

The ASSIMILATION and DELETION+COMPENSATORY LENGTHENING changes are actually general processes in Ngamo, applying in morphological environments other than those created by juxtaposition of the Totality Extension and pronoun affixes.

#### 4. Summary and Problems

This paper used internal reconstruction, supported at certain points by comparative data, to reconstruct the verbal Totality Extension of the Gudi dialect of Ngamo as **\*t** inserted after a verb stem but before other verbal affixes (affixes seen in this paper were the completive suffix **-ko** and the Intransitive Copy Pronouns). The modern Ngamo verb forms can be accounted for by the following sound changes.

A1 DELETION: **\*t** > Ø / ]<sub>A1</sub> root\_\_\_ **ko**    **\*ngàr-ít-kò** > **\*ngàr-kò**

RISING TO HIGH: L+H > H / [σ\_\_\_]σ    **\*ngàr-kò** > **ngár-kò**    ‘he tied’

MEDIAL EPENTHESIS: **\*t** > **it** / C\_\_C    **\*bìsk-ít-kò** > **bìsk-ít-kò**    ‘he accepted’  
**\*kò ʔéri-ít-kò** > **kò ʔér-ít-kò**    ‘you (m.s.) stopped’

FINAL EPENTHESIS: **\*t** > **tî** / \_\_\_#    **\*à ngàr-t** > **à ngàr-tî**    ‘that he tie’

ASSIMILATION TO NASAL: **\*t** > **n** / \_\_\_n    **\*ʔèr-ít-nî** > **ʔèr-ín-nî**    ‘he stopped’

<sup>6</sup> Comparative evidence from Yaya Ngamo shows that we actually have to reconstruct these forms with the completive suffix **-ko**, i.e. **\*ʔèr-ít-nî-kò**, with a development like that in (4) weakening the suffix to give VʔV, followed by contraction.

