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TONE IN GUDE – A FIRST LOOK

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1.0 INTRODUCTION

This paper is just a first look at the tonal phenomena that we were able to observe in the Gude language during two weeks of research. The paper will try to state what patterns were observed, what patterns were not observed, possible solutions to the overall system, and further avenues of research. During the two-week period, we took a quick look at both nouns and verbs in context. We also made extensive use of the CECIL computer program for producing tone diagrams of various tone frames. These tone diagrams are appended to this paper.

2.0 NOUN TONE PATTERNS

Our focus of research on nouns was on nouns of from one to three syllables, in isolation and in two different tone frames. Since Gude is a Chadic language, and the Chadic language family is known for having interaction between tone and consonants, we tried to see if there existed any evidence for high tone being associated with syllables with voiceless or implosive consonants, or low tone being associated with voiced plosives, whether pre-nasalized or simple. We also tried to see whether downstep existed since predictable downstep between high and low tones in the presence of voiced plosives and affricates is a feature of the Podoko language.

2.1 Monosyllabic Nouns

Monosyllabic nouns are quite rare. We had a lot of difficulty hearing the tone of most of these nouns in isolation as the two language helpers we used made a very small distinction between high and low tones. We were able to decide that there is only one category of monosyllabic nouns, though we were unable to determine if this category was high or low in isolation. Following is a list of the monosyllabic nouns which we have found:

(1) Monosyllabic Nouns:

ba	«leaf»
wa	«death»
na	«head»
la	«cow»
ra	«field»
ha	«place»
gun	«fire»

With few exceptions, the two tone frames we used resulted in a lowering (downstepping) of the tone register just before the noun. The monosyllabic nouns therefore appeared as a downstepped high falling tone with «high-falling» appearing to be the tone on these nouns. This high-low falling tone fell even before a following high tone.

2.2 Disyllabic Nouns

Disyllabic nouns in isolation followed three main patterns, with not a single noun occurring with a series of two L tones. The following nouns are each representative of large numbers of nouns (with L-H having at least twice as many members as the other H-L, and L-H having half as many as L-H):

(2) Normal Disyllabic Noun Tone Patterns:

Pattern	Example	Gloss
H-H	dàrá	«younger brother»
H-L	mbúzá	«melon»
L-H	dàrá	«kind of hat»

After making long lists of the words in the preceding three categories, no strong tie was noticed between voiceless plosives, voiceless affricates and implosives (which may cause high tone) and high tone syllables. Likewise, no strong tie was noticed between voiced plosives and affricates, whether prenasalized or simple (all of which may cause low tone), and low tone syllables. It thus appears that whereas Proto-Chadic probably had a strong relationship between consonant types and tone, present day Gude has seen this relationship disappear through a variety of historical processes which remain unknown to us.

When the main three disyllabic patterns were placed in tone frames where they were preceded by other words, most of the words occurred with a downstep feature, which was analyzed to be part of the tone frame. While one might posit that the downstep feature occurs only on nouns which begin with a voiced plosive or affricate (as is indeed the case in Podoko), that reason does not hold in Gude. We also note that downstep in Gude can occur before either H or L tones, while downstep in Podoko occurs only before L tones.

In addition to the large number of nouns which followed the three patterns mentioned above, we also found a couple of disyllabic nouns with unusual tone patterns, as below:

(3) Exceptional Disyllabic Noun Tone Patterns:

Pattern	Example	Gloss
!L-L	!dzêdzê	«grandfather»
!L-H	!hwâbâ	«kind of fish sauce»

These tone patterns not only started on a lowered L tone in isolation, they also kept this same downstep feature with them in context. It did not seem that the lexical downstep of these nouns combined with the downstep of the tone frame to produce double downstep, but that a single downstep was considered adequate. It seems interesting that the !L-L pattern occurs while the L-L pattern was the only absent pattern from those which normally should occur on disyllabic nouns. While this unusual pattern does occur with a voiced affricate, the parallel !L-H pattern has a voiceless fricative, leaving no clear reason for their unusual behavior.

2.3 Trisyllabic Nouns

While three out of four possible tone patterns occur with disyllabic nouns, five out of eight patterns occur with trisyllabic nouns. Each of the following words is representative of others, with the first two patterns having many members, the second two quite a few, and the last one being relatively few:

(4) Trisyllabic Noun Tone Patterns:

Pattern	Example	Gloss
H-L-H	dâdêmâ	«kind of bush»
L-L-H	dzâkâyâ	«mouse»
H-H-H	búbúnâ	«bull»
L-H-H	jînâtâ	«rock for cooking fire»
L-H-L	kâcârâ	«mat»

This distribution of tones leaves us with three trisyllabic tone patterns which do not occur at all. These same patterns occurred in our tone frames with a preceding downstep just the same as our disyllabic nouns did.

In order to check any influence between tones and consonants, all the trisyllabic nouns in our inventory were placed in the following chart according to both their initial consonant type and their tone pattern (with «raising» including all implosives, voiceless plosives and voiceless affricates; «neutral» including all nasals and liquids; «lowering» including all voiced plosives and affricates, whether simple or prenasalized; «glottal» including four words which begin with glottal stop and which contrast with the final category «zero» which include vowel-initial nouns):

(5) Initial Consonant Type vs. Tone Pattern:

Consonant	Tone Patterns					TOTALS:
	H-H-H	H-L-H	L-H-H	L-H-L	L-L-H	
Raising	6	29	0	3	11	49
Neutral	6	20	5	1	23	55
Lowering	6	11	10	2	12	41
Glottal	0	2	0	0	2	4
Zero	0	0	2	1	19	22
TOTALS:	18	62	17	7	67	171

The zeros in the preceding chart are the most important as they show strong evidence against certain pairings of consonant type and tone. For example, no pattern beginning with a high tone ever occurs on a noun which starts with a vowel. Also, for some unclear reason, trisyllabic nouns which begin with a glottal stop always have L-H on their final two syllables. Finally, no raising consonant is ever found initially on a L-H-H tone pattern. While these restrictions indicate minor characteristics of the Gude system, the important tie between raising and lowering consonants and high and low tone respectively can better be addressed by collapsing the categories into the following chart:

(6) Initial Consonant Type vs. Initial Tone:

Consonant	Initial Tone		TOTALS:
	H	L	
Raising	35	14	49
Neutral	26	29	55
Lowering	17	24	41
Glottal	2	2	4
Zero	0	22	22
TOTALS:	80	91	171

The preceding chart shows some general tendencies, probably leftover from some previous proto-system, but few absolute rules. In fact, the only absolute is that trisyllabic nouns which begin without a consonant always begin on a low tone. Other than that, we notice that initial high tone syllables start twice as often on raising consonants as on lowering consonants, and initial low tone syllables

start almost twice as often on lowering consonants as on raising consonants. In the other direction, raising consonants usually indicate a high tone by about three to one, and lowering consonants only slightly indicate a preference for low tone. While these tendencies exist in the same direction that other Chadic languages report near absolute rules, the strength of the preferences have been diluted greatly in Gude while not having been completely wiped out. It is assumed that similar charting of other syllables in the Gude noun system would lead to similar results.

2.4 Relationship between Disyllabic and Trisyllabic Nouns

The next question is to examine if there might be some kind of relationship between the di- and tri-syllabic nouns. The following chart groups the possible patterns according to their final two tones and according to the relative number of nouns found:

(7) Relationship between Disyllabic and Trisyllabic Nouns:

Trisyllabic	Frequency	Disyllabic	Frequency
H-L-H	(many)	L-H	(many)
L-L-H	(many)	L-H	(many)
H-H-H	(normal)	H-H	(normal)
L-H-H	(normal)	H-H	(normal)
H-H-L	(none)	H-L	(few)
L-H-L	(few)	H-L	(few)
H-L-L	(none)	L-L	(none)
L-L-L	(none)	L-L	(none)

The preceding chart shows a definite relationship between disyllabic tone patterns and the last two syllables of trisyllabic patterns. The reason for such a relationship is quite opaque, however. Perhaps the present tone patterns developed from an earlier proto-language where all the above patterns had similar numbers of nouns, but for some reason (like consonant type), the patterns ending in L-L changed to patterns ending in L-H. This kind of historical process might account for the high number of nouns in L-H patterns as well as the complete absence of nouns in L-L patterns. The actual nature of such historical processes will only be discovered by comparing Gude patterns with those of neighboring Chadic languages.

3.0 VERB TONE PATTERNS

Verbs in Gude, as in so many African languages, are either lexically high or low with regards to tone.

3.1 Constructions with Lexical Tone

There are several verbal constructions in Gude which leave the lexical tones of the verbs unmodified on the surface. The following table shows these constructions together with a simple formula for the grammatical markers which cooccur with these tones (with «RAD:H/L» meaning that the verb radical has high tone verbs realized on high tone and low tone verbs on low tone; «-H» meaning a high tone verb suffix; and «SUB» indicating the place of the subject):

(8) Constructions with Lexical Tone on the Verb Radical:

Construction	Formula
Imperative	RAD:H/L
Close Future	kà RAD:H/L
Adjectival	mà RAD:H/L-H
Past Perfective	ká RAD:H/L-í
Past Progressive	SUB-à RAD:H/L
Past Anterior	ká shí SUB-à RAD:H/L-í
Subjunctive	ngà'é kée SUB-à RAD:H/L-gí

The high tone verb suffix «-H» changes the last syllable of the verb to high tone, while the past tense suffix «-í» indicates not only a change to high tone on the last syllable of the verb, but also a palatalization process indicating perfective aspect (PFV) that affects different verbs in a variety of ways. We give below a simple past tense sentence with a low tone verb root:

- (9) Ká hūr-íi hā kējēerānā.
 PST dry -PFV you clothes
 «You dried the clothes.»

3.2 Constructions with Mid Tone

There exist constructions in Gude in which a low tone verb root is realized on a mid tone while still maintaining a tonal contrast with a high tone verb root realized on high tone. The following chart shows some of these constructions:

(10) Constructions with Low Tone Verb Raised to Mid:

Construction	Formula
Present	ágì RAD:H/M-né
Positive Hortative	wā SUB-á RAD:H/M
Past Habitual	ké nj-î SUB-à RAD:H/M
Distant Future	kàdé né SUB-à RAD:H/M

A typical example of these mid tone constructions is the positive hortative construction, given below with a low tone verb which is raised to a mid tone:

- (11) Wá c -á hūurē kàjéerán!
 HORT you-OPT wash clothes
 «Wash the clothes!»

3.3 Constructions with Neutralization to High Tone

Finally, there are constructions in Gude where the contrast between low and high verbs is neutralized in favor of high tone. Presumably, a high grammatical tone has replaced the lexical tone for the verb roots in these environments. A chart of the constructions together with their formulas is given below:

- (12) Constructions with Low Tone Verb Raised to High:

Construction	Formula
Obligation	á RAD:H/H
Negative Hortative	gà SUB-à RAD:H/H

A typical example of these constructions where both high and low tone verbs are realized on high tone is the negative hortative construction, given below with a low tone verb which is raised all the way to high:

- (13) Gà c -à hūurē kàjéerán!
 NEG:HORT you-NEUT wash clothes
 «Don't wash the clothes!»

3.4 Summary Chart

In addition to the various markers which signal different verbal constructions, Gude has two markers which precede the verb root which we have labelled, for want of better alternatives, «optative» and «neutral». The following chart attempts to bring together all the preceding constructions in a way which focuses attention on these two preverbal suffixes:

- (14) Summary Chart:

Suffix	Verb Root Surface Tones		
	H/H	H/M	H/L
Unmarked ∅		Present	Imperative Close Fut. Adjectival Past Perf.
Optative á	Obligation	Pos. Hort.	
Neutral à	Neg. Hort.	Past Hab. Dist. Fut.	Past Prog. Past Ant. Subjunctive

The preceding chart organizes the data in such a way that one should eventually be able to isolate the semantic elements that are common to: optative suffix -á; neutral suffix -à; verb tone change from low to mid; and finally, the replacive high tone which neutralizes the normal tone contrast on the verb roots. By adding additional constructions to the chart, it is hoped that the exact semantics of these various grammatical markers might become clear.

4.0 MINIMAL TONE PAIRS

While Gude has a good number of words which only differ from other words by their tone pattern, these words seem to be distant enough from each other semantically that potential ambiguities are almost non-existent. The one place where potential problems might arise seems to be in the many short particles some of which differ only by tone. While most of these minimal pairs are probably disambiguated by their position in the sentence, there exists one set of four particles which are not yet completely understood, namely:

(15) Potentially Ambiguous Particles:

ma «topicalizer»
ma «when»

maa «as soon as»
maa «if»

These particles need further study to find out their tones in various constructions and to get a better feel of the fine semantic distinctions being signalled.

5.0 PROVISIONAL ORTHOGRAPHY

As with other neighboring Chadic languages, the provisional orthography presently being used for the Gude language does not mark any tones. It does seem that tone in Gude carries a relatively low functional load. It will probably only be while trying to teach people to read that we can become aware of any potential problems with leaving all tones unwritten. Perhaps, as in some neighboring Chadic languages, tone can be left largely unwritten but indicated on certain minimal pairs of grammatical markers. This potential lack in the current orthography might become apparant as it is put to use.

6.0 FURTHER AVENUES OF RESEARCH

Several areas of research could prove especially useful. Foremost among them is the study of minimal tone pairs among grammatical particles and their potential confusion by readers. Once a decision is made on the various ma/maa particles, the orthography should be tested by observing new readers, and carefully noting those places where they hesitate or have to back up to reread something correctly. Rereading a part proved to be an indication in the Podoko language of a particle insufficiently marked. Careful notes should be made of the apparent reasons why various readers had problems.

Now that basic lists of tone patterns have been established, words with unknown tones can be compared to similar words in the lists to be sure of the tone. Hoskison's lexicon contained many different tone markings than was noted with our language helpers. For an improved lexicon/dictionary to be prepared, someone must be trained in carefully verifying the tone pattern of new words before adding them to those already checked.

As for the verbal system, we just began to look at various verbal constructions. Additional constructions should be examined, their structure analyzed and their place recorded on our summary chart. The final goal of all this analysis should be to get a clearer idea of the semantic features which trigger the various verbal markers (including tone changes) which our chart shows.

Finally, the phonetic mid tones mentioned in the paper need further analysis. It would seem that many of the phonetic mid tones which we observed are in reality downstepped high tones (i.e. you can't go up higher than these tones before resetting the tone register at a pause). In order to isolate the phonological reality behind these phonetic mid tones, we need to get the verb roots, for instance, followed by high tone objects in order to see if these high tones go up higher or just maintain the same downstepped high level.