NOTES ON THE PHONOLOGY OF GUDGE

Presented in Partial Fulfillment of the Requirements for the Degree Master of Arts

by

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This thesis provides a partial description of the sound system of Gude, a previously undescribed Chadic language of Nigeria. In sections 2.0 to 2.3, the 55 consonants of Gude are shown to consist of a plain set, a labio-velarized set, and a palatalized set. In sections 3.0 to 3.4, the basic four vowels [ɪ, a, ɪ:, ə:] are shown to be plain (colorless) in their underlying forms. I argue that color (palatality or labiality) is a feature of consonants in underlying representations and is spread to vowels by the action of rules and processes. In sections 3.3 to 5.0, the various color spreading processes are described in detail with examples and sample derivations. In sections 6.0 and 7.0 rules are described for marking the verbal extensions of REPEATED-ACTION and MOTION-TO-SPEAKER. These verbal extensions are important because they illustrate the complex interaction of the various color spreading processes. Numerous sample derivations are provided.
1.0 Introduction.

General information

The Gude language is spoken in Nigeria by people living south and east of Mubi in Northern Sardauna Province, North-Eastern State, and by people living in contiguous parts of Mokolo and Guider Provinces in Cameroun. Geographically, the Gude speaking area forms a square 18 miles to a side with Mubi town at the north-east corner. The number of speakers is difficult to determine. Reasonable estimates vary from 40,000 to 80,000 speakers. Approximately three quarters of the Gude speakers live in Nigeria. In Nigeria their villages include Cikóre (Njáirí), Mărânyì, Dàzolà, Jídángâ, Bàjilà, Gíímà, Nwúvì (Lámúrdà), Múhúdà (Múdà), Múgùrèwà, Bùládeëgà, Bâjáulà, Kàgèì, Mànègyà, Ngàvàhì, Màdípì, Kàbùrè, Gàrágu, Jàнтárì, Kàkyàbà, Gyàlà (Gàlla), Gyàdàkúrà, Kwàdzà (Kòjà), Dèvù (Dùvù), Tsàbà (Gàbà), Mùgyàrà (Mùjàrà), Tsàñàdà (Sàñúdà), Dàbìsù (Dàbìshì), Gándàrì, Mùdàgùvà, Pàsàrè Nwúvì, Údùrè (Wàdìlì), Mùsùmè, Nwànúwùlà, Mùnùnà, Tàntìlì, Yàwà, Ngwàbà, Mànànìà, Gùdèe, Tsàrànìì, Tàbàzèe, Kàdà, Tàsùmà, Dàgòlù, Yàáàjì, Sòbòrè, Dàgàlù (Dìgìlù)

In Cameroun their villages include Bukàlì (Boukoula), Mìbìzhì, Bùútèzhì, Gwàlàzhì, Dùhùrè, Mìgùzhì, Njèràndì.

The neighboring languages are Kilba and South Margi to the west, the Fali languages to the north, Dàba to the east, Fali of Dourbe to the south-east, and Nkang to the
Classification

Gude has been classified as a Chadic language by Greenberg (1963), Hoffman (1971) and Newman (1972). A synthesis of Hoffman's and Newman's classifications is presented in Chart 1. Gude is most closely related to the Fali languages spoken to the north of the Gude area (but not to Fali of Kiruya or Fali of Mijilu which are Higi dialects, and not to Fali of Dourbey in Cameroun which is an Adamaawa Eastern language). "Fali" is a pejorative term first used by the Fulani conquerors to mean "hill savage". The Fali languages related to Gude are Fali of Vinten (Yuda) (=Meck's Fali of Mubi), Fali of Muchella (Dzara), Fali of Banuli (Huli), Fali of Bagira, Fali of Burha, and possibly Fali of Jilvu. Gude is a single dialect which together with these Fali languages might more correctly be classified as dialects of a single language.²
Chart 1: The position of Gude in the Afro-Asiatic family.
History of the people

In about 1823, the Gude area was conquered in the Fulani Jihad and was ruled as a part of the Empire of Adamawa. Prior to the conquest, most of the Gudes were organized under three kingdoms: Nwubi (Lamurde) and Gella in the west, and Burha in the East. Conflicting traditions trace their origins to the north-east and to the west. Oral history would suggest that the Gudes have been living in their present location for 300 years or longer. Nwubi (Lamurde) proudly preserves a list of 26 chiefs going back to their founder, and Gella similarly has a list of 22 chiefs.

Since the Fulani conquest, Fulani has been the important trade language of the area. At present, all Gude men and most women are fluent in Fulani. The Fulani language and culture have had a great influence upon the Gudes to the extent that Fulani words have replaced many common Gude words. Hausa is rapidly becoming as important a trade language as Fulani.

The name Gude, [g'ude], seems to be of rather recent use. C.K. Meek (1931) used the name Cheke in his description of the Gudes. That name however is no longer known or used in the area. Some of the older men say they used to refer to themselves as [map'vran] (a plural form, the singular would be [map'vda]). This older name has been almost completely replaced by the newer name Gude. Until recently
there was little sense of tribal identity and group loyalties did not extend beyond the local village. Growing tribal identity now seems to associate itself with the use of the term Gude. Gude is also the term used officially by the Nigerian Government (Goudé in Cameroon).

Previous studies

Three word lists of Gude have been or are being published: (1) that of Friedrich Strümpell (1922), (2) that of C.K. Meek (1931), and (3) that of C. Kraft (Univ. of Ibadan: forthcoming). C.K. Meek (1931) also gives a short ethnographic sketch which is amazingly accurate considering his short stay in the area.

As for linguistic studies, the first to come to my attention is a short paper by Carl Hoffman, entitled "Some Aspects of Palatalization in Mapuda" (Univ. of Ibadan: mimeo., 4th May 1972).\(^3\) The only other Gude linguistic studies that I am aware of are my own, "Prosodies and Verb Stems in Gude" (Hoskison, 1974) and "Focus and Topic in Gude" (Hoskison, forthcoming).
2.0 Consonants.

The 58 consonants of Gude may be conveniently divided into three sets: a set of plain (simple) consonants, a set of labio-velarized consonants, and a set of palatalized consonants. Before pause these consonants undergo predictable changes which are described in section 2.4. I assume that the underlying consonant segments are essentially the same as the surface segments which occur when not followed by pause. In sections 2.1, 2.2 and 2.3, these consonants are exemplified in word initial position and in word medial position.4

2.1 Plain consonants.

The plain consonants are summarized in Table 1.
<table>
<thead>
<tr>
<th>Bi-labial</th>
<th>Labio-dental</th>
<th>Alveolar</th>
<th>Palatal</th>
<th>Velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop, vl.</td>
<td>p</td>
<td>t</td>
<td></td>
<td>k</td>
<td></td>
</tr>
<tr>
<td>Stop, vd.</td>
<td>b</td>
<td>d</td>
<td></td>
<td>g</td>
<td></td>
</tr>
<tr>
<td>Implosive</td>
<td>ċ</td>
<td>ċ</td>
<td></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Affricate, vl.</td>
<td></td>
<td>ts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricate, vd.</td>
<td></td>
<td>dz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative, vl.</td>
<td>f</td>
<td>s</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative, vd.</td>
<td>v</td>
<td>z</td>
<td>γ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td>g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral fricative</td>
<td></td>
<td>ā</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral resonant</td>
<td></td>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tap</td>
<td>ĉ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Gude Plain Consonants.
Stops

[pʰ] a voiceless bilabial (lightly) aspirated plosive.
   Ex: [pʰən] 'fighting'
   [məpʰə:] 'horn'

[tʰ] a voiceless alveolar (lightly) aspirated plosive.
   Ex: [tʰən] 'choosing'
   [ʔətʰə:] 'beans'

[kʰ] a voiceless velar (lightly) aspirated plosive.
   Ex: [kʰən] 'throwing'
   [cəkʰə:] 'roof frame'

[b] a voiced bilabial plosive.
   Ex: [bəgə:] 'sheep'
   [məbə:] 'idiot'

[d] a voiced alveolar plosive.
   Ex: [dənə:] 'cooking'
   [kʰədə:] 'stick'

[g] a voiced velar plosive.
   Ex: [gənə:] 'tongue'
   [bəgə:] 'sheep'

[l] a voiced bilabial implosive (or pre-glottalized stop).
   Ex: [lə:nən] 'counting'
   [nəgələnə:] 'wet clay'

[d] a voiced alveolar implosive (or pre-glottalized stop).
   Ex: [dən] 'doing'
   [lədən] 'bride'

[ʔ] a glottal stop.
(There is no velar implosive.)

Ex: [ʔəvá:] 'arrow'
    [pʰə́ván] 'closing'

Affricates.

[tš] a voiceless alveolar affricate.
    Ex: [tšán] 'fence'
    [má̊łá̊tsá:] 'spider'

[dʒ] a voiced alveolar affricate.
    Ex: [dʒálín] 'scolding'
    [gá̊dzá:] 'scabies'

Fricatives.

[f] a voiceless labio-dental fricative.
    Ex: [fá̊fa:] 'stone'
    [də́fa:] 'pot'

[s] a voiceless alveolar grooved fricative.
    Ex: [sán] 'drinking'
    [bósán] 'upper arm'

[x] a voiceless velar fricative.
    Ex: [xá̊dá́n] 'repairing'
    [fá̊xa:] 'axe'

[q] a voiceless lateral fricative.
    Ex: [qá̊dá:] 'fishing net'
    [pʰá̊qá:] 'rock'

[v] a voiced labio-dental fricative.
    Ex: [vá̊wá:] 'female twin'
    [vá̊vá:] 'scrambling'
[z] a voiced alveolar grooved fricative.
   Ex: [zálá:] 'staff'
   [fèzà:] 'year'

[y] a voiced velar fricative.
   Ex: [yá:wèn] 'type of bird'
   [pá:yá:] 'poverty'

Nasals.
[ŋ] a voiced bilabial nasal.
   Ex: [mànpá:] 'horn'
   [pàmá:] 'feast'

[n] a voiced alveolar nasal.
   Ex: [nàná:] 'ripening'
   [càná:] 'cooking'

[y] a voiced velar nasal.
   Ex: [ŋámáŋámá:] 'mouse trap'
   [ŋàŋá:] 'a trap that fails to spring'
   [dàngá:] 'drum'

Liquids.
[l] a voiced lateral resonant.
   Ex: [lá:] 'cow'
   [táláná:] 'sharpening'

[ç] a voiced alveolar tap (optionally a trill after pause).
   Ex: [çá:] ~ [fá:] 'fur'
   [fí:lá:] 'stone'
2.2 Labio-velarized consonants.

In Cude, labio-velarization (simultaneous lip rounding and raising of the tongue back toward the velum) occurs as a secondary articulation with many consonants and as the primary articulation in the semi-vowel [w]. The presence of this secondary articulation is analysed as resulting from a color feature [+ROUND] in the abstract representation of a consonant segment. It is restricted to non-coronal sounds and does not occur with [ɣ]. Labio-velarized segments are rarely palatalized.

Labio-velarized consonants are summarized in Table 2, where a raised w preceding a consonant, "wC", symbolizes superimposed lip rounding and velarization.
<table>
<thead>
<tr>
<th></th>
<th>Bi-labial</th>
<th>Labio-dental</th>
<th>Velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop, vl.</td>
<td>$w_p$</td>
<td></td>
<td>$w_k$</td>
<td></td>
</tr>
<tr>
<td>Stop, vd.</td>
<td>$w_b$</td>
<td></td>
<td>$w_g$</td>
<td>$w_?_g$</td>
</tr>
<tr>
<td>Implosive</td>
<td>$w_6$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative, vl.</td>
<td></td>
<td>$w_f$</td>
<td>$w_x$</td>
<td></td>
</tr>
<tr>
<td>Fricative, vd.</td>
<td></td>
<td>$w_v$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>$w_m$</td>
<td></td>
<td>$w_y$</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Gude labio-velarized consonants.
The following labio-velarized consonants occur in Gude:

[w] a labio-velar semi-vowel.
Ex: [wa:] 'death'
    [gwá:] 'elder brother'

[pʰ] a labio-velarized voiceless bilabial plosive.
Ex: [pwʰpwʰ'hn] 'cut up'

[kʰ] a labio-velarized voiceless velar aspirated plosive.
Ex: [kwóbá:] 'money'
    [kwókqwolín] 'leather shorts'

[a] a labio-velarized voiced bilabial plosive.
Ex: [bwóda:] 'strongman'
    [kəbwɔrɔ:] 'birthmark'

[g] a labio-velarized voiced velar plosive.
Ex: [gwáºan] 'beat clean'
    [dəgwá:] 'young man'

[s] a labio-velarized voiced bilabial implosive.
Ex: [swáºa:] 'gift for new mother'
    [kwódáləswá:] 'a kind of fish'

[ʔ] a labio-velarized glottal stop.
Ex: [ʔwń] 'milk'
    [dʰʔwń] 'a lie'

[f] a labio-velarized voiceless labio-dental fricative.
Ex: [fwɔfwolín] 'put out a fire'
    [ẽfñ] 'shed skin'
[\textsuperscript{w}x] a labio-velarized voiceless velar fricative.

Ex: [\textsuperscript{x}wɔd\textsuperscript{̀}ná:] 'kneading'
[\textsuperscript{ł}xwá:] 'stream'

[\textsuperscript{w}v] a labio-velarized voiced labio-dental fricative.

Ex: [\textsuperscript{v}wɔz\textsuperscript{̀}ná:] 'digging like a rodent'
[m\textsuperscript{̀}tʰvwá:] 'fist'

[\textsuperscript{w}m] a labio-velarized voiced bilabial nasa.

Ex: [\textsuperscript{mw}aʔak\textsuperscript{̀}n] 'squeezing'
[d\textsuperscript{̀}nvwá:] 'boulder'

[\textsuperscript{w}ŋ] a labio-velarized voiced velar nasal.

Ex: [ŋwá:] 'hip'
[ŋwɔŋwá:] 'chief'

2.3 Palatalized consonants.

In Gude, palatalization (humping of the tongue body toward the hard palate) occurs as a secondary articulation with many consonants and as the primary articulation in the semi-vowel [y]. The presence of this secondary articulation is analyzed as resulting from a color feature [+PAL] in the abstract representation of a consonant segment. With labial consonants and [ʔ], [+PAL] is realized as simultaneous humping of the tongue body toward the hard palate. With velar consonants, [+PAL] is realized as a shift in point of articulation from velar to palatal. Palatalized [ŋ] does not occur. With coronal segments [+PAL] is realized by a variety of shifts. [t],[d] and
[n] may occur with a secondary articulation (IPA [t̡], [d̡], [n̡]), but more usually undergo an optional shift to palatal point of articulation. [t̡] shifts to [t̡]. Affricates and fricatives shift from alveolar to palato-alveolar. Laterals shift to palatal point of articulation, and tap[ɾ] becomes a sequence of tap plus non-syllabic high front vowel [ɛ̞]. Palatalized consonants are summarized in Table 3 and the surface manifestation of palatalization is displayed in Table 4 (where the symbol to the left of the arrow is the underlying consonant and the symbol to the right of the arrow is the IPA symbol for the corresponding surface form).
<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Labio-dental</th>
<th>Alveolar</th>
<th>Palato-alveolar</th>
<th>Palatal</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop, vl.</td>
<td>$y_p$</td>
<td>$y_t$</td>
<td></td>
<td></td>
<td>$y_k$</td>
<td></td>
</tr>
<tr>
<td>Stop, vd.</td>
<td>$y_b$</td>
<td>$y_d$</td>
<td></td>
<td></td>
<td>$y_g$</td>
<td></td>
</tr>
<tr>
<td>Implosive</td>
<td>$y_b$</td>
<td>$y_d$</td>
<td></td>
<td></td>
<td></td>
<td>$y?$</td>
</tr>
<tr>
<td>Affricate, vl.</td>
<td></td>
<td></td>
<td>$y_{ts}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricate, vd.</td>
<td></td>
<td></td>
<td>$y_{dz}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative, vl.</td>
<td></td>
<td>$y_f$</td>
<td></td>
<td>$y_s$</td>
<td>$y_x$</td>
<td></td>
</tr>
<tr>
<td>Fricative, vd.</td>
<td></td>
<td>$y_v$</td>
<td></td>
<td>$y_z$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>$y_m$</td>
<td>$y_n$</td>
<td></td>
<td></td>
<td>$y_d$</td>
<td></td>
</tr>
<tr>
<td>Lateral fricative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$y_4$</td>
<td></td>
</tr>
<tr>
<td>Lateral resonant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$y_l$</td>
<td></td>
</tr>
<tr>
<td>Tap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$y_r$</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Gude palatalized consonants.
Table 4. The surface manifestations of palatalized consonants.
The following palatalized consonants occur in Gude (cf. Footnote 3):

[γ] a palatal semi-vowel.
Ex: [γá:] 'compound'
[γhá:yá:] 'type of tree'

[γp] a palatalized voiceless bilabial plosive.
Ex: [pγawúchén] 'twirling'
[lípá:] 'pocket'

[γt] a palatalized voiceless alveolar plosive.
Ex: [tɛčèn] 'dipping liquid'
[pʰɪγá:] 'rabbit'

[γk] a voiceless palatal plosive
Ex: [cɛkʰá:] 'roof frame'
[bwɔcèlá:] 'a kind of ornament'

[γb] a palatalized voiced bilabial plosive
Ex: [bábìn] 'feather'
[kʰdʰɛdɛdá:] 'digging stick'

[γd] a palatalized voiced alveolar plosive.
Ex: [dyɛɛɛɛɛn] 'gossip'
[kwɔdɔkwɔdɔyá:] 'a type of porridge'

[γs] a voiced palatal plosive.
Ex: [jɛɛɛɛɛn] 'arm pit'
[mɔjɛxá:] 'beginning of dry season'

[γj] a palatalized voiced bilabial implosive.
Ex: [γwɛtsawá:] 'type of mouse'
[mɔɛɛyá:] 'left-over meat'
a palatalized voiced alveolar implosive.
Ex: rare, only in [ɪ̞d̪̞i̞s] 'shallow'

a palatalized glottal stop.
Ex: [ʔj̞l̞i̞f̞k̞h̞aː] 'a "bad sport"
[ʔn̞i̞y̞o̞m̞] 'spirit'

a voiceless palato-alveolar affricate.
Ex: [tʃ̞əˈm̞] 'bright'
[tʃ̞əˈt̞əˈaː] 'indigo dye'

a voiced palato-alveolar affricate.
Ex: [dʒ̞e̞p̞e̞n̞] 'type of insect'
[m̞i̞k̞h̞dʒ̞aː] 'first born'

a palatalized voiceless labio-dental fricative.
Ex: [tʃ̞j̞e̞k̞h̞i̞j̞i̞n̞] 'starting a fire'
[f̞i̞p̞aː] 'palm tree'

a voiceless palato-alveolar fricative.
Ex: [ʃ̞e̞f̞aː] 'a swearing juju'
[t̞aːn̞aː] 'type of pepper'

a voiceless palatal fricative.
Ex: [ʃ̞e̞m̞aːdi̞j̞e̞y̞aː] 'a type of illness'
[k̞i̞n̞aːn̞aː] 'a type of tree'

a palatalized voiced labio-dental fricative.
Ex: [tʃ̞j̞e̞k̞h̞i̞n̞] 'tying a loin cloth on'
[f̞i̞y̞e̞s̞aː] 'loin'

a voiced palato-alveolar fricative
Ex: [ʃ̞e̞t̞h̞n̞aː] 'salt'
[g̞aːz̞aː] 'tail'
a palatalized voiced bilabial nasal.

Ex: [myáʔän] 'ringing out

[pélyémyémyáʔá:] 'type of charm'

a palatalized voiced alveolar nasal.

Ex: rare, only in[kútìnyá:] 'youngest child'

a voiced palatal nasal.

Ex: [jnyá:] 'emphatic first person sing. pronoun'

[djéjén] 'type of insect'

a voiceless palatal lateral fricative.

Ex: [kédímà:] 'a chief maker'

[béken] 'woo and return'

a voiced palatal lateral resonant.

Ex: [kélná:] 'troweling plaster'

[ólnén] 'becoming hoarse'

a palatalized voiced alveolar tap.

Ex: [gyéntsá:] 'type of lizard'

[kwályétí:] 'hawk'

2.4 Pre-pause phenomena.

There are a number of phonetic changes which occur only before pause. Their description will perhaps be clearer if they are all presented here under one heading.

Vowel changes 9

Before pause, a non-high vowel becomes long with the result that non-high short vowels do not occur before pause.
Examples:

<table>
<thead>
<tr>
<th>Pre-pause</th>
<th>Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td>[bá³á:]</td>
<td>[bá³á]</td>
</tr>
<tr>
<td>[gá³á:]</td>
<td>[gá³á]</td>
</tr>
<tr>
<td>[ŋwo¶nwa:]</td>
<td>[ŋwo¶nwa:]</td>
</tr>
</tbody>
</table>

Before pause, a high vowel deletes. As a result we find phonetically closed syllables (i.e., final consonants) before pause.

...CVC# → ...CVC#

If these final consonants are colored (see section 4.0), lingering glides are de-voiced.

Examples:

<table>
<thead>
<tr>
<th>Pre-pause</th>
<th>Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ná³]</td>
<td>[ná³]</td>
</tr>
<tr>
<td>[na:cy]</td>
<td>[na:cyi]</td>
</tr>
<tr>
<td>[na:kw]</td>
<td>[na:kwu]</td>
</tr>
</tbody>
</table>

Final implosives are de-voiced [ Railway腭, Railway腭] and final tap[ Railway腭] becomes a de-voiced trill[ Railway腭].

Examples:

<table>
<thead>
<tr>
<th>Pre-pause</th>
<th>Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td>[zá³]</td>
<td>[zá³]</td>
</tr>
<tr>
<td>[ʔvŋfswá³]</td>
<td>[ʔvŋfswá³]</td>
</tr>
<tr>
<td>[dí³]</td>
<td>[dí³]</td>
</tr>
</tbody>
</table>

2.5 Pre-nasalization.

Nasal-plus-consonant (NC) sequences occur commonly in Gude. These sequences seem to be of two sorts. The
first sort seems to derive historically from what African-ists traditionally call pre-nasalized consonants, i.e. [mb, nd, ndz, ng]. In languages which are closely related to Gude, namely Bachama, Kilba, Margi, and Higi, we find only prenasalized voiced stops and affricates and no other NC sequences. Thus, we can assume that Pre-Gude must have also had the pre-nasalized consonants [mb, nd, ndz, ng]. In a synchronic description of Pre-Gude one might have described these as single segments containing a pre-nasalization feature such as that proposed by Chomsky and Halle (1968).

There is, however, a second sort of nasal-plus-consonant sequence in Gude, which is less orthodox and is not found in related languages. These sequences cannot be interpreted as deriving historically from pre-nasalized consonants, because they are sequences of nasal plus voiceless stop or nasal plus fricative. (Most of these sequences seem to have arisen from vowel loss.) Clearly a synchronic description of Gude cannot describe all of these sequences as being pre-nasalized consonants, unless we wish to adopt an unnatural, ad hoc notion of pre-nasalization (cf. footnote 10). Consequently, I will say that nasal-plus-consonant sequences are to be treated as clusters. There are constraints on such clusters. The second member must be an obstructuent and, with the exception of [ŋw] and [ŋvw], the nasal must be homor-
ganic to the following obstruent. These clusters may also be labio-velarized or palatalized.

3.0 Vowels.

3.1 Height.

There are only two contrastive vowel heights in Gude, high and non-high. This contrast divides the upper one-third of the "vowel space" from the lower two-thirds.

3.2 Length.

There is a contrast between long and short vowels in Gude. Long vowels are more tense, more peripheral and less variable than short vowels. Long vowels are rarer than short vowels, and are often predictable by rule.

3.3 Color and Short Vowels.

In a narrow phonetic description of Gude short vowels, we find that a complete continuum of vowel timbre qualities (colors) occurs ranging from front unrounded to back rounded. We find, however, that the color of vowels is predictable. Vowels tend to be front and unrounded contiguous to palatalized consonants, back and round contiguous to labio-velarized consonants, and central and unrounded elsewhere. This situation, which is paralleled in certain Caucasian languages, cf. Trubetzkoy (1969), may be summarized by saying that vowels are basically colorless but assimilate the coloring of contiguous consonants.

There is some free variation in that vowels vary in
successive pronunciations from normally colored to occasionally colorless. The following examples show variation in coloring in environments where color is predicted (~ means "varies freely with"): 

Before palatalized consonants:

High, short vowel, [ɨ] ~ [i].
Ex: [ʔɨpʰən] ~ [ʔi pʰən], but never *[ʔi pʰən] 'peanut'
Non-high, short vowel, [ɛ] ~ [ʌ].
Ex: [ɡi ʒáː] ~ [ɡi ʒáː], but never *[ɡi ʒáː] 'tail'

After palatalized consonants:

High, short vowel, [ɨ] ~ [i].
Ex: [tʃi tʰə] ~ [tʃi tʰə], but never *[tʃi tʰə] 'pepper'
Non-high, short vowel, [ɛ] ~ [ʌ].
Ex: [kókáː] ~ [kókáː], but never *[kókáː] 'roof frame'

Before labio-velarized consonants:

High, short vowel, [u] ~ [i].
Ex: [tʃuːgwaː] ~ [tʃuːgwaː], but never *[tʃuːgwaː] 'road'
Non-high, short vowel, [ɔ] ~ [ʌ].
Ex: [vəxwaː] ~ [vəxwaː], but never *[vəxwaː] 'female twin'

After labio-velarized consonants:

High, short vowel, [u] ~ [i].
Ex: [ɡuːsɛn] ~ [ɡuːsɛn], but never *[ɡuːsɛn] 'laughing'
Non-high, short vowel, [ɔ] ~ [ʌ].
Ex: [kwələkəː] ~ [kwələkəː], but never *[kwələkəː]
'small calabash'
In absence of palatalized or labio-velarized consonants:

High, short vowel, [ɪ], invariable with respect to color.
Ex: [sɪdːə] 'foot'

Non-high, short vowel, [ʌ], invariable with respect to color.
Ex: [sʌn] 'drinking'

When both preceding and following consonants are of the same coloring, the vowel usually receives a greater degree of color than if only one contiguous consonant is colored. The vowels are higher, tenser, and more peripheral. Table 5 below displays the short vowel phones as conditioned by color.
<table>
<thead>
<tr>
<th></th>
<th>with one contiguous</th>
<th>with two contiguous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>uncolored consonant</td>
<td>+PAL consonants</td>
</tr>
<tr>
<td>high short vowel</td>
<td>i</td>
<td>i</td>
</tr>
<tr>
<td>non-high short vowel</td>
<td>Λ</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>with one contiguous</td>
<td>with two contiguous</td>
</tr>
<tr>
<td></td>
<td>uncolored consonant</td>
<td>+RD consonants</td>
</tr>
<tr>
<td>high short vowel</td>
<td>i</td>
<td>u</td>
</tr>
<tr>
<td>non-high short vowel</td>
<td>Λ</td>
<td>o'</td>
</tr>
</tbody>
</table>

Table 5. Short vowel phones.
Examples:

/$^\text{PAL}$ --- $^\text{PAL}$

High short vowel, [i].

$[^\text{i}]^\text{ín}$ 'coming-repeated action'

Non-high short vowel, [e].

$[^\text{ě}]^\text{él à}$: 'male lizard'

$/^\text{RD}$ --- $^\text{RD}$

High short vowel, [u].

$[^\text{u}]^\text{úln á}$: 'lungs'

Non-high short vowel, [o].

$[^\text{ó}]^\text{úra}$: 'female lizard'

When preceding and following consonants are of different coloring, the two processes tend to cancel one another. High short vowel varies from preceding color to colorless to following color, and the non-high short vowel neutralizes to a colorless phone.

Examples:

/$^\text{PAL}$ --- $^\text{RD}$

High short vowel, [i]~[ə]~[u].

$[^\text{í}]^\text{íwa}$:~$[^\text{ín}]^\text{íwa}$~$[^\text{ýn}]^\text{ín}$: 'mountain'

Non-high short vowel, [ʌ].

$[^\text{d}]^\text{ngwa}$: 'type of tree'

$/^\text{RD}$ --- $^\text{PAL}$

High short vowel, [u]~[ŋ]~[I].

$[^\text{ŋ}]^\text{gwa}$:~$[^\text{ŋ}]^\text{gwa}$:~$[^\text{ŋ}]^\text{gwa}$: 'maize'
Non-high short vowel, [ʌ].

[ŋwâɡén] 'civet cat'

I suggest that the following processes might account for the short vowel coloring phenomena discussed in this section.11

(P1) \[ V \rightarrow +\text{color} \quad B \quad / \quad C \quad * \quad \begin{cases} \text{obl.} / +\text{color} \quad B - +\text{color} \quad B \\ -\text{color} \quad A \\ \text{Glide} \\ +\text{color} \quad B \end{cases} \]

Note: (P3) must follow (P1). opt. elsewhere

(P2) \[ V \rightarrow +\text{tense} \quad / \quad C \quad * \quad \begin{cases} \text{obl.} / +\text{color} \quad A - +\text{color} \quad A \\ \text{Glide} \end{cases} \]

(P3) \[ V \rightarrow -\text{color} \quad A \quad / \quad C \quad * \quad \begin{cases} \text{obl. for -HI vowels} \\ \text{opt. for +HI vowels} \end{cases} \]

3.4 Color and long vowels

When not contiguous to colored consonants, long vowels are more peripheral, and less variable than corresponding short vowels:

<table>
<thead>
<tr>
<th>Short</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>ɪ^</td>
</tr>
<tr>
<td>Non-high</td>
<td>ʌ</td>
</tr>
<tr>
<td>ɪ^:</td>
<td>a: (IPA a:)</td>
</tr>
</tbody>
</table>

Examples:

High short vowel: [fɛdɛn] 'collect together'

High long vowel: [fɛ^:dɛ^:n] 'collect together-
repeated action'

Non-high short vowel: [bɛná:] 'speaking'

Non-high long vowel: [bɛ:n] 'sleeping'
High long vowels and non-high long vowels behave differently in the environment of color. High long vowels completely resist regressive color assimilation. Progressive color assimilation is obligatory and results in tense phones, [i:] and [u:], which are invariable. Non-high long vowels tend to resist color assimilation. Slightly assimilated phones, [æ:] and [ɔ:], do occur, but would be disregarded in all but the narrowest of transcriptions. More fully assimilated phones, [a:(IPA)] and [ɔ:], occur between consonants of the same color. Glides always occur between a non-high long vowel and a preceding colored consonant.

I suggest that the following processes might account for the long vowel coloring phenomena discussed in this section.

(P4) \[ V \rightarrow +\text{color } B / \quad C \quad +\text{color } B \quad \text{(obl.)} \]
+LONG
-color A
+HI

Note: (P1) and (P4) are really the same process constrained in different ways.

(P5) \[ V \rightarrow +\text{TENSE} \]
+HI
+LONG
+color
4.9 Transition glides.

Transition glides, [y] and [w], regularly occur between a vowel and a following colored consonant (anticipatory glides) and between a colored consonant and a following vowel (lingering glides). These glides correlate with the secondary articulations of labio-velarization (lip rounding plus simultaneous humping of the tongue toward the velum) and of palatalization (humping of the tongue toward the hard palate). They occur optionally in cases where they are not automatic features, as is possibly the case with the palatal series [c, ʒ, ɺ, ʃ, ʩ, p], and where the underlying color of the consonant is redundantly manifested by point of articulation or by vowel coloring.

The palatalized sibilants [ʃ, ʒ, tʃ, dʒ] are exceptions to the generalizations above. Transition [y] glides are consistently absent with these consonants, but regressive and progressive vowel coloration does occur. Thus we have *[ʔɪʃɛn], but not *[ʔɪɣʃen] 'catch and bring'.

Phonetic [mo:] occurs frequently in Gude and is also an exception to the generalizations stated above. Since *[mwɔ] never occurs, we can account for [mo:] by saying
that is arises from underlying *[mwoord]*. Example, *[m:sizinha:]*, 'honey'. The following process might account for occurrence of transition glides.

\[ (\text{F6}) \emptyset \rightarrow \text{GLIDE} /+\text{color A} +\text{color A}/ V \begin{cases} \text{obl. if V is } -\text{color A} \\ \text{never if C is a sibilant} \\ \text{opt. elsewhere} \end{cases} \]

Note: (F6) follows all the vowel coloring processes, (F1) through (F5).

5.0 **Diphthongs.**

In a purely phonetic transcription of Gude, one occasionally encounters certain sequences which seem to be long vowels of changing quality such that we would transcribe them as diphthongs. I shall argue that these phonetic diphthongs arise from an underlying sequence of two syllables.

**Sources for [u:] and [i:]**

In order to demonstrate that surface diphthongs arise from an underlying sequence of two syllables, I must first demonstrate that surface [u:] and [i:] may arise from either of two sources.

[u:] or [i:] may arise from an underlying high long vowel following a colored consonant. Evidence of this is seen in a vowel lengthening rule at work in the following paradigm.¹²
<table>
<thead>
<tr>
<th>Item</th>
<th>English</th>
<th>Item</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mɪdìn]</td>
<td>'pithon'</td>
<td>[mɪdɪ:ta:]</td>
<td>'that pithon'</td>
</tr>
<tr>
<td>[mán]</td>
<td>'mother'</td>
<td>[mɑ:ta:]</td>
<td>'that mother'</td>
</tr>
<tr>
<td>[tsən]</td>
<td>'fence'</td>
<td>[tsə:ta:]</td>
<td>'that fence'</td>
</tr>
<tr>
<td>[mɪŋən]</td>
<td>'rainbow'</td>
<td>[mɪŋə:ta:]</td>
<td>'that rainbow'</td>
</tr>
<tr>
<td>[ɡwʊn]</td>
<td>'fire'</td>
<td>[ɡwʊ:ta:]</td>
<td>'that fire'</td>
</tr>
<tr>
<td>[ɣʊxwʊn]</td>
<td>'snake'</td>
<td>[ɣʊxwʊ:ta:]</td>
<td>'that snake'</td>
</tr>
<tr>
<td>[mɑy̞ən]</td>
<td>'water'</td>
<td>[mɑy̞ə:ta:]</td>
<td>'that water'</td>
</tr>
<tr>
<td>[ʃɪn]</td>
<td>'eye'</td>
<td>[ʃi:ta:]</td>
<td>'that eye'</td>
</tr>
</tbody>
</table>

When the suffix -n on the items in the first column is replaced by suffix -ta:, -ta: lengthens the final stem vowel to produce the items in the second column. The tense quality of colored long vowels is to be expected from the discussion in section 3.4.

[u:] or [i:] may also arise from underlying high short vowel plus /w/ or /y/ plus high short vowel, i.e. /i:w/ → [u:] and /i:y/ → [i::]. We see that [u:] in (1) and (2) below cannot be derived from external color assimilation since the surrounding [+COR] consonants can never be [+RD] (see section 2.2). Likewise, the [i:] in (3) and (4) below cannot be derived from external color assimilation since the surrounding consonants are clearly not [+PAL] (see section 2.3).
Surface | Underlying
---|---
(1) [luːnaː] | */lɪwː/ + suffix /na/ 'receiving'
(2) [kɔnduːdɔn] | */kɔndɪwːdɔ/ + suffix /na/ 'brain'
(3) [siːnaː] | */sɪyː/ + suffix /na/ 'proliferate'
(4) [naːkiːnaː] | /naː/ + /kɪyː/ + /na/ possessive his head 'his own'

Additional proof of the underlying two syllable structures of [uː] in (1) and [iː] in (3) is seen by the application of the MOTION-TO-SPEAKER rule (section 7.0) which yields

\[
\begin{align*}
[\text{ɬɪw}_{\text{a}}] & \quad */lɪwː/ + \text{MTS} \quad \text{\{see section 7.0\}} \\
[\text{sɪy}_{\text{a}}] & \quad */sɪyː/ + \text{MTS} \quad \text{\{for explanation\}}
\end{align*}
\]

Nouns in Gude fall into two classes. One class obligatorily adds a suffix /-nː/ to the stem, and the other class changes final high vowel to low vowel before pause. This second class gives us further evidence that phonetic [uː] and [iː] may arise from an underlying two syllable sequence. Note the pre-pause forms, [lʊwːaː] 'meat' and [ʔwːyaː]~[ʔwːyaː] 'wound'. These forms show that each of these words has a two syllable stem, but the underlying final vowel may be either high or non-high. When the suffix -tːa is added to the stem, we get the forms [luːtːaː] and [ʔwːtːaː] respectively. The only way to account for the presence of [uː] and [iː] in the latter forms is to suppose that underlying stems are */lɪwː/ and */ʔwːyː/.
Sources for [ou] and [ei]

We can account for the rare occurrences of the phonetic diphthongs, [oʌ] \( \sim [ɔʊ] \) and [ei] \( \sim [eɪ] \), by proposing that they also arise from an underlying sequence of two syllables. [ou] arises from non-high short vowel plus /w/ plus high short vowel. [ei] arises from non-high short vowel plus /y/ plus high short vowel.

\[
\begin{align*}
/ɪwɪ/ & \rightarrow [u:] \\
/ɪyɪ/ & \rightarrow [i:] \\
/awɪ/ & \rightarrow [oʊ] \\
/ayɪ/ & \rightarrow [eɪ]
\end{align*}
\]

Examples:

<table>
<thead>
<tr>
<th>Surface</th>
<th>Underlying</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>[dɔʊsá:]</td>
<td>&lt; /dɔwɪsá/</td>
<td>'pot lid'</td>
</tr>
<tr>
<td>[tʃɔʊná:]</td>
<td>&lt; /tʃɔwɪná/</td>
<td>'elephant'</td>
</tr>
<tr>
<td>[meɪtá:]</td>
<td>&lt; /mɔyɪtá/</td>
<td>'baby sitter'</td>
</tr>
<tr>
<td>[neɪn]</td>
<td>&lt; /nɔyɪná/</td>
<td>'seeing'</td>
</tr>
</tbody>
</table>

Evidence for this proposal comes from several sources:

1. It has been shown above the /wɪ/ and /yɪ/ have a strong coloring influence on preceding vowels. We find [u:] and [i:] where we would expect to find [u-wʊ] and [i-yɪ]. Thus, it is analogous to find [oʊ] and [eɪ] where we would expect [ɔwʊ] and [eɪy].

2. The only occurrences of [ɔwʊ] and [eɪy] are in the words [aɔwɪdá:] 'a type of basket' and [vɔyɪn] 'fullness'.
Here the relevant syllables have different tones whereas [oɲ] and [eɪ] always have level tone. Thus, there is no contrast between [ɔwɔ] and [oɲ] and between [ɛyɪ] and [eɪ] if we assume tone to be a conditioning factor.

(3) Above (see p. 33) we discussed how the alternations [ɭɔwáː] and [luːtáː] lead to an underlying /liwá/ and how [ʔwɔwáː] and [ʔwiːtáː] lead to /ʔwɔyá/. A similar alternation between [pɔwáː] 'child' and [pɔʊtáː] 'that child' shows that the underlying stem final vowel is a high vowel and the stem is therefore /pɔwá/ (see the arguementation on p. 33). Presumably, we would find more of these alternations if the relevant sequences were more common in the language.

(4) A few dialect differences support this proposal as we see in the following examples:

**Lamurde village**                  **Gella village**

[ɲʊn̂̚n̂̚]  
from /ɲʔwáŋ/  

[ɲun̂̚]  
from /ɲawáŋ/

[meʔti:n̂̚]  
from /myʔitsi:n̂̚/  

[maʔti:n̂̚]  
from /maʔitsi:n̂̚/  

'to follow

'a slap'

According to our proposal, the cognates differ only in the absence of a glottal stop in underlying form.
(5) There is an elision process (rule?) which also supports this proposal. This independently motivated process says that a word initial \(\text{'?i'}\) deletes following a vowel. Thus we find

\[
\begin{align*}
\text{[ka]} & \ \leftrightarrow \text{[/ka/} \quad \text{'for/to'} \\
\text{[?u:da:]} & \ \leftrightarrow \text{[/?wâda/]} \quad \text{'pot' (citation form)} \\
\text{[koâda:]} & \ \leftrightarrow \text{[/xa wâda/} \quad \text{'for the pot'}
\end{align*}
\]

We explain the elision of \([ka]\) and \([?u:da:]\) by assuming an underlying \(/?wâda/\) for \([?u:da:]\). The \(/?i/\) deletion process operates to give us \(/ka wâda/\) and thus \([koâda:].\)

The following processes account for the long vowel and diphthong phenomena discussed in this section:

(P7) \(\text{GLIDE } \rightarrow \emptyset \quad \text{V} \quad \text{V} \quad \text{(obl.)}\)

\[
\begin{array}{ll}
+\text{color A} & \quad -\text{LONG} \\
\alpha \text{TONE} & \quad \alpha \text{TONE} \\
+\text{color A} & \quad +\text{color A}
\end{array}
\]

Note: (P7) must follow (P1) and precede (P3).

(P8) \(\text{V } \rightarrow +\text{TENSE} \quad \text{V} \quad \text{(obl.)}\)

\[
\begin{array}{ll}
+\text{color A} & \quad +\text{HI} \\
+\text{color A}
\end{array}
\]

(P9) \(\text{V } \rightarrow -\text{SYLLABIC} \quad \text{V} \quad \text{(obl.)}, \quad \text{i.e. } \text{ix} \rightarrow \text{i;} \quad \text{er} \rightarrow \text{ei} \quad \text{uv} \rightarrow \text{u;} \quad \text{ou} \rightarrow \text{ou}\)

\[
\begin{array}{ll}
+\text{HI} & \quad +\text{TENSE} \\
+\text{color A}
\end{array}
\]
Sample derivations:

/siyi/ 'proliferate'  /lawi/ 'receive'
P1 siyi
P2 sil
P7 sii
P8 sii
P9 si:

/dawisa/ 'pot lid'  /mayita/ 'baby sitter'
P1 dawysa
P2 dawysa
P7 dawysa
P8 dawysa
P9 dawysa

6.0 Rules marking REPEATED-ACTION.

The rules presented in this section work together to account for the allomorphy of verb stems marked +REPEATED-ACTION. A more complete discussion of this and other verbal extensions is found in (Hoskison, 1974).

Reduplication of monosyllabic roots

(R1) $\emptyset \rightarrow C_1V_1/ + V_1 + \text{(obl.)}$, where + is a morpheme boundary.
Vowel lowering

(R2) \( V \rightarrow -\text{HI} / +C \quad \underline{\text{C}} \quad V \quad (\text{obl.}) \)

Vowel lengthening

(R3) \( V \rightarrow +\text{LONG} / +C \quad \underline{\text{CV}} \quad (\text{obl.}) \)

Reduplication in polysyllabic roots

(R4) \( \emptyset \rightarrow C_1 V_1 \quad -\text{LONG} / + \quad C_1 \quad V_1 \quad C_2 V_2 \quad (\text{opt. - rarely applies}) \)

General condition: In (R1) (R2) (R3) (R4), the morpheme must be \([+\text{verb stem}]\) and \([+\text{REPEATED-ACTION}]\).

Ordering: (R3) must follow (R1).

(R4) must follow (R2) and (R3).

Note that the optionality of (R4) results in two possible surface forms, as is shown in the following sample derivations.
Sample derivations showing how verb stems are marked for
\texttt{+REPEATED-ACTION}:

\begin{itemize}
\item \texttt{/la/ 'cut'}
\item \texttt{(RL) lala}
\item \texttt{(R3) la:la [la:la] 'cut repeatedly'}
\item \texttt{/saba/ /saba/ 'drive away'}
\item \texttt{(R2) saba (R2) saba}
\item \texttt{(R3) sa:ba (R3) sa:ba [sa:ba] 'drive away repeatedly'}
\item \texttt{/dzi6i/ /dzi6i/ 'stab'}
\item \texttt{(R3) dzi6i (R3) dzi6i [dzi6i] 'stab repeatedly'}
\end{itemize}
7.0 Rules marking MOTION-TO-SPEAKER

The rules presented in this section work together to account for the allomorphy of verb stems marked +MOTION-TO-SPEAKER. See (Hoskison, 1974) for a more complete discussion of this verbal extension.

(R5) \( V \rightarrow -HI/\_\_ + (\text{obl.}) \), i.e., root final vowel becomes /a/.

(R6a) \( C \rightarrow +FAL / \) in monosyllabic roots (obl.)

(R6b) \( C \rightarrow -RD +FAL/ \) in polysyllabic roots according to the complex strategy outlined below.
The consonants are ranked as follows with respect to the palatalization strategy:

Grade I: sibilants, coronal implosives, and coronal nasals.
Grade II: all coronal consonants not in Grade I.
Grade III: all non-coronal consonants not in Grade IV.
Grade IV: voiced velar continuents.

Palatalization strategy (strictly ordered).

1. Obl. for all grade I consonants everywhere in the root.
2. If no grade I consonant in the root, then obl. for one grade II consonant. (final is preferred)
3. If no grade I or grade II consonants in the root, then obl. for one grade II consonant. (final is preferred)
4. Opt. for a second grade II or grade III consonant. (final is preferred).
5. Never applies to grade IV consonants. There are no polysyllabic roots containing only grade IV consonants.

The combined result of (R5) and (R6) is a verb stem which ends in /-a/ and contains no less than one +PAL consonant. The system of ranking in (R6b) and the proposed strategy succeeds in describing most of the data.
Sample derivations showing how verb stems are marked for +MOTION-TO-SPEAKER:

/la/ 'cut' /xə/ 'shoot'

(R6a)  yila
(R5)   xa
(Pl)   yile [kəə] 'cut and come' (Pl) yxe [kəə] 'shoot toward speaker'

/wəbə/ 'drink a mouthful, 15

(R5)  wəba
(R6b) yəsəba
(Pl)  yəsəba [ʃəba] 'drive here'
(P6)  yəwəyə

[wəkəla/ /wəkəla/ /wəkəla/ 'fall'

(R6b) wəkəla
(R6b) wəkiyəla
(R6) wəkiyəla
(Pl) wəkəyəla (Pl) wəkiyəle (Pl) wəkiyəle
(Pl) wəkəyəle (Pl) wəkiyəle (P6) wəkiyəle [kwəvəkə] [kwəkə] 'fall toward speaker'

(P6) wəkəyəle
Sample derivations showing how verb stems are marked for both +MOTION-TO-SPEAKER and +REPEATED-ACTION:

/la/ 'cut'

(R1) lala
(R3) la:la
(R6b) la:ylə
(F1) la:ylə

[la:ylə] 'cut repeatedly and come'

/səba/ /səba/ 'drive away'

(R2) saba (R2) saba
(R3) sa:ba (R3) sa:ba
(R6b) ysa:ba (R4) sasa:ba

[sa:ba] (R6b) ysa:ba

(pl) ysa:ba

[sa:ba] 'drive here repeatedly'
\(/^{w}kîla/ \quad \text{/'fall'}\)

(R2) \(^{w}kala\)
(R3) \(^{w}ka:la\)
(R6b) \(^{w}ka:ylə\)
(F1) \(^{w}ka:ylɛ\)
(F6) \(^{w}kwa:ylɛ\)

[\(^{kwa:ɛɛ}\) 'fall repeatedly toward speaker']
FOOTNOTES

*This thesis is based on four years of field work which began in July 1970 when my wife, Nancy, and I took up residence in Lamurde village near Mubi, Nigeria. We were working under a cooperative agreement between the Institute of Linguistics (a branch of the Summer Institute of Linguistics, Inc.) and Amadu Bello University. Our work to date has included (1) the establishment of a community approved practical orthography, (2) preparation of literacy materials (literacy has been primarily my wife's responsibility), (3) the collecting, editing, and publishing of folk tales, (4) teacher training for adult literacy work, and (5) Scripture translation. We plan to continue our work until a locally run adult literacy program is well established and the whole of the New Testament is translated and published.

I have benefited greatly from the help of Mr. David Dahiru Shala, my principal secretary and language informant. I wish to acknowledge my gratitude to him and to the other men who have patiently tried to teach me their language: Amos Jali Njairi, Halilu Nyada, Mohammed Ahmadu Mashi, and Yusufu Alhaji Nwanwi. All of these informants are natives of Lamurde village.

Over the years I have received invaluable assistance from my colleagues in the Summer Institute of Linguistics, Katy Barnwell, Joseph Grimes, and Roger Mohrlang, and, of course, this paper would not have been possible without the generous assistance of my O.S.U. instructors, especially Dr. Iise Lehiste and Dr. David Stampe. Needless to say, any errors or oversights in this thesis are my own responsibility.

1 These names are cited in the Standard Orthography of Gude with tone marks added. Accute accent ' marks high level tone, and grave accent " marks low level tone. Names in parentheses are versions used by the local government.

2 The exact situation is hard to determine since the Fali area is mountainous and most villages are relatively inaccessible. I know from personal experience that Gude is mutually intelligible with Fali of Vintim and Fali of Bahuli.

3 In that paper Dr. Hoffman arrived at some of the same conclusions which I had independently proposed in a preliminary report on Gude phonology filed with the Institute of Linguistics (Zaria) in March of 1972. I am
extremely grateful to Dr. Hoffman for thoroughly searching out and commenting on all the existing bibliographic references relating to Gude. Had his paper been written a year earlier, it would have no doubt saved me many months of headache.

4Note that in the theory of natural phonology underlying segments are believed to be fully specified feature matrices (sometimes referred to as "phonemes") which may be altered or deleted by natural processes. The reader should note that I am not using the terminology of structuralist phonology and that I am not making a phoneme vs. allophone distinction.

5All examples in sections 2.1 to 2.3 are chosen so that the exemplified segments occur in analogous environments, i.e. initially before non-high vowel and, where possible, medially between non-high vowels. The wide range of possible vowel "allophones" is not indicated in the transcriptions. Evidence that the proposed segments do contrast may always be obtained by direct comparison of the corresponding examples. Proof of segment contrast is a trivial matter and will be left implicit in the examples.

6Color is a cover term for secondary articulations corresponding to vocalic labio-velarization, as in [w,u], and to vocalic palatalization, as in [y,i]. It has been used by Miller (1972) as a cover term for the corresponding vowel features. I adopt the cover term here because in Gude, as also in certain Caucasian languages (Trubetzkoy, 1963), vowels assimilate these two secondary articulations of consonants in a parallel fashion.

7Two different sets of symbols are used here. In Table 2 and with the following definitions, I am using the raised w diacritic, ^=, to emphasize that we are talking about a single underlying segment and not an underlying sequence of segments. The examples, however, are carefully transcribed in IPA so as to give the actual phonetic value of the surface form. Accute accent ^ means high level tone, and grave accent _ means low level tone. [y] is used in place of IPA [j], and [a] is used in place of IPA [a].

8Again two different sets of symbols are used (cf. footnote 7). The raised y diacritic, ^=, is used to emphasize the fact that in the underlying representation palatalization is a feature of the consonant. IPA is used in the examples and in Table 4 to characterize as
closely as possible the actual phonetic value of the
surface form.

9 See section 3.0 for a description of the vowel
system.

10 There has been much discussion, see Chomsky
and Halle (1968), Herbert (1974) and Ladefoged (1964),
about whether or not pre-nasalized consonants are to be
analyzed as one segment or two. The debate centers
around the status of [mb, nd, ndz, ng] only. Nasal-
plus-consonant sequences are always analyzed as two
segments if (1) the nasal is not homorganic to the
following consonant, (2) the following consonant is not
voiced, or (3) the following consonant is not a stop.

11 "Color A" and "color B" are abbreviatory
conventions which mean that if color A is PAL then color
B is RD, or if color A is RD, then color B is PAL.

12 These examples are citation forms (as pro-
nounced in isolation). The items in the first column are
all nouns belonging to a class which obligatorily takes
the suffix -nà in citation forms. The demonstrative
suffix -tì when added to nouns of this class, always
lengthens the preceding stem vowel. As for the surface
forms of the suffixes, a special rule changes the final
vowel of -tì to -ta before pause and the pre-pause pro-
cesses described in section 2.4 change underlying -nà
to surface -n and underlying -ta to -ta:

There are other vowel lengthening suffixes which I
might have chosen to illustrate how long [u:] and long
[i:] may arise.

13 These are rules (of the grammar) and not natural
processes.

14 The class of verbs which end in */-ì/ are
redundantly marked for +COMPLETIVE ASPECT by a root
internal palatalization rule very similar to (R6). It is
the same as (R6) except for the following minor differences:
a) (R6a) becomes opt. for grade II and III.
b) (R6b) strategy 2. becomes opt.
c) (R6b) strategy 3. becomes opt.

15 We see in this derivation how (R6a) accounts
for most of the rare occurrences of consonants which are
both +RD and +PAL. The result is always [Cγε] and
never *[Cγε] or *[Cγλ].
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