

## TONE AND AFFIXATION IN HAUSA\*

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In terms of their tonal behavior, Hausa affixes can be divided into two types. Tone integrating affixes (TIA's), all of which are suffixes, spread their tone(s) over the stem to which they are attached, overriding lexical stem tone in the process. Tonal assignment takes place in a regular right-to-left manner. Tone non-integrating affixes (TNI's) do not affect stem tone, the tone of resultant words simply being the sum of the parts. Most inflectional and derivational suffixes in Hausa, e.g. noun plurals and verbal grades, are tone integrating. Tone non-integrating affixes include a few suffixes, e.g.  $\grave{w}áa$  "participial" and  $-áa$  "feminine", and the prefixes  $bà-$  "ethnonymic" and  $má-$  "agential/instrumental/locational". Stems in Hausa typically drop their final vowel when a TIA is added; with most, but not all, TNI's, the stem-final vowel is retained.

### 0. Preliminaries

With respect to tone, Hausa has two different kinds of affixes. Some affixes affect the lexical tone of the stem by overriding it, while others do not affect the stem tone. This distinction, which to my knowledge has not been reported explicitly for a tone language (although it is probably not uncommon) is comparable in many respects to the differing behavior of affixes found in many languages with regard to stress placement (see Hyman [1977:70, note 10]). In this paper, I propose to document fully the distinction in Hausa between these two affixal types and to discuss the nature of the differ-

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ences between them.

Hausa is a language with two basic tones: Hi, indicated á (or áa on a long vowel), and Lo, indicated à or àa. Falling tones are surface manifestations of Hi + Lo on a single heavy syllable, e.g. [Cáa] = /.Cáa./<sup>HL</sup>, [Cân] = /.Cân./<sup>HL</sup>, etc. Hausa does not have rising tones: Lo + Hi on a single syllable is simplified to Hi [Parsons 1955:385n; Leben 1971]. Non-derived words typically have underlying tonal patterns that contain the same number of tones as syllables, e.g. (jáa)<sup>H</sup> 'pull', (wàa)<sup>L</sup> 'who?', (jàakíi)<sup>LH</sup> 'donkey', (fáadi)<sup>HL</sup> 'fall', (wúfáa)<sup>HH</sup> 'fire', (màcè)<sup>LL</sup> 'woman', (yàamútsà)<sup>LHL</sup> 'be mixed up', and (káǎntá)<sup>HLH</sup> 'read'.<sup>1</sup> Much less common are words that are underlyingly specified with more or less tones than syllables, e.g. (jíráa)<sup>H</sup> 'wait for', (mântá)<sup>HLH</sup> 'forget', and (sháidàa)<sup>LHL</sup> 'witness', (< \*shàfàa).

With morphologically complex words, i.e. derived or inflected words, it is usually the case that there are more syllables than tones. The actual tones found on the words are accounted for by regular tonal assignment in a right-to-left direction,<sup>2</sup> e.g.

- (1)
- |  |   |              |                   |
|--|---|--------------|-------------------|
|  | = | /búhúnhúnàa/ | 'sacks'           |
|  | = | /bàbbàbbàkú/ | 'be well roasted' |
|  | = | /cìnikáyàa/  | 'mutual trade'    |

<sup>1</sup>In this paper I have adopted the general approach and idiom of autosegmental phonology [Goldsmith 1979]. I have not, however, adhered to the principle that has been proposed for simplifying the representation of adjacent like tones, the "Obligatory Contour Principle" (see Leben [1978] and Odden [1986]).

<sup>2</sup>In most autosegmental works, tone is assigned in a left-to-right manner, a direction explicitly adopted by Clements and Ford [1979] as a general convention. While Hausa could, with some effort, be analyzed to conform with

Segments falling within the domain of a single tone pattern will be enclosed in parentheses. In keeping with the rule of right-to-left assignment, tone will be indicated attached to the right parenthesis. Tone marks on the vowels show the occurring tones after tone assignment, e.g.

- (2) (kákkáǎàntá)<sup>HLH</sup> 'reread'  
 (bàbbàbbàkú)<sup>LH</sup> 'be well roasted'  
 (líkítóocí)<sup>HH</sup> 'doctors'

An important morphologically conditioned segmental change that accompanies affixation is the loss of stem-final vowels. In most lexical constructions, the stem-final vowel is automatically dropped when a suffix is added, e.g.

- (3) hántàa 'liver' + únàa 'pl' → hántúnàa 'livers'  
 fítá 'go out' + óo 'ventive' → fítóo 'come out'

Since this vowel dropping is so general, it will be taken for granted and not commented on in the individual cases.

Another segmental change that needs to be kept in mind so that the examples presented can be followed clearly is palatalization before front vowels. In the environment of i(i) and e(e) the alveolars s, z, †, and (less regularly) d become sh, j (= [ʝ]), c (= [ç]), and j, respectively, while w palatalizes to γ. This is a phonological rule of a very general nature that affects lexical as well as derived forms, e.g.

- (4) géézàa 'shrub' + óocíi 'pl' → géézóojíi 'shrubs'  
 bàréewáa 'gazelle' + íi 'pl' → bàrèeyíi 'gazelles'  
 gúdù 'run' + èe 'totality' → gújèe 'run away'  
 máashìi 'spear' + úu 'pl' → máasúu 'spears'  
 háncìi 'nose' + únàa 'pl' → hántúnàa 'noses'

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this usual direction, the overall facts strongly suggest that as far as this language is concerned, tone assignment operates from right to left.

### 1. Tone Integrating Affixes

Affixes that override the tone of the stem are called tone integrating affixes (TIA's). Whenever the affix is added to a stem, the original tone of the stem is obliterated and the affixal tone extends over the entire word. All TIA's in Hausa are suffixes (with or without accompanying infixal changes); no prefixes are tone integrating. Tone integrating suffixes are indicated by an open right parenthesis, i.e. ...)<sup>T</sup>. The replacement of the stem tone by the affixal tone is accounted for by the following rule of parallel open parentheses.

$$(5) \quad (...)^{T_1} + (...)^{T_2} \rightarrow (\dots\dots)^{T_2}$$

What this says is that the surface tone is arrived at by applying the suffixal tone to the entire word within one pair of parentheses and then assigning the tone in the required right to left manner, e.g.

$$(6) \quad (...)^{LHL} + (...)^{LH} \rightarrow (...)^{LH}$$

wakiilii + ai → (wakiilai)<sup>LH</sup> /wàkìiláí/ 'representatives'  
 representative pl

TIA's are found in a wide range of inflectional and derivational formations in Hausa. The following categories are illustrative only and do not exhaust the full inventory of word formation processes in the language.

1.1. Nominal plurals. Plurals in Hausa are formed by a large variety of suffixes often accompanied by infixation, gemination, or reduplication. All of the plural suffixes are TIA's, e.g.

$$(7) \quad \begin{array}{llll} \text{a. } (\text{taatsuuniyaa})^{\text{LHLH}} + (\text{ooCii})^{\text{HH}} & \rightarrow & (\text{táatsúuníyóoyíi})^{\text{HH}} & \text{'folktales' } \\ \text{b. } (\text{riigaa})^{\text{LH}} + (\text{unaa})^{\text{HL}} & \rightarrow & (\text{rígúnàa})^{\text{HL}} & \text{'gowns' } \\ \text{c. } (\text{zoomoo})^{\text{HH}} + (\text{aayee})^{\text{HLH}} & \rightarrow & (\text{zóomàayéé})^{\text{HLH}} & \text{'hares' } \\ \text{d. } (\text{raanaa})^{\text{HH}} + (\text{aikuu})^{\text{LH}} & \rightarrow & (\text{ràanàikúu})^{\text{LH}} & \text{'days' } \\ \text{e. } (\text{hankaakaa})^{\text{LHL}} + (\text{ij})^{\text{LH}} & \rightarrow & (\text{hànkàakíi})^{\text{LH}} & \text{'crows' } \\ \text{f. } (\text{jimínaa})^{\text{LHH}} + (\text{uu})^{\text{LH}} & \rightarrow & (\text{jìmìnúu})^{\text{LH}} & \text{'ostriches' } \\ \text{g. } (\text{yaatsaa})^{\text{HL}} + (\text{uu})^{\text{HH}} & \rightarrow & (\text{yáatsúu})^{\text{HH}} & \text{'fingers' } \end{array}$$

In Parsons [1975:438ff.], examples such as *jìmìnúu* and *yáatsúu* are interpreted as manifestations of the same *-uu* plural marker. In my opinion, this approach seriously underestimates the importance of tone as an essential component of Hausa affixes. If one focuses on tone, one comes up with what is probably a more accurate grouping of plural forms. The form *yáatsúu* and other HH plurals with final *-uu* belong with the small class of HH plurals with final *-aa*, which includes very basic words such as *mázáa* 'men' (sg. *míjìi*), *díyáa* 'children' (W. dialect) (sg. *díyáa*); while plurals such as *jìmìnúu* represent a variant of the large high vowel LH plural class that includes words such as *hànkàakíi* 'crows', and *bàrèeyíi* 'gazelles'. It is hardly accidental that many words allow either *-ii* or *-uu* in this plural class, e.g. *jìgàawúu* = *jìgàayíi* 'sandy soil', *kàntàngúu* = *kàntàngíi* 'water pot necks'.

1.2. Derivational nouns. Nominal derivations, whether from noun or verb stems, are generally formed by suffixing a TIA, e.g.

- (8) a. Abstract:  
 (yaaroo)<sup>HL</sup> + antakaa)<sup>LHL</sup> → (yàaràntákàa)<sup>LHL</sup> 'childishness'
- b. Abstract:  
 (shuugabaa)<sup>LLH</sup> + ancii)<sup>HL</sup> → (shúugábáncíi)<sup>HL</sup> 'leadership'
- c. Language:  
 (katsina)<sup>LHL</sup> + ancii)<sup>HH</sup> → (kátsínáncíi)<sup>HH</sup> 'Katsina dialect'
- d. Mutuality:  
 (soo)<sup>H</sup> + ayyaa)<sup>LHL</sup> → (sòoyáyyàa)<sup>LHL</sup> 'mutual affection'  
 love
- e. Excess/Habit:  
 (makara)<sup>LHL</sup> + au)<sup>LH</sup> → (màkàráu)<sup>LH</sup> 'dilatatory person'
- f. "ANSQ":  
 (zurf-)<sup>?</sup> + ii)<sup>HH</sup> → (zúrfíi)<sup>HH</sup> 'depth'

With words such as *fáadíi* 'breadth', *tsáamíi* 'sourness', *náuyíi* 'heaviness', which Parsons [1955] calls "abstract nouns of sensory quality" (ANSQ's),

the stem never occurs independently. It either occurs in the ANSQ, e.g. zúrfíi 'depth', or in another derivation, e.g. zùzzúrfáa 'deep', zúrfàfá 'deepen'. Since ANSQ's constitute a lexically non-productive closed set, they have generally been treated as monomorphemic words that just happen to have HH tone and end in -ii. The interpretation offered here of ANSQ's as derived nominals containing a TIA seems analytically preferable in that it provides a simple explanation as to why these words all share a common phonological shape.

1.3. Nominalizations (verbal nouns and deverbative nouns). Verbo-nominal forms that generally translate as English present participles or gerunds are derived from verb stems by a variety of different means. With regard to what Hausaists call "secondary verbal nouns" (to distinguish them from the more regular, inflectional verbal nouns) it is not predictable what nominal form will correspond to what verb. All of the secondary verbal noun types are formed with tone integrating suffixes which override underlying verb stem tone,<sup>3</sup> e.g.

- (9) a. (gína)<sup>HL</sup> + (ii)<sup>HL</sup> → (gínìi)<sup>HL</sup> 'building'  
 b. (hářbi)<sup>LH</sup> + (ii)<sup>HL</sup> → (hářbìi)<sup>HL</sup> 'shooting'  
 c. (tagangana)<sup>LHL</sup> + (ee)<sup>LH</sup> → (tågàngànéé)<sup>LH</sup> 'sitting with legs apart'  
 d. (jeefi)<sup>LH</sup> + (ii...aa)<sup>HL</sup> → (jífàa)<sup>HL</sup> 'throwing'

Verbal nouns ending in -oo present an analytical problem that needs to be acknowledged although I shall not pursue it at this time. Contrary to the usually close fit between suffix and tone, at least in the case of disyllabic forms, oo-final verbal nouns appear with three different tone patterns: LH, HL, and (less often) HH, e.g.

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<sup>3</sup>Verbs are presented in what I consider to be their underlying lexical form. Since the final vowel is dropped and the stem tone overridden when a suffix is added, differences about the correctness of the abstract form that I have postulated are irrelevant here.

- (10) a. LH: kòoyóo 'learning' ( < kòoyí )  
           yàbóo 'praise' ( < yàbí )
- b. HL: róoròo 'harvesting' ( < ròorí )  
           ríkòo 'holding' ( < ríkí )
- c. HH: 'áróo 'borrowing' ( < 'arí )  
           dígóo 'dripping' ( < dígá )

1.4. Verbal extensions ("grades"). In the system of Parsons [1960] (modified by Newman [1973]), Hausa verbs occur in various morphological classes, termed "grades". While there is considerable difference of opinion in how the "primary" (more or less semantically neutral) grades should be analyzed, there is general agreement that the secondary (and tertiary) grades are formed by means of extensional suffixes. These are all tone integrating, e.g.

- (11) a. Totality: (sayi)<sup>LH</sup> + e)<sup>HL</sup> → (sáyè)<sup>HL</sup> 'buy up'
- b. Efferential: (tuura)<sup>HL</sup> + aĩ)<sup>H</sup> → (túuráĩ)<sup>H</sup> 'push away'
- c. Ventive: (dafa)<sup>HL</sup> + oo)<sup>H</sup> → (dáfóo)<sup>H</sup> 'cook and bring'
- d. Sustentative: (dafa)<sup>HL</sup> + u)<sup>LH</sup> → (dàfú)<sup>LH</sup> 'be well cooked'

1.5. Statives and past participles. Adverbial statives and adjectival past participles are formed in a totally regular manner from any verb by suffixing a TIA, e.g.

- (12) (zauna)<sup>HL</sup> + e)<sup>LH</sup> → (zàuné)<sup>LH</sup> 'seated'
- (dafa)<sup>HL</sup> + e)<sup>LH</sup> → (dàfé)<sup>LH</sup> 'cooked'
- (e.g. 'àbínčí yánàà dàfé 'the food is cooked' )
- (gaagara)<sup>LHL</sup> + aCCee)<sup>LHH</sup> → (gàagàràrrée)<sup>LHH</sup> 'unmanageable'
- (dafa)<sup>HL</sup> + aCCee)<sup>LHH</sup> → (dàfáffée)<sup>LHH</sup> 'cooked'
- (e.g. 'àbínčí dàfáffée nèè 'it is cooked food' )<sup>4</sup>

<sup>4</sup>The past participle, with its tonally atypical LHH suffix, is probably derived historically from a regular LH-LH reduplicated form built on a sta-

1.6. Imperatives. Unlike other tenses/aspects in Hausa, which are indicated by a preverbal marker and do not affect the lexical tone (basic or derived) of the verb, the imperative is marked by a set LH tone pattern that overrides lexical tone.<sup>5</sup> Although the imperative is not marked segmentally,<sup>6</sup> one can still consider it to be a suffix, albeit a strictly tonal one, e.g.

- (13) (taashi)<sup>HL</sup> + -∅<sup>LH</sup> → (t̄aashí)<sup>LH</sup> 'get up!'  
 (sunkuya)<sup>LHL</sup> + -∅<sup>LH</sup> → (s̀unkùyá)<sup>LH</sup> 'bend down!'

1.7. Multiple suffixes. When a word contains more than one TIA, it is the outermost (rightmost) tone pattern that prevails, e.g.

- (14) (daka)<sup>HL</sup> + aCCee)<sup>LHH</sup> + uu)<sup>LH</sup> → (d̀ak̀ak̀k̀úu)<sup>LH</sup> 'pounded' (pl.)  
 pound adj. pp pl.  
 (zaabuřa)<sup>LHL</sup> + oo)<sup>H</sup> + -∅<sup>LH</sup> → (z̀aab̀ùřóo)<sup>LH</sup> 'gallop (here)!'  
 gallop Ventive Imp

## 2. Tone Non-Integrating Affixes

With tone non-integrating affixes (TNI's), the stem preserves its lexical tone and the tone of the word is made up of the juxtaposition of the two tonally specified constituents (stem and affix). TNI's are indicated by closed parentheses (...) <sup>T</sup> to show that the affix is not able to incorporate the stem in its tonal domain. Given the basic pattern of right to left tone assignment

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tive-like stem, e.g. \*d̀àfé-d̀àfé → d̀àfédfě (syncope with preservation of the L tone) → d̀àféffé (consonantal assimilation and LH to H simplification) → d̀àfáffée (lowering of /e/ to /a/ in closed syllables and final vowel lengthening of nominals and adjectivals).

<sup>5</sup>I'm simplifying the facts here: grade 1 and grade 4 verbs, for example, manifest LL rather than LH before noun direct objects. For a full discussion of Hausa imperatives, see Jaggar [1982].

<sup>6</sup>In Newman [1973:302], I suggested that the imperative of certain grades of verbs employed a segmental suffix -i (cognate with a similar suffix found in closely related Chadic languages) in addition to the distinctive tone pattern. While this could be correct, I now tend to think that the imperative is segmentally zero and that the -i that shows up with certain verbs is a reflex of the historically original (if not synchronically underlying) lexical final vowel.

in Hausa, it is not surprising that the prefixes (of which there are only two, leaving reduplication aside) are tonally non-integrating. In addition, there are a few tonally autonomous, non-integrating suffixes.

2.1. Referential marker. To indicate that a noun is definite and previously referred to, one adds a suffix  $(n/\tilde{r})^L$ . (Feminine singular nouns take  $/\tilde{r}/$ , the tap/roll  $\tilde{r}$  being a reflex of syllable final  $*\dagger$ , while plural and masculine singular nouns take  $/n/$ .) The suffix is added to the stem with the stem tone and final vowel intact. If the stem ends in a high tone, the suffixal low surfaces as a falling tone on the word-final syllable; if the stem has a final low tone, the suffixal tone does not surface. (The shortening of the stem-final vowel in the examples is due to a general, low-level P-rule that automatically shortens vowels in closed syllables.)

- (15)  $(jaakii)^{LH} + (n)^L \rightarrow j\grave{a}ak\grave{i}n$  ( $< j\grave{a}ak\grave{f}\grave{i}n)^{LHL}$  'the donkey'  
 $(saatacce)^{LHH} + (n)^L \rightarrow s\grave{a}at\acute{a}cc\hat{e}n$  'the stolen one'  
 $(riigaa)^{LH} + (\tilde{r})^L \rightarrow r\grave{i}g\hat{a}\tilde{r}$  'the gown'  
 $(guugaa)^{HL} + (\tilde{r})^L \rightarrow g\acute{u}ug\hat{a}\tilde{r}$  'the rubbing'  
 $(harsunaa)^{HL} + (n)^L \rightarrow h\acute{a}rs\acute{u}n\grave{a}n$  'the languages'  
 $(zooaayee)^{HLH} + (n)^L \rightarrow z\acute{o}om\grave{a}y\hat{e}n$  'the hares'

2.2. Participial ending. In the continuous/progressive tenses, verbs in certain grades add a participial ending  $(-waa)^{LH}$  when not followed directly by an object. (The verb can be intransitive or it can be transitive with the postverbal object not present, either because it has been preposed or because it is understood.) The high tone of the suffix associates with the syllable  $/waa/$  while the low tone floats and combines with a preceding high tone to produce a falling tone.<sup>7</sup> If the stem-final vowel already has low tone, the

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<sup>7</sup>Given the representation  $(waa)^{LH}$  for this suffix, there shouldn't be a floating tone. Both the H and the L should associate with the syllable  $/waa/$ , the resultant  $\widehat{LH}$  automatically simplifying to  $\widehat{H}$ . This suggests that a better representation for this suffix would be  $(Vwaa)^{\widehat{LH}}$ , where V is a tone-

low tone of the suffix merges with it.

- (16) (dafa<sup>a</sup>)<sup>HL</sup> + (-waa)<sup>LH</sup> → dáfàawáa 'cooking'  
 (koomoo)<sup>H</sup> + (-waa)<sup>LH</sup> → kóomôowáa 'returning here'  
 (bincikee)<sup>HLH</sup> + (-waa)<sup>LH</sup> → bíncìkêewáa 'investigating'  
 (sayã)<sup>H</sup> + (-waa)<sup>LH</sup> → sáyâãwáa 'selling'

2.3. Feminine inflectional ending. Historically, Hausa had a toneless suffix \*-aa (which took its tone from the immediately preceding tone) that was used for feminine gender inflection and overt characterization (see Newman [1979] and Leben [1971]).<sup>8</sup> Due to the operation of vowel and glide epenthesis, this suffix now appears as /yaa/ , /waa/ , /iyaa/ , and /uwaa/ , as well as /aa/ . Originally the surface tones of the suffix were (H)H or (L)L depending on the stem-final tone. With the operation of the rule of low tone raising (a rule that changes LL to LH in final position if the last vowel is long [Leben 1971]) the originally LL /iyaa/ and /uwaa/ forms became LH. Since there is real doubt whether low tone raising still functions as an active phonological process in Hausa (Newman and Jaggat [1983]), I prefer to analyze (-aa)<sup>H</sup> synchronically as a tonally specified TNI rather than as a toneless suffix that

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bearing but segmentally non-specified vowel (a postulation that may have some historical justification). One should note that with verbs in grade 7, the u-final grade, the L of the suffix does not result in a falling tone, e.g. dàfúwáa 'being well cooked' (< dàfú), not \*dàfúwáa . There are two very different explanations for this, both consistent with the postulation of underlying LH tone for the ̀wáa suffix. The first is that a falling tone on /u/ can't occur for the simple reason that Hausa does not permit contour tones on light syllables. The second, proposed by Gouffé [1982], is that the /waa/ that appears with u-grade verbs is not in fact the same as the ̀wáa suffix that we are dealing with. Rather it is a primary verbal noun suffix -aa , preceded by an epenthetic glide /w/ , whose phonological similarity to the ̀wáa suffix is accidental.

<sup>8</sup>Leben [1971] accounts for the occurring tone of the underlyingly toneless suffix by a specific rule of tone copying. In a later paper [Leben 1978], he interprets the suffix as getting its tone from a more general autosegmental process of left-to-right tone assignment. In my opinion, Leben's earlier formulation was the correct one.

recapitulates the historical process. In either event, what is important is that the suffix is added to a full stem complete with tone and final vowel, e.g.

- (17) (beebee)<sup>HH</sup> + (aa)<sup>H</sup> → béebíyáa 'deaf mute' (fem.)<sup>9</sup>  
 (shuudii)<sup>HL</sup> + (aa)<sup>H</sup> → shúudíyáa 'blue' (fem.)  
 (kaatoo)<sup>HL</sup> + (aa)<sup>H</sup> → káatùwáa 'huge' (fem.)  
 (baakoo)<sup>LH</sup> + (aa)<sup>H</sup> → bàakúwáa 'foreign' (fem.)

2.4. Feminine derivational ending. A small number of Hausa nouns indicating animate beings (mostly humans and large animals) have corresponding female forms ending in /nìyáa/, with three syllable stems, and /ányàa/ (or /ínýàa/) with CVCV stems, both < \*ánìyáa. Viewed historically, the suffix is almost certainly bimorphemic, being made up of a derivational HL suffix \*ánÈ (where E was /e/ or /i/) plus the toneless feminine inflectional suffix \*-aa (Leben [1971, 1978]). Synchronically the two components of the suffix are indistinguishable. The (-niyaa)<sup>HLH</sup> allomorph operates tonally as a non-integrating affix in that it does not override the initial tone of the stem, e.g.

- (18) (makaafoo)<sup>LHL</sup> + (niyaa)<sup>HLH</sup> → màkámniyáa or màkáuiniyáa  
 (< \*màkáfniyáa) 'blind woman'  
 (maraayaa)<sup>LHL</sup> + (niyaa)<sup>HLH</sup> → màráiniyáa 'orphan' (fem.)  
 (sarkii)<sup>LHH</sup> (< \*sàráakí) + (niyaa)<sup>HLH</sup> → sàráuniyáa  
 (< \*sàrákniyáa) 'queen'  
 (jinjirii)<sup>HLH</sup> + (niyaa)<sup>HLH</sup> → jínjinniyáa  
 (< \*jínjírniyáa) 'infant'

<sup>9</sup>In Leben [1971:215], the feminine form is given as béebíyáa with HLH tone, thereby engendering an elaborate analysis to explain the relationship between this and the HH masculine form. The fact is that the feminine form has all high tones, as would be expected, and the HLH citation is simply an unfortunate typographical error copied from the usually reliable dictionary of Abraham [1962:95].

Note that the final vowel of the stem is dropped when the suffix is added, unlike the normal case with TNI's. The weakening of the resultant syllable-final consonants to glides follows from the well described changes known as Klingenberg's laws (Klingenberg [1927/28]; Schuh [1974]; Newman and Salim [1981]).

Masculine/feminine pairs illustrating the /ányàa/ allomorph— /ínyàa/ in a few words—are given in (19).

- (19) záakìi , záakányàa 'lion', 'lioness'  
 báraa , barányàa 'servant'  
 kúusùu , kúusányàa 'rat'  
 bóokáa , bóokányàa 'native doctor'  
 yáarò , yáarínyàa 'boy', 'girl'

In all of the examples in (19) the initial tone of the stem is high, thus the corresponding feminine form would appear as it does whether the suffix were tone-integrating or not. To test whether the suffix is a TIA or a TNI, i.e. anyaa)<sup>HL</sup> or (anyaa)<sup>HL</sup>, one would need to find a receptive masculine stem with initial low tone. I know of only one such word, namely màazóo (= màajíi) 'harnessed antelope', whose feminine counterpart is máazányàa! On the basis of this example, we can identify anyaa)<sup>HL</sup> as a TIA, e.g.

- (20) (maazoo)<sup>LH</sup> + anyaa)<sup>HL</sup> → (máazányàa)<sup>HL</sup>

This result seems natural and would hardly be surprising were it not for the fact that the /<sup>ˀ</sup>nìyáa/ allomorph of the same feminine derivational morpheme was shown above to be tone *non*-integrating, i.e. the feminine form corresponding, for example, to (mùtùm)<sup>LHL</sup> 'man, inhabitant' is mùtúunìyáa (< mùtúmnìyáa) not \*mùtúunìyáa.

2.5. Agentials, instrumentals, and locationals. Like so many other Afro-asiatic languages, Hausa has a ma- prefix that serves to form nouns of agent, instrument, and place from verb stems, e.g.

- (21) mářùbùucíi 'writer' < řúbùutá 'to write'  
 mábúudíi 'opener' < búudè 'to open'



of Churma [1975]).<sup>10</sup>

- (23) (máhàifí) + iyaa)<sup>HLH</sup> → (máhàifìyáa)<sup>HLH</sup> 'mother'  
 father  
 (má'áikàcífí) + iyaa)<sup>HLH</sup> → (má'áikàcìyáa)<sup>HLH</sup> 'fem. worker'  
 (mákàřàncí) + iyaa)<sup>HLH</sup> → (mákàřàncìyáa)<sup>HLH</sup> 'fem. reader'

With all *ma-* constructions, the plural is formed by a tone integrating suffix that is added to the derived word including the TNI prefix,<sup>11</sup> e.g.

- (24) (mágìnfi) + aa)<sup>HLH</sup> → (mágìnáa)<sup>HLH</sup> 'builders'  
 (mábúudí) + ai)<sup>LH</sup> → (màbùudáí)<sup>LH</sup> 'openers'  
 (má'áikátáa) + uu)<sup>LH</sup> → (mà'áikàtúu)<sup>LH</sup> 'work places'

2.6. Ethnonyms. Nouns indicating a person's nationality or origin or qualities associated therewith are formed with a prefix *ba-* (see Newman [1984]), and they usually manifest a set LH\*L tone pattern, e.g. *bàkàtsínèè* 'a Katsina man'. The analysis just presented for *ma-* words applies equally to *ba-* words. The prefix *ba-* is tonally autonomous; it has intrinsic low tone and does not get its tone from the overall tone melody as previously thought. The set tone pattern associated with ethnonyms comes not from *ba-*, but from the

<sup>10</sup>I would offer the following speculation as to how the present agential forms historically came about. Originally, the feminine was formed from the masculine by the addition of the toneless suffix *\*-aa*. (In accordance with the general rules of feminine formation [Newman 1979], high tone *-i* plus *-aa* was realized as *-aa* without an epenthetic glide.) The plural made use of a suffix *\*-an* and HLH tone. Thus, with a root such as *gínà* 'build with mud', the three forms of the agential 'potter' would have been *\*mágìní* (m), *\*mágìnáa* (f), *\*mágìnán* (pl). Subsequently, word-final nasals were lost in Hausa, a change well documented by Schuh [1976], thereby resulting in plural forms such as *mágìnáa*, which were no longer distinguishable from the feminine forms. At this point Hausa innovated and created a new feminine derivational suffix *-iyaa* with its own intrinsic tone pattern on the model of the surface *-iyaa* feminine endings so widespread in the language.

<sup>11</sup>The feminine and plural formations suggest some kind of cyclic operation in the word building rules. While *má-*, for example, is a tonally autonomous TNI to begin with, once it fuses with a stem it becomes subject to the tonal properties of any subsequently added TIA.



- (28) (bàřúumèe) + ai)<sup>LH</sup> → (bàřúumái)<sup>LH</sup> 'Roman (pl)'  
 (as in Roman swords)
- (bà'ábzìní) + ai)<sup>LH</sup> → (bà'ábzìnái)<sup>LH</sup> 'Asben (pl)'  
 (as in Asben horses)

### 3. Discussion

Having surveyed a considerable range of affixes we are now in a better position to say something about the tone integrating, tone non-integrating dichotomy. To begin with, assignment to TIA or TNI is not haphazard. It appears that the typical, unmarked case in Hausa is for derivational and inflectional suffixes to be tone integrating. The affixes that need explaining are the TNI's, the ones that leave the stem tone unperturbed. These do not constitute a single coherent class; rather, the individual affixes appear as TNI's because of one or more of the following factors. (a) Prefixes in Hausa are tonally autonomous and non-integrating, i.e. the stated norm only applies to suffixes. (b) Clitics, unlike true suffixes, are non-integrating because they are semi-independent and tonally autonomous. The referential markers—derived from the definite articles \*nà and \*tà—though phonologically bound to the preceding nominal stem, are nevertheless clitics with a different status from that of suffixes such as the plural. (c) Formerly toneless suffixes that have only historically recently acquired a distinct tonal specification, e.g. the feminine -áá and the ethnonymic -íí, are non-integrating presumably because they are tonally too weak to spread their tone. (d) Suffixes that segmentally are not integrated sufficiently to cause the stem vowel to drop, the deletion being a regular feature of TIA's, are tonally non-integrating. The participial ending ̀wáá, which one would characterize on syntactic and semantic grounds as a close verbal inflection, is weakly linked morphologically since it is added to a segmentally intact stem rather than being fused to it.<sup>12</sup>

<sup>12</sup>Grade 7 verbs with /waa/ have as an alternative a contracted, phonologically fused form, e.g. yànkúwáa = yànkóo 'cuttable'; tàunúwáa = tàunóo 'chewable'; sàyúwáa = sàyóo 'buyable'. This may be evidence in support of Gouffé's view (see footnote 7) that the surface /wáa/ seen here is not the same as the ̀wáa morpheme.

(e) Finally, one is left with the problem of the feminine derivational ending  $-ányàa/`nìyáa$ , where one allomorph is tone integrating and the other non-integrating. From what we have seen throughout the paper, it is clear that it is the  $`nìyáa$  variant that is aberrant, i.e. as a derivational suffix that is added to a stem less the final vowel it should be tone integrating. The only explanation that I can offer at this point is that  $sàráunìyáa$  'queen',  $màkáunìyáa$  'blind woman', and the three or four other words that make up this small class are simply listed in the lexicon as such. That is, while historically  $`nìyáa$  may have functioned as a (semi-)productive derivational suffix, synchronically the stems with  $`nìyáa$  constitute lexically frozen forms.

#### 4. Conclusion

This paper presents a model for viewing the influence of affixal processes on tone in Hausa. Two types of affixes are distinguished: tone integrating and tone non-integrating. Tone-integrating affixes, all of which are suffixes are specified with a distinct tone pattern that extends over the entire word within its domain, thereby obliterating the underlying stem tone. The tone of the word containing the suffix is arrived at by right-to-left assignment of the suffixal tone pattern. TIA's include nominal plurals, verbal grades, statives, past participles, verbal nouns, and nominal derivations such as abstract, language, agential (co-occurring with the prefix  $má-$ ) and ethnonym (co-occurring with the prefix  $bà-$ ). Tone non-integrating affixes do not affect the tone of the stem to which they are attached. The tone of the resultant word is simply the sum of the tones of the juxtaposed parts. TNI's include the agential/instrumental/locational prefix  $má-$ , the ethnonymic prefix  $bà-$ , the referential clitic  $h/\tilde{r}$ , the feminine inflectional marker  $-áa$  (and variant forms), and the progressive participial ending  $`wáa$ .

Of the two kinds of affixes, tone-integrating is clearly the norm for Hausa inflectional and derivational suffixes. This preference correlates with a segmental modification in Hausa, namely the dropping of stem final vowels when a suffix is added. The segmental and tonal behaviors combine in such a way that suffixation in Hausa becomes very much a synthetic process by which stem and affix fuse to produce a tightly bound new word.

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