BASICS OF HAUSA PHONOLOGY

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Consonants

The first row in each cell is IPA, the second row is standard Hausa orthography, the third row is the plain ASCII representation that we are using in machine parsable texts.

	BILABIAL	ALVEOLAR	(ALVEO-) PALATAL	PLAIN VELAR	LABIALIZED VELAR	PALATALIZED VELAR	LARYNGEAL
STOPS/AFFRI-CATES: VL		t t t	tʃ c c	k k k	k^w kw kw	k^j ky ky	ʔ[1] ' x
STOPS/AFFRI-CATES: VD	b b b	d d d	dʒ j j	g g g	g^w gw gw	g^j gy gy	
STOPS: IMPL	ɓ ɓ bx	ɗ ɗ dx	ʔʲ [2] 'y yx				
STOPS/AFFRI-CATES: EJEC		ts' ts ts		ƙ ƙ kx	$ƙ^w$ ƙw kxw	$ƙ^j$ ƙy kxy	
FRICATIVES: VL	ɸ f f	s s s	ʃ sh sh				h h h
FRICATIVES VD		z z z					
NASALS	m m m	n n n					
APPROXI-MANTS		l l l	r[3] ɽ[3] r r R r				
GLIDES	(w)		j y y		w w w		

[1]Words written with initial vowels have a glottal stop onset. This glottal stop is not marked in orthography or metrical coding. Medial glottal stops are written as apostrophe in orthography and as "x" in metrical coding.

[2]ʔʲ/'y/yx is the palatal(ized) counterpart of /ɗ/. Aside from a loanword or two from Fulfulde, all instances of this sound come from a single root meaning "offspring": (in orthography} *'ya* 'daughter', *'ya'ya*

'children', *'yanta* 'liberate', *'yanci* 'freedom'. The original is still heard in Western dialects as in *dîya* 'daughter'. The historical palatal counterpart to the other glottalized phonemes is *ts'* (pronounced [tʃ'] in some dialects), which corresponds to /ʔʲ/ in some of Hausa's West Chadic cousins.

[3]The two rhotics are contrastive, e.g. [barà:] 'seeking alms' vs. [baɽà:] 'servant'. The standard orthography does not mark the distinction. Modern linguistic works on Hausa leave /ɽ/ unmarked since it is lexically more common and mark the tap/trill with a tilda. In Newman (2000) for example, the two words here would be represented **bañà** and **barà** respectively.

Vowels

Vowel length is contrastive (though see remarks below for patterns of neutralization). The first row is IPA, the second row is standard orthogaphy, the third row is the plain ASCII representation that we are using in machine parsable texts. Linguistic studies of Hausa generally have used doubled vowels to mark length, but pedagogical works almost all use a macron, as shown in the fourth row. This marking is also used in most reference works on Hausa (see the bibliography for some books using this system).

	FRONT		CENTRAL		BACK	
	SHORT	LONG	SHORT	LONG	SHORT	LONG
HIGH	i	iː			u	uː
	i	i			u	u
	i	ii			u	uu
	i	ī			u	ū
MID	e	eː			o	oː
	e	e			o	o
	e	ee			o	oo
	e	ē			o	ō
LOW			a	aː		
			a	a		
			a	aa		
			a	ā		

There are two diphthongs, represented orthographically as **ai** and **au**. This representation seems phonologically correct. Long vowels are shortened in closed syllables (see below). When a syllable containing an underlying diphthong becomes closed, the high vowel mora is deleted parallel to deletion of the length mora of a long vowel, e.g. *mâi* 'oil' but *mâ-n-tà* 'her oil', *kyâu* 'beauty' but *kyâ-n-tà* 'her beauty'.

Tones

Tones and tone marking: Hausa has contrastive high (H) and low (L) tones. H+L can be conjoined on a heavy syllable to produce a phonetic falling tone (F). Hausa has no surface rising tone. Standard orthography does not mark tone, and tone has not been marked in texts coded for metrical parsing. A number of systems for marking tone have been used. Nearly all systems use acute accent (á) to mark H, grave accent (à) to mark L, and circumflex (â) to mark F. Some writers mark both H and L, some mark only L and F, some mark only H and F. Most writers who mark vowel length with doubled vowels put a tone mark only over the first vowel symbol.

		Both marked	Only L marked	Only H marked
'near'	HH	kúsá	kusa	kúsá
'Nile monitor'	HL	gúzàa	guzàa	gúzaa
'one'	LH	gùdáa	gùdaa	gudáa
'tin'	LL	kùzà	kùzà	kuza
'formerly'	F	dâa	*idem*	*idem*

Downdrift and phrase final flattening: As is typical in African languages with two-tone systems Hausa has *downdrift* (sometimes called "automatic downstep"), that is, in a HLH sequence, the second H has a lower pitch than the first. In an utterance like the following, with alternating H and L the overall pitch contour tilts down.

tanàa dakà daawàa [¯ _ ¯ _ – _] 'she is pounding sorghum'

Syllables

Syllable inventory: CV (V = short vowel)
CVV (VV = long vowel or diphthong)
CVC (V = short vowel; Hausa disallows extra-heavy syllables)

CV is metrically LIGHT
CVV, CVC are metrically HEAVY

	LIGHT 2ND SYLLABLE		HEAVY 2ND SYLLABLE	
LIGHT 1ST SYLLABLE	kusa	'near	gùdaa mùtûm	'one' 'person'
HEAVY 1ST SYLLABLE	daama Àlti	'right (side)' a woman's name'	daamaa girmaa teebũ̀r Mammàn	'opportunity' 'greatness' 'muezzin' a man's name

Some General Phonological Rules

CLOSED SYLLABLE VOWEL SHORTENING: VV → V /___C]σ

dookìi 'horse' **dookì-n** 'the horse'
kâi 'head' **kâ-n-kà** 'your (m.sg.) head'
reeshèe 'branch' **rêssaa** 'branches' (→ [râssaa]--see below)
kaamàa 'catch' /kaam-kàamaa/ → [kaŋkàamaa] 'catch repeatedly'

POST FINAL SHORT VOWEL /ʔ/ INSERTION: Ø → ʔ /[V, -long]___]PHRASE

gwàdò 'blanket' → [gʷàdòʔ] before pause
[gʷàdò] elsewhere, e.g. [gwàdò nee] 'it's a blanket'

MEDIAL SHORT NON-HIGH VOWEL NEUTRALIZATION:[1] /e, o, a/ → [a] / ~___]$_{PHRASE}$

The following items undergo CLOSED SYLLABLLE VOWEL SHORTENING when concatenated with **-`n** 'the', the result being a minimal triplet for tone:

/kaɽaa + `n/ → [kaɽân] 'the stalk'
/kàɽee + `n/ → [kàɽân] 'the dog'
/kaɽòo + `n/ → [kaɽàn] 'the collision'

The rule also applies in open syllables when phrase medial:

/tàlo-tàlo/ → [tàlatàlo] 'turkey'

MEDIAL SHORT HIGH VOWEL NEUTRALIZATION: There is no contrast between short /i/ and /u/ when phrase medial (*pace* Newman 2000:399). The phonetic realization of medial short high vowels ranges across [i, u, ɨ] depending on phonological context and dialect. For example, in Niger the common leave-taking translatable as "until one has passed time" is pronounced **sai an jimàa**, with the vowel assimilating to the preceding palatal **j**, whereas in Kano, this is pronounced **sai an jumàa**, with the vowel assimilating to the following labial. An apparent contrast between **gidaa** 'house' and **gùdaa** 'one' or **kisàa** 'murder' and **kusa** 'near', which do not vary dialectally or individually in pronunciation, is explained by the latter in each pair being underlying /g^{w}ùdaa/ and /k^{w}usa/, with labialized velars (see consonant table).

VOWEL LENGTH AND VOWEL QUALITY RELATIONSHIP: In phrase final position, long and short vowels have essentially the same quality, the length distinction emerging from the application of POST FINAL SHORT VOWEL /ʔ/ INSERTION: [daːmaː] 'opportunity' vs. [daːmaʔ] 'right (side)'. Phrase medial, short /a/ is usually realzed as something more like [ʌ], e.g. /gàabaa/ → [gàːbaː] 'enmity' vs. /gàbaa/ → [gʌ̀baː] 'front, chest'. In strongly palatalizing or labializing environments, short /a/ tends to be drawn front or back. For example, the name of the university in Kano, Nigeria is spelled *Bayero University Kano*, named after the Emir of Kano, /Àadoo Bàyarò/. Medial non-low long vowels have more or less their expected cardinal vowel pronuciations. Medial non-low short vowels are realized following the tendencies described above.

ALVEOLAR PALATALIZATION: /t, d, s, z/ → [tʃ, dʒ, ʃ, dʒ] /___+[front vowel]
"+" = morpheme boundary

saa<u>t</u>àa 'theft'	**yaa sàa<u>c</u>i kuɗii**	'he stole money'
	yaa sàa<u>c</u>ee shì	'he stole it'
gaadòo 'inheritance'	**yaa gàaji gidaa**	'he inherited a house'
	yaa gàa<u>j</u>ee shì	'he inherited it'

[1] Whether or not this rule always results in complete neutralization would be worth an instrumental study. Abraham (1962), in his example phrases, writes a neutralized "a" for all three vowels. However, many loanwords with mid vowels in closed syllable are represented in writing with mid vowels, and at least some words seem to have a pronunciation variant tending toward the mid vowel, e.g. **bencìi** 'bench', **tôn** 'ton' (Newman 2000:320).

maa<u>s</u>uu 'spears'	**maa<u>sh</u>ìi**[2]	'spear'
ƙa<u>s</u>aa 'country'	**ƙasàa<u>sh</u>ee**	'countries'
cii<u>z</u>òo 'biting'	**yaa cìiji yaatsàa**	'he bit his finger'
	yaa cìijee shì	'he bit it'

Internal to a root, palatalization is not automatic before front vowels (**tiitìi** 'street' < English), and alveopalatal consonants can appear before non-front vowels (**caaca** 'gambling').

VELAR LABIALIZATION/PALATALIZATION: /k, g/ → [k^w, g^w] /__[V, +round]
/k, j/ → [k^j, g^j] /__[V, +front]

The effect of this rule shows up when a round or front vowel in a base form is replaced by some other vowel in a derived form.

doogoo [doːg^{w}oː]'tall'	**doog<u>w</u>àayee** 'tall (plural)' (plural suffix **-àayee**)
geemùu [g^{j}eːmùː] 'beard'	**gyâmmaa** 'beards' (see NON-LOW SHORT V NEUT.)[3]

FALLING TONE REDISTRIBUTION:

H L		H L
\ /	→	| |
σ + V		σ σ

mùtûm 'person' **mùtúmìn** 'the person'

This rule potentially works in reverse as well, if H+L over two syllables is contracted to one syllable (see example **naa gayàa mâr̃** 'I told him' below). It has happened historically, for example, with the word **kâi** 'head', sometimes heard as **kaayìi**.

R(ISING) REPLACEMENT BY H:

L H		H
\ /	→	|
σ		σ

dòomin 'because' **don** (optional contraction)

This rule accounts for why Hausa has no surface R tones.

OBSTRUENT RHOTACIZATION: /t, d, ɗ, s, z/ → [r] /___]σ

fìta 'go out' /fìt-fìta/ → [fìrfìta] 'go out repeatedly'
naa gayàa masà 'I told him' optionally → **naa gayàa mâr̃**

/r̃/ ASSIMILATION: (optional) /r̃/ → C_i /___C_i

[2] Newman (2000:417) calls examples like 'spear(s)' "depalatalization", under the assumption that the final **–ii** is part of the root and is replaced by a plural morpheme (+**uu** in this case), effecting a change in the preceding consonant as well.

[3] This is the plural form shown in Abraham (1962). In truth, I'm not sure how a Hausa would spell it. Newman (2000:416) points out that the tendency to retain palatalization from a base form is not as strong as it is for labialization. For example, **shingee** [ʃing^{j}eː] 'thorn fence' adds the **-àayee** plural suffix seen for 'tall', but the plural is **shingàayee**, not otherwise expected ***shingyàayee**.

This rule applies root internally, across morpheme boundaries, and across word boundaries. It is optional, but it probably applies more often than not in normal speech.

bĩ̃rnii → binnii 'city'
(from RHOTACIZATION) **fĩ̃r-fita → fiffita** 'go out repeatedly'
haɗ̃ gòobe → hag gòobe 'until tomorrow'
ɽìga-r̃ Muusaa → ɽìgam Muusaa 'Musa's gown' ("gown-of Musa")

Characteristic Word Shapes and Prosodic Tendencies

Monosyllabic roots

- CV is restricted to clitic pronouns (**kà sàyee sù** 'you should buy them'), a few prepositions (**dà** 'with', **ta** 'via') and a small closed class of C**i** verbs (**ci** 'eat', **bi** 'follow')
- CVV is restricted to certain pronouns (**nii** 'me', **suu** 'them'), fewer than 10 nouns and adjectives (**ɗaa** 'son', **wâa** 'big brother', **jaa** 'red') and a small closed class of C**aa** verbs (**shaa** 'drink', **jaa** 'pull')
- CVC is one of the most common shapes for ideophones (**jaa wuɗ̃** 'bright red', **shiruu tsit** 'dead silent'); aside from that, this root shape is confined to a few borrowed nouns (**nâs** 'nurse', **bêl** 'belt') and to a small number of verb forms of restricted syntactic occurrence, all of which are related to verbs with more canonical shapes (**naa san tà** 'I know her' vs. **naa sanìi** 'I know', **naa faɗ̃ masà** 'I fell upon him' vs. **naa faaɗì** 'I fell down')

Verbs

Aside from the restricted number of verbs with the monosyllabic root shapes discussed above, verbs all have from two to four syllables, and aside from fewer than twenty exceptions, tone patterns and final vowels are supplied by a templatic system called the Grade System, proposed by Parsons (1960) and now used as the system of reference by all Hausa language specialists. The full system is laid out in Newman (2000) and Jaggar (2001). Canonical verb roots are disyllabic and trisyllabic. As an example, so-called Grade 1 verbs have the following patterns (with some variation conditioned by object types of transitive verbs).

Grade 1 disyllable:	HL-**àa**	**kaamàa**	'catch'
Grade 1 trisyllabic:	HLH-**aa**	**damfàraa**	'swindle'

There are very few basic quadrisyllabic verbs (**wulaakàntaa** 'treat harshly'), but quadrisyllabic verbs can be regularly derived as pluractionals of trisyllabic verbs:

HHLH-**aa** **mammaƙàlaa** 'lodge into' < **maƙàlaa**

Nouns and adjectives

- Canonical shapes: disyllables are the most common (**àbù** 'thing', **zoomoo** 'hare', **farii** 'white') but trisyllables are not unusual (**ràaƙumii** 'camel', **talàkà** 'commoner', **gàjeeree** 'short'). Underived quadrisyllables are uncommon and often seem semantically marked in some way (**ƙaaluubàlee** 'challenge', **màƙoogwàroo** 'throat').
- Final vowels: Nearly all nouns and adjectives end in long vowels (a marked feature of Hausa compared to its Chadic cousins). However, final vowel length is contrastive and unpredictable:[4] **daamaa** 'opportunity' vs. **daama** 'right side', **dabbàa** 'animal' vs. **bàbba** 'big', **Kanòo** vs. **Rano** names of two cities in Kano State.
- Tones: Unlike verbs, whose tones are assigned templatically, tone patterns of nouns and adjectives are unrestricted, with one exception, viz. …LL# is unusual. Moreover, the small number of nouns that end in …LL# all end in short vowels, e.g. **àbù** 'thing', **àkwàatì** 'box', **talàkà** 'commoner'. This exceptionless lexical pattern led Leben (1971) to propose a rule TONE → H /L [V, +long]#.[5]

Tendency toward alternating syllable weight

On the one hand, underived nouns, verbs, and adjectives do not manifest any striking skewings in syllable weight patterns, though, on the other hand, there are no large-scale studies that demonstrate randomness. In derived forms, including noun plurals, however, there are fairly clear conspiracies toward creating alternating weights in syllables preceding the final syllable. Here are some examples:

(1) Verbs formed using the suffix **–(a(a)ta** (final V length determined by template)

Light root syllable + **-aata**:	**fushii** 'anger'	**fùsaatà** 'become angry'
CVV root syllable + **-ata**:	**tsòoroo** 'fear'	**tsòoratà** 'get scared'
CVC root syllable + **-ta**:	**ƙàramii** 'small'	**ƙàrantà** 'become insufficient'

(2) Noun plurals formed with the suffix **–unàa** usually reduplicate an internal –CVC- syllable whereas roots with a heavy root syllable simply add the LIGHT-HEAVY suffix.

Light root syllable:	**bàkaa** 'bow'	**bak-un-k-unà** 'bows'
Heavy root syllable:	**kòogii** 'river'	**koog-unàa** 'rivers'
	gàngaa 'drum'	**gang-unàa** 'drums'

[4] Shortening lexical long final vowels is a fairly productive derivational process in at least a couple of ways. Proper names can be formed from common nouns, e.g. **bàaƙoo** 'guest, stranger' but **Bàaƙo** a man's name. Common nouns used as locatives can be derived in this way, e.g. **ruwaa** 'water' but **à ruwa** 'in the water'.

[5] Over the years, it has been a source of debate among Hausa specialists as to (1) whether this correlation of …LL# with short final vowels is actually exceptionless and (2) whether there is actually a rule that actively governs alternations. See, for example, Paul Newman & Philip J. Jaggar, "Low tone raising in Hausa: a critical assessment," *Studies in African Linguistics* 20:227-251, 1989, and a response by Russell G. Schuh ("The reality of 'Hausa low tone raising': a response to Newman & Jaggar," pp. 253-262, in the same issue).

(3) Pluractional verb derivation: Hausa forms verb pluractionals by prefixing $C_1V_1C_2$-, an unusual pattern in West Chadic, where simple CV- reduplication is the norm. In the modern language, this can lead to a HEAVY-HEAVY sequence nearly as often as HEAVY-LIGHT, but it seems that CVC- reduplication may have arisen historically as a way to maximize alternating syllable weight. Even in the modern language, for the many verb roots with light root syllables, this results in alternating weight. In addition, there are many $C_1V_1V_1C_2$- roots that are paired with $C_1V_1C_2$-$C_1V_1C_2$- pluractionals. Such verbs either shortened the root vowels in the pluractionals to achieve alternating weights, or the alternating weight in the pluractional is original, and the root vowel in the underived root, where polarity is not an issue, has lengthened for unknown reason.

kaamàa 'catch'	**kaŋkàamaa** (plac. verb does not alternate weight)
fita 'go out'	**fĩrfìta** (weight polarity achieved)
dakàa 'pound'	**daddàkaa** (weight polarity achieved)
kaɾ̃àntaa 'read'	**kakkaɾ̃àntaa** (weight polarity achieved)
taaràa 'gather up'	**tattàraa** (lexicalized plac. with polarity)
kòoyaa 'learn'	**kwàikwayàa** 'imitate' (lexicalized plac. with polarity)

REFERENCES

These are a few of the main reference works on Hausa, which is perhaps the best-documented sub-Saharan African language. A comprehensive bibliography of works on Hausa and other Chadic languages is downloadable from

https://scholarworks.iu.edu/dspace/bitstream/handle/2022/16600/Chadic%20Hausa%20Biblio-combined.pdf

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