26. Hausa Tonology: Complexities in an “Easy” Tone Language

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0 Introduction

Hausa, Chadic language spoken in Nigeria and Niger, has long attracted the attentioln of phonologists because of the richness of its inflectional and derivational morphology and because of interesting problems concerning gemination and vowel length. On the other hand, compared with languages of coastal West Africa or Southeast Asia, the tonal system of Hausa appears quite simple. It has just two basic level tones: H(igh), indicated by a acute accent á(a), e.g., *jáa “pull”*, and L(ow), indicated by a grve accent á(a), e.g., *wáa* “who?”, plus a F(alling) tone, indicated by a circumflex *â(a)* e.g., *sâ(a)* “bull”. (With long vowels, indicated by double letters, tone is marked on the first bowel only.) And yet, Hausa turns out to be an excellent language to illustrate essential concepts and problematic areas in the analysis of tone. This is partly because the tone system is relatively simple and easy to comprehend and partly because the surface simplicity masks a range of interesting complexities. In this chapter, I shall focus on four general tonological issues, drawing examples mostly from Hausa, but occasionally from related Chadic languages. Although the issues to be treated are all of importance to current phonological theory, my approach will be nonformalistic and, in some sense, atheoretical. That is, the attempt will be to provide analyses that fit properly with our overallknowledge of Hausa – including diachronic and dialectal information – and that also jibe comfortably with our generl notions about the nature of tone derived from years of experience working on tone languages.

Let us begin with a few essential facts about Hausa segmental phonology before turning to the issues at hand. Standard Hausa has five vowels, all of which can occur short or long, namely i(i), e(e), a(a),o (o), u(u), and 32 consonants.[1] The semivowels /y/ and /u/, which occur only as syllable onsets, alternate with /i/ and /u/, respectively, in other syllabe positions, e.g., *sàyí* “buy” = *sái* (optional apocopated form); *háwáa* “riding”, cf. *há* “mount”. Three syllable types occur: CV, CVV (where VV can represent a long monophthong or a diphthong), and CVC. Syllables of the CV type are light; CVV and CVC syllables are heavy (see Newman 1972). CVVC syllables occur in intermediats structure, but are automatically reduced to CVC by syllable overload rules. Short /e/ and /o/, which often result from shortening in closed syllables, generally centralize to /a/ in non-word-final position.

1 Contour Tones

The general issue here is whether contours should be treated as unitary tonal elements or a complex composed of two (or more) level tones.

1.1 Falling Tone as High-Low Sequence

From an early period, Hausaists such as Abraham (1941), Greenberg (1941), and Hodge and Hause (1944), have proposed that the falling tone be analyzed as a sequence of H plus L on a single syllable. This type of analysis has been posited more generally for African languages viewed typologically (see chap. 12 this volume).[2] Yip (1989, pp. 149–150), for example, decscribes contours in African

languages as "tone clusters" which result from associating two tonal root nodes (i.e., two level tonal units with one syllable). This type of analysis also has strong formal theoretical support. Consider, for example, the statement by Goldsmith (1990, pp. 39–40): "The possibilitiy of many-to-one associations between one tier and another opens up the possibility of treating rising and falling tones as sequences of level tones … associated with a single vowel … Among African tone languages it has been demonstrated in countless cases that these tonal patterns [falling and rising tone] are best treated as sequences of High-Low and Low-High respectively." Taking Hausa as a case in point, there is indeed ample evidence for treating F as HL on a single syllable. Consider the following factors: (a) Falling tones only occur on heavy (= 2-mora) syllables, i.e., those with two potential tone-bearing-units, whereas simple H and L tone occur on light (= short vowel) syllables as well as on heavy syllbales, see (1).

(1)

(a) F:	yâaráa	"children"
	mântáa	"forget"
	shâddáa	"latrine"
(b) H / L:	bàkáa	"bow"
	gòobé	"tomorrow"
	wàa	"who?"
	dà	"with"
	sái	"until"
	tá	"via"

(b) In phonologically shortened words, an original L tone combines with an H to produce a Fall. This can be seen in coexistent variants and forzen reducplicative forms as in (2)

(2)

(a) kâr̃ = kádà "don't", làadân = làadáanìi "muezzin", dâbgíi = dáabùgíi "anteater"
(b) bêlbéelàa "cattle egret" < *béelàbéelà, dûddúfàa "white ibis" (< *dúfàdúfà)

That F equals HL is particularly evident in paradigms that have a set H-L tone pattern, e.g., (3).

(3)

(a) zân (< záanì) "I will", zâi (< záayà) "he will", cf. záakà "you (masc.) will", záatà "she will"
(b) mîn (= mínì) "to me", mâr̃ (= másà) "to him", cf. mákà "to you", mátà "to her"

(c)The grounding of floating L tones, which are associated with certain morphemes, produces an F, e.g, (4).

(4)

fítóo "come out" + ˆwáa "ing" → fítôowáa "coming out"
gídáa "house" + ˆn "the" → gídân "the house" (Note: the vowel shortening *gídâan → gídân results from the impermissibility of overheavy syllables.)
wàa yá káshè zóomôo? "who killed the hare?" where zóomôo < zóomóo + the question morpheme /ˆː/, which is composed of floating length and a floating L tone.

(d) Disyllabic verbs with the tone pattern F–H fall into the same morphological class (called grade [gr.] in Hausa) as comparable H–L–H verbs, e.g., (5).

(5)

shâidáa (gr. 1) "inform", cf. báyyànáa (gr. 1) "explain"
shânyée "drink up" (gr. 4), cf. bíncìkée (gr. 4) "investigate"

(e)Words with a final F tone behave as if they had a final L in assigning tone to the stabilizer morpheme (*nee* "masculine or plural", *cee* "feminine"), whose tone is alwayas polar to that of the preceding syllable, e.g., (6).

(6)

(a) hàr̃âm née "it's religiously unlawful", mâi née "it's oil", rìigâr̃ cée "it's the gown"
(b) zóobèe née "it's a ring", móotàa cée "it's a car", húulúnàa née "they're caps"
(c) rìigáa cèe "it's a gown", kèeké(e) nèe = kèekè née "it's a bicycle", ʔílìmíi nèe = ʔílmìi née "it's knowledge"

1.2 Falling Tone as a Unit Contour

The above evidence seems at first sight incontrovertible. There are, however, other factors that point in another direction. Or, to put it differently, even if one were to agree that contour tones in Hausa are underlyingly nothing but sequences of level tones, as one approaches the surface these contours acquire a linguistic reality which sets them apart from the level tones. This relaity manifests itself most prominently in the tendency to do away with controls by simplifying them to level tones.

To begin with, there is the simple fact that Hausa does not have a R(ising) tone. Hausa has many disyllabic H–L words and, as illustrated above, when, for any number of reasons, HL becomes associated witha single syllable, the HL surfaces an an F. Since L–H is also a common disyllabic pattern in Hausa, one would expect to find words where the LH has become attached to a single syllable resulting in a surface Rise. So, what has happened to the missing Rise?

It is now gernerally accepted by Hausaists that the absence of the R is due to a general rule, first mentioned by Parsons (1995) and presented more systematically by Leben (1971), whereby R (= LH) → H. This is illustrated in the examples in (7), in which the indication =/< means that the form on the left is dialectally or stylistically equivalent to and dervied from the form on the right. (The notation [NW] marks northwest dialect forms and the hacek on vowels indicates a Rising tone.)

(7)

(a) *ɗwǎi (=/< dòoyíi) → ɗwái "stench" [NW], *nǎu (=/< nàawá) → náu "mine" [NW]; *'yǎa (=/< dìyáa) → 'yáa "daughter", *tàusǎi (=/< tàusàyíi) → tàusái "pity"
(b) *jǎnjàmíi (< *jàmíjàmí) → jánjàmíi "horse crupper" (cf. *kánàkánà → kânkánàa "a melon")
(c) *cǎn (L-H pattern) → cán "there, far distant", cf. cân "there" (H-L pattern)
(d) *ɗǎukàa (L-H-L gr. 2 pattern) → ɗáukàa "take, lift", cf. tàimakàa "help" (typical 3-syllable L-H-L gr. 2 verb)

Further research, however, has indicated that the R → H change is not as regular as originally thought. Rather, it appears to be a conditioned rule that is sensitive to the preceding tones. If the R is preceded by L or is word initial, as in the examples above, then the rule does apply as postulated, presumably in an exceptionless manner. If, however, there is an immediately preceding H tone in the same word, i.e., one has an H–LH sequence, then the R simplifies to L, i.e., R (= LH) → L / H____. Thus H–LH results not in H–H, as predicted by the originally formulated unconditioned rule, but in H–L, e.g.,

(8)

*gáwǎi (=/< gáwàyíi) → gáwài "charcoal", not *gáwái
*kútŭr̃ (=/< kútùr̃íi) → kútùr̃ "hindquarters of donkey or horse", not *kútúr̃
*múkǎi (=/< múkà yí) → múkài "we did", not *múkái
*ʔílmĭi (=/< ʔílìmíi) → ʔílmìi "knowledge", not *ʔílmíi

Although the discovery of the correct conditioning for the elimination of the surface rise is an important advance in our understanding of the details of Hausa, it does not really affect the general point, which is that rising tones in Hausa do not occur. Viewed as a sequence of LH on a single syllable, the restriction is totally ad hoc, i.e., there is no reason why HL associated with a single syllable occurs and LH does not, rather than vice versa. Viewed as a suppression of surface rising tones, however, the gap is perfectly normal. As pointed out by Gandour and Harshman (1978), Hombert (1975), Ohala (1978), and Sundberg (1979), among others, rising tones have marked articulatory and perceptual weaknesses as compared with falling tones. As a result, there is a natural tendency for rising tones to simplify to level tones (especially high). This explains why among the languages of the world that have contour tones, rising tones appear to be less common than falling tones (Cheng 1973; Maddieson 1978).[3] In short, although we can formally represent rising tones in Hausa as LH attached to a single syllable, a rule such as R → H (under the appropriate conditions) tells us much more about the linguistic and psycholinguistic factors involved in the tone change than does an LH → H rule.

In contrast to Rising tones, which are totally absent in Hausa, Falling tones are common. Nevertheless, these, too, are subject to simplification pressures. The rules are morphologically restricted and vary from dialect to dialect, but they still illustrate an ongoing drift, the direction of which is to eliminate contour tones.[4] There are a number of different, independent manifestations of this loss that can be illustrated.

1.2.1 Maradi Contour Simplification

In the dialect of Maradi (Niger), there is an optional but favored rule which operates on F tones preceded by H, namely F → L / H____ if the F is on a monosyllabic word.[5] The result is to change an H–F (= H HL) sequence into a simple H–L sequence, the initial high component of the Fall being subject to absorption. The rule only affects monosyllabic words. As the numbersous examples in (9) show, the rule depends strictly on the phonological environment. It does not seem to matter what part of

speech the phonologically relevant words are nor how they function shyntactically.

(9)

sâa "bull": (a) yánàa búgùn sâa "he is beating the bull"; (b) ƙàrámín sàa "small bull"
sôo "pail": (a) yáa cíkà sôo "he filled the pail"; (b) kàawóo sòo "bring a pail"
mâi "oil": (a) gíshírii dà mâi "salt and oil"; (b) gíshírii kóo mài "salt or oil"
sôo "love": (a) sábòodà sôo "because of love"; (b) dón sòo "for sake of love"
jâa "pulling": (a) yánàa jâa "he is pulling"; (b) yáa zánkí jàa "he kept on pulling"
sâa "to put": (a) bàmù sâa sú bá "we didn't put them"; (b) mún sàa sú "we put them"
bâa "to give to": (a) yà bâa Súlè "he should give Sule"; (b) yáa bàa Súlè "he gave Sule"
cêe "to say": (a) sái kà cêe "as you say"; (b) káa cèe "you said"
nân "here": (a) kù tsáyàa nân "stop here"; (b) kù zóo nàn "come here"
yâu "today": (a) yáa gámàa yâu "he finished today"; (b) yáa dáawóo yàu "he returned today"
mâa (< mákà) "to you": (a) náa gáyàa mâa làabáaƴii "I told you the news"; (b) náa ʔáikóo màa tákàƴdáa "I sent you a letter"

Recent unintegrated loanwords e.g., *pî* "battery", *kwâ* "course", *bî* "ball-point pen", (but cf. *sôo* "pail" above) do not undergo the rule. There are also a few other exceptions, such as the F tone 2nd future pronouns in (10), but these seem uncommon.

(10)

(2nd future): ín sûn . . . "if they will . . .", wái tâa . . . "it is said she probably will . . .")

The rule is limited to monosyllabic words; falling tones in polysyllabic words, as in (11), are thus not affected.

(11)

yáa cânyée "he ate it up", mún shâidáa "we bore witness"
gídân "the home", ráanâi "the day"

Contour simplification similar to that in Maradi also occurs in Standard Hausa, but here it is restricted to just a few specific words, see (12).

(12)

(a) kà cêe "you should say", káa cêe "you said", sún cêe "they said", but ká cèe "and you said" (where the rel-perfective pronoun ká preceding the L tone variant of the verb cèe has H tone *and* consists of a light syllable).
(b) *kàazáɾ̃-nân → kàazáɾ̃-nàn "this hen", *àkún-cân → àkún-càn "that parrot"
(c) cf. yáa zóo nân "he came here" (not *yáa zóo nàn)
záa tà tàfí cân "she will go there" (not *záa tà tàfí càn)

1.2.2 Northwest Contour Simplification

A simplification with interesting dialectal variation concerns the so-called *waa*-verbal nouns (or "-ing" forms). These items, which correspond to English gerunds or progressive participles, are formed by adding a suffix *-wáa* to the verb. This morpheme has H on the *wáa* syllable and is preceded by a floating L tone.[6] When the verb ends in L, the floating L is absorbed and has no effect. When the verb has a final H tone, the floating L attaches thereto and produces a Fall. This is shown in the examples in (13).

(13)

káamàa "catch" / káamàawáa "catching", káɾ̃àntáa "read" / káɾ̃àntâawáa "reading"
fáshèe "smash" / fáshèewáa "smashing", ƙéetàrée "cross" / ƙéetàrêewáa "crossing"
kóomóo "return" / kóomôowáa "returning", sáyóo "buy" / sáyôowáa "buying"
ɾ̃úbúutóo "write" / ɾ̃úbúutôowáa "writing", záabúɾ̃óo "leap" / záabúɾ̃ôowáa "leaping"

In northwest dialects, however, there are various strategies to eliminate the Falling tone. With "-ing" forms corresponding to trisyllabic and quadrisyllabic (H)-H-L-H verbs, final F-H on the last two syllables simplifies to H-L, e.g., (14).

(14)

[NW] káɾ̃àntáawàa "reading", lúgúlgùdáawàa "kneading", ƙéetàréewàa "crossing"

There are two possible explanations for the change. If the L of the HL Fall were to attach to the final syllable, it would produce a final Rise which would simplify to L as illustrated earlier in (8), e.g., *káɾ̃àntâawáa → *káɾ̃àntáawâa → káɾ̃àntàawàa*. Alternatively, the L of the HL Fall could occupy the final syllable in a "hostile manner"[7] and directly obliterate the final H, e.g., **káɾ̃àntáàwáa → káɾ̃àntáawàa*. In either case, the contour is eliminated in favor of a sequence of level tones.

With level H tone verbs (the so-called "ventive" grade 6 verbs ending in *-OO*) three different patterns emerge in different northwest dialects. In Ader, the F-H to H-L rule applies (15a). In Dogondoutchi, as seen in (15b), the F-H simplifies to L-H. Finally, Maradi (15c), uses both of the above strategies. With disyllabic verbs, it behaves like Dogondoutchi and simplifies F-H to L-H whereas with longer words it behaves like Ader and simplifies F-H to H-L, e.g.,

(15)

(a) [Ader]: káawóowàa "bringing", lúgúlgúdóowàa "kneading (and bringing)"
(b) [Dogondoutchi]: hítòowáa "coming out", híssúwòowáa "bringing out"
(c) [Maradi]: sáyòowáa "buying"), kóomòowáa "returning", ɽúbúutóowàa "writing", záabúɽóowàa "leaping"

Considering the tone changes illustrated here, what ties them all together? The simple answer is, *they get rid of contours*. As Schuh (1978b, p. 242) has observed, "There is the tendency in African languages for contour tones to be simplified to level tones." The theoretical generalization that we can draw from these various processes and rules is that they argue for the linguistic reality of contours. I would suggest that whatever underlying representation tones may require, there is something special about contours. From a formal point of view, if a language has H–L and L–H sequences on the tonal tier, there is no reason why they should not equally attach to a single syllable. But they do not. Cross-linguistically – at least in African languages – rising tones seem to be much less common than falling tones (Maddieson 1978, pp. 347–348). The reasons have nothing to do with the geometry of formal representations, but follow from the lack of articulatory and perceptual parallelism between rising and falling tones. If, however, we jump to the conclusion that contour tones are unit primes, we run up against the strong theoretical arguments and mass of empirical data on African languages which show convincingly that contours *are* internally complex elements. The solution to this apparent conundrum can best be phrased in terms borrowed from the old argument about the nature of light: whereas in some respects contours are like particle combinations, our linguistic experience and linguistic intuition tell us that in others they are like waves. A proper theory of tone and tonal representation has to be able to capture the ambiguous nature of contours. This phonological ambiguity may be inconvenient for the formalist – as it is for the descriptivist – but it cannot be ignored.

2 Tone/Segment Interaction

Many Chadic languages are characterized by significant tone/segment interaction reflecting the universally widespread influence of consonants on tone (see Hyman 1973, for example). Although this phenomenon is not found in Hausa, the language does appear to have a more interesting and previously unreported example of tone influencing segments.

Synchronically, Hausa has two diphthongs, orthographically indicated as *ai* and *au*. (Historically, it also had two other dipthongs, /iu/, and /ui/, both of which have simplified in fairly recent times to /uu/ and /ii/ respectively.) The *ai* diphthong, which is the only one of the two that I shall deal with here, has two quite distinct pronunciations shown in (16).

(16)

(a) [ɛi] [ei], even [ee] (I shall transcribe this variant as [ei].)
(b) [əi] [ɔi], [ai] (I shall transcribe this variant as [ai].)

The pronunciation differences are mentioned briefly by Cowan and Schuh (1976, p. 29) and Kraft and Kirk-Greene (1973, p. 11), and were explicitly noted much earlier by Abraham (1941, p. 2). The general assumption seems to have been that the phonetic variants were conditioned by the preceding consonants and thus could be ignored as a minor subphonemic matter. For example, after apical consonants, one normally gets [ei] whereas after glottal stop and /h/ one gets [ai], see (17).

(17)

(a) láimàa = [léimàa] "umbrella", tsáikòo = [s?éikòo] "roof frame"
(b) ?áikìi = [?áikìi] "work", háihù = [háihù] "give birth"

In other cases, however, e.g., after bilabials, the two diphthongs appear to be in contrast. Compare the two different pronunciations of orthographic *mai* "return (something)" and "oil" in the phrases in (18).

(18)

(a) mai da yaji [méi dà yáajìi] "return the spices"
(b) mai da yaji [mâi dà yáajìi] "oil and spices"

Abraham (1959, p. 131) claimed that practically speaking, one did not need to overtly mark the varying pronunciations since "the difference is purely of phonetic interest." This has implicitly been the opinion of all ssholars since. But if [ei] and [ai] occur in the same environment and serve to distinguish words from one another, do we not have a phonemic contrast? The answer is that the differences between [ei] and [ai] are in fact conditioned, i.e., they are indeed allophones of the same phoneme; the conditioning factor that has been overlooked is tone. What I am reporting here is a new observation about Hausa that has never previously been suggested so far as I am aware, and thus it needs rechecking, verification, and refinement; but since it is important for understanding Hausa and has major general linguistic implications, it deserves public presentation. Basically, what we find, limiting ourselves to /ai/ preceded by a word initial labial, is that /ai/ is realized as [ei] (often even [ee]) if it has a level tone, whether H or L, and [ai] if it has a Falling tone, e.g., (19).

(19)

	H		L		F	
/mai/	[méi]	"return"	[mèi]	"owner of"	[mâi]	"oil"
/bai/	[béi]	"give"	[bèi]	"3masc.neg."	[bâi]	"back"
/fai/	[féiféi]	"record"	[fèilûu]	"peppermint"	[fâi]	"openly"

From an a priori point of view, the conditioning of the phonetic quality of diphthongs by tone is not so strange.[8] It does, however, run up against commonly held, and empirically well supported, views about the relationship between segments and tones, which is that, "Almost all the examples of interaction of tone and segments involve consonants" (Schuh 1978b, p. 224). Regarding tone/segment interaction, Schuh (1978b, pp. 224–225) reiterates the position expressed in Hyman and Schuh (1974): "[I]t is virtually always segments which influence tone; tone rarely, if ever, influences segments… [V]irtually no clear cases of tonal influence on segments have been found, whereas the opposite case is common in all areas where tone languages are found." He argues that the putative examples of tonal influence on consonants cited, for example, by Maddieson (1974) – see, also, the early imaginative analysis by Welmers (1962) – can be rejected if "tone is understood in the normal sense of 'pitch'" (p. 224).

But tone does *not* equal pitch (much less fundamental frequency); its phonetic parameters include numerous factors such as intensity, length, phonation properties, etc., which *would* be expected to affect vowels. (We'll leave the question of consonants aside.) And, in fact, influence of tone on vowels has been noted in different language families widely spread across the continent of Africa, e.g., Dimmendaal and Breedfeld (1986) on Turkana, Nilotic; Kaye and Charette (1981) on Dida, Kru; and Schuh himself (Schuh 1978a) on a historical change in Bade/Ngizim, Chadic. Compared with these other cases, the Hausa situation is really quite simple, so simple in fact that you have to wonder why no one else observed this before. The short answer is that discoveries often look simple after they've

been made. The other answer, which is of greater methodological importance, is that received knowledge of a typological or theoretical nature necessarily puts blinders and limitations on what we look at and what we see, even when it's staring us straight in the face. As all scientists know, there is no way to avoid this, but the job of the probing empiricist is to try one's best to overcome it.

3 Tonal Polarity

The notion of "tonal polarity" refers to a usually morphemic segment whose tone is invariably opposite that of a preceding or following tone. Examples of surface polarity lend themselves to two different analyses: dissimilation and "true polarity." In dissimilation, a particular specified tone is changed if certain conditions are met. For example, as shown in (20), the pre-pronoun forms of the genitive marker (*náa* "masculine and plural", *táa* "feminine"), which have underlying H tone, as evidenced by the tonally invariant pre-noun forms of the marker, change to L when attached to the H tone 1st person pronoun *-wá*, e.g.,

(20)

(a) ná yáaròo née / tá yáaròo cée "it's the boy's"
(b) náa-sà née "it's his", táa-mù cée "it's ours"
(c) nàa-wá nèe / tàa-wá cèe "it's mine"

In the case of "true polarity," the tone of some element is always assigned as opposite to that of a neighboring tone, but there is no compelling synchronic reason to presume that the tone started underlying as some specified tone or other. Historically, one might be able to determine that the polarity started out as a dissimilation phenomenon; but synchronically, the tone appears to be underlyingly unspecified (or specified as "polar," however one wants to look at it).

3.1 Polarity in Hausa

In Hausa the most often cited case of polarity is one that has been described as such for a half century (e.g., Abraham 1941, p. 32; Parsons 1960, p. 13), namely the direct object pronoun paradigm, cf. *yáa sàyée tà* "he bought it" with *yáa káamàa tá* "he caught it", where *ta*, the 3fem. pronoun, is assumed to have polar tone. Surface exceptions to the presumed polarity rule, e.g., *yáa káɗàntáa tá* "he read it", *kàamáa tá*! "catch it!" have necessitated complex and imaginative manipulations (cf. Leben 1971) while even simple operations of the rule have presented uncomfortable ordering paradoxes. As pointed out in Newman (1979), however, polarity in this case is actually an old error that has become embedded in our thinking about the language. Instead of the presumed polarity, what one actually has is two distinct pronoun paradigms: a fused, clitic paradigm that has L (or perhaps no) tone, e.g., *yáa sàyée tà* "he bought it", *yáa gáishée mù* "he greeted us", *yáa bíi sù* "he followed them", and a less tightly bound set, which invariably has H tone regardless of the tone of the preceding syllable, e.g., *yáa káɗàntáa tá* "he read it", *yáa bíncìkée sú* "he investigated them", *kàamáa tá*!", *catch it*!", *yáa báayán ní* "he gave me up". For genuine polarity in Hausa one has to look elsewhere.

3.1.1 Stabilizer

In Standard Hausa, there is really only one morpheme with true polar tone. This is the so-called "stabilizer" (*nee/cee*, depending on gender) which is used in equational and identificational sentences, see (21). The tone is always opposite to that of the final tone of the preceding word. The polar nature of the stabilizer shows up clearly with words that have tonal variants.

(21)

(a) jàakíi nèe "it's a donkey", rìigáa cèe "it's a gown", zóobèe née "it's a ring", móotàa cée "it's a car", húulúnàa née "they're caps"
(b) kèekè née = kèeké(e) nèe "it's a bicycle", ʔílmìi née = ʔílìmíi nèe "it's knowledge"

In other dialects, other cases of this phenomenon occur in addition to the stabilizer.

3.1.2 Guddiri Polarity

In the Guddiri dialect (Bagari 1982; Zaria 1982) polarity shows up with a couple of small morphemes: *don* "for sake of/ for purpose of", which is invariably H

in Standard Hausa, and the diminutive *dan* (masc.) / *ʔyaĩ* (fem.) (again invariably H in Standard Hausa), which serves to modify both nouns and verbs, see (22).

(22)

(a) don "for": dòn kóowáa "for everyone", dòn Állàh "for the sake of God", dón wàa "for whom?", dón Ànnábì "for the sake of the Prophet"
(b) ɗan (masc.) / ʔyaĩ (fem.) "diminutive": ɗán ràagóo "a small ram", ʔyáĩ kàazáa "a chick", ɗàn ɓáuyèe "a small village", ɗàn yáaròo "a small boy", yáa ɗán màarée shì "he slapped him lightly", yáa ɗàn móotsàa "he moved a little"

Schuh (1978b, p. 242) suggests that the diminutive tone is really an instance of dissimilation since the forms *ɗáa* "son" and *ʔyáa* "daughter" exist as independent nouns with H tone. While this may be true – although the tonal behaviour is good evidence that the diminutives are in the process of lexically separating themselves from their cognate nouns – I would contend that we are at least dealing with a case of incipient polarity and that its development into true polarity cannot be far into the future.

3.1.3 Ader Polarity

The next instance of polarity takes us back to the "–ing" marker in the Ader dialect (Caron 1987). Above, we saw the effects of various phonological processes when the morpheme *–wáa* was added to a verb. These processes could be analyzed in terms of tone spreading, tonal aggression, contour tone simplification, etc. If we now focus on the result, we find that whatever the diachronic pathway or deep synchronic derivation, *–wáa* in Ader can be described most simply as a morpheme with polar tone, see (23).

(23)

káamàa / káamàawáa "catch", ɓóoyèe / ɓóoyèewáa "hide", súngùmáa / súngùmáawàa "lift heavy object", tánkàɗée / tánkàɗéewàa "winnow", káawóo / káawóowàa "bring", ƙúbúutóo / ƙúbúutóowàa "write"

In the case of the stabilizer, we don't know how it came to have polar tone. In the case of the Guddiri markers, we can see that the polarity developed from dissimilation and in the case of Ader "–ing", from contour tone simplification. Nevertheless, the evidence strongly suggests that synchronically these morphemes now have polar tones as their underlying specification.

3.2 Polarity in Chadic

Because of the importance of polarity as a tonal phenomenon and mistaken statements that have been made about it, let me illustrate its occurrence in two additional Chadic languages: Kanakuru, which belongs to the same West Chadic branch as Hausa, and Margi, a more distantly related member of the family.

3.2.1 Kanakuru

In Kanakuru (Newman 1974, see esp. pp. 59–62), negation in most finite tense / aspects is indicated by a discontinuous morpheme *wo-…-u*.,[9] where the *wo-* attaches to and takes the opposite tone of a following tense-aspect pronoun and the *-u* polarizes with the final word of the sentence, to which it attaches, e.g., (24).

(24)

wò-mən wùrà wóròm-ú "we didn't fry beans"
wó-nàa dəlè gám-ù "I am not pushing a ram"

The pronouns used in the continuous normally have L tone; however, when followed by *gən* "with" to form "have" sentences (i.e., "he is with a car" = "he has a car"), the pronouns dissimilate to H, whereupon the negative *wo-* must polarize to L, e.g., (25).

(25)

wò-náa gən áyìm-ú "I don't have money"

When attached to a vowel-initial future pronoun, *wo-* obligatorily drops the /o/, but still requires the tonal polarity. The /w/ may then optionally be dropped, leaving the tone change as the marker of the negation, e.g., (26).

(26)

*wo-ànò áy Láwàn-u → w-ánò áy Láwàn-ú (→) ánò áy Láwàn-ú "I will not help Lawan"
*wo-àtò yír-má-u → w-átò yír-má-ù (→) átò yír-má-ù "she will not stop"

When attached to a word ending in a consonant, the final *-u* normally manifests its expected tone, i.e., H after L, and L after H. (The main exception is when the word precedign *-u* has a falling tone, in which case the sequence F-H may be realized as H-Downstepped H, e.g., *wó-nàa nái mêen ú* = *wó-nàa nái méen!ú* "I don't drink beer".) When attached to a word ending in a H tone vowel, the *-u* takes L tone and the final H-L combination is realized as a Fall, e.g., (27),

(27)

wò-shée dùshá-ù → wò-shée dùshâu "she didn't pound (it)"
wó-shìi táa-má ɗé-ù → wó-shìi táa-má ɗêu "he is not going tomorrow"

Like Hausa, Kanakuru does not have Rising tones. Therefore, when *-u* is added to a vowel with L tone, the L-H sequence that should result cannot surface. As in the case of the newly discovered Rising

tone simplification rule in Hausa, R in Kanakuru is realized as an L, not an H, e.g., (28)

(28)

wó-shìi néenè-u → *wó-shìi néenè-ú → wó-shìi néenèu "he is not here"
wò-náa shìrà ɗéenò-u → *wò-náa shìrà ɗéenò-ú → wò-náa shìrà ɗéenòu "I didn't steal peanuts"

3.2.2 Margi

In Margi (Hoffmann 1963, see esp. pp. 190–200), polarity shows up most clearly with the marker /a–/ which is used in both the present tense and the past. In the latter case the verb is also marked by a suffix –(*ə*)*r*(ì).[10] The tone of this preverbal tense marker is always opposite that of the initial tone of the verb stem, see (29). For purposes of the polarity rule, the Rising tone behaves like an LH sequence.[11] (Examples are given with the subject pronouns following the verb; they can equally occur in front of the *a* + verb. The 1st and 3rd person singular pronouns have H tone; the other pronouns have polar tone.)

(29)

(a) à-tá mà "we (two) cook", à-fə̀l mà "we (two) bathe", á-wì má "we (two) run", á-və̀l mà "we (two) jump"
(b) à-sá-r yə́ "I erred", à-fə̀l-ə́r yə́ "I danced, á-bà-r yə́ "I went out", á-və̀l-ə́r yə́ "I jumped"

In contrast to the straightforward rule of polarity presented by Hoffmann and adopted here, Pulleyblank (1983a) generates the surface forms by an abstract set of rules. He treats /a–/ as underlyingly H, which in some environments has to be considered extrametrical and thereby loses its tone. Later a rule applies whereby toneless vowels get L by default so that one ends up with the appearance of polarity. This surface result is presumed to be an accident of no phonological or morphological significance. What is at issue here is not the validity of Pulleyblank's proposal, to which I obviously have not done justice, but the assumption that an analysis such as as his is theoretically/conceptually superior to one that directly employs the notion of underlying polarity.

This claim is made in a stronger, more explicit manner by Kenstowicz, Nikiema, and Ourso (1988), who provide alternative explanations for cases of presumed polarity in some Gur languages. They then go further and propose on essentially *theoretical* grounds that true polarity, i.e., tones that are specified underlyingly as polar, shouldn't exist. They suggest that polar tones in *all* languages are underlyingly H and that appearances of polarity are generally due to the presence of rules dissimilating successive high tones.

But what is the evidence for this presumed language universal? They do not cite data from a large sample of languages around the world to show that it is empirically supported, nor do they provide any cogent arguments why it should be so from a theoretical perspective. I would argue that compared with convoluted derivations involving association lines, extrametricality, and such, polarity is a very simple notion, one that is simple not just for the linguist, but also for the native speaker of a tone language. It is because polarity is such a normal tonal process that we find it occurs so often. The reason why polarity is so natural and its occurrence so expected is because tone functions prosodically and works naturally with melodic patterns. One of the insights of autosegmental phonology that current-day formalists seem to have lost sight of is the idea of tone being represented by melodies rather than atomic units. Whereas content words (especially nouns and verbs) have the body to carry distinctive tone, with short, unstressed grammatical morphemes, a specific tone, whether it be high or low, has very little saliency. What works well for short words, clitics, and affixes, is for the morpheme to join up with a substantive word to become part of a tonal melody whose

preferred tune will in many cases be H–L or L–H. In some cases these toneless grammatical morphemes will acquire surface tones by tone spreading or by the assignment of a default tone, but in others the principle underlying the tonal assignment will be to produce a tonal opposition, which surely must have natural advantages in terms of production, perception, memory, and/or other psycholinguistic factors.[12] That polarity occurs frequently in different languages, in different directions, and under different conditions is exactly what one should expect. Whatever may have been the thinking that led Kenstowicz, Nikiema, and Ourso to rule out polarity, the claim runs counter to my intuition as a linguist and, I would expect, to that of most other practicing linguists who have worked on tone languages over long periods of time.

4 Ideophones and Key Raising

In this final section, I propose to take up the question of key raising, or reising shift, since data from Hausa have been crucial in the development of this concept. The focus of the discussion will be on ideophones.

As has commonly been noted, the ideophone in Hausa is characterized by an extra high pitch. Moore (1968, p. 13), for example, says: "The ideophone occurring utterance finally is likely to have an extra high pitch which ignores the downward drift of the rest of the utterance…" Similarly, Inkelas, Leben, and Cobler (1987, p. 333) state: "Certain emphatic particles [= ideophones] are always pronounced with an extra–High tone…" The extremely high pitch of ideophones had also been observed by Greenberg (1941, p. 319) and before him by Prietze (1908, p. 316). This is illustrated in (30), where the ideophone is underlined.

(30)

fárí̀i fát "very white", kóoř̃èe shář̃ "very green", táa táashì fáŕát "she got up suddenly", yáa gàjí túɓús "he became very tired"

A problem plaguing ideophone research in most languages, including Hausa, is that the ideophones are not put in any kind of context and not related to other phenomena in the language. An exception is Inkelas, Leben, and Cobler (1987) where an attempt is made to view ideophones in a normal sentential/intonational context. Their description has to be modified since the scope of their examples is too restricted, but at least they were asking the right questions. In order to go beyond the study of ideophones in artificial out–of–context phrases, such as in (30), I made a point of collecting a number of longer, more complex sentences which are represented in (31). These examples were collected at different times and from a number of different speakers.

(31)

(a) yáaròn dà yá kùɓútà dàgà hánnún ʔyán sàndáa gàjéerée nèe dúƙús "the boy who escaped from the hands of the police was very short"
(b) mùtúmìn dà yá zóo ƙóofàr̃ fáadà yánàa sànyé dà hùuláa báƙáa wúlík "the man who came to the palace entrance was wearing a very black cap"
(c) wání tsóohóo túkúf yáa shígèe nân "a very old man passed by here"
(d) yáa báa nì góor̃ò ɗányée shátáf dà shíi "he gave me a very fresh kolanut"
(e) káayân bà sù jíƙèe sháŕáf bá "the goods didn't get soaking wet"
(f) hádárìi bài háɗóo à gábàs yáa yí báƙíi ƙírín bá "the storm didn't rise up in the east and become very black"

From sentences such as these, a number of interesting clarifications emerge. First, Inkelas, Leben, and Cobler (1987) explain the extra H on ideophones in terms of its being obligatorily linked to a register High, this register High (described as key raising by Newman and Newman 1981) also being a property of yes/no questions. They provide examples comparable to those in (32).

(32)

(a) táa sàamí fárâr múndú ↑ wáa? "did she get a white bracelet?" (< múndúwáa)
(b) táa sàamí káráa ɗáyá ↑ ták. "she got exactly one stalk" (< ták)

Looking at a larger corpus, one quickly finds that the similarity between key raising with yes/no questions and with ideophones is an accident of the specific example they used, which just happened to have a monosyllabic ideophone. When, however, a disyllabic ideophone is used, it is clear that one cannot use the same mechanism of register shift for questions and ideophones because the resullting output is different in the two cases. The real rule is that in yes/no questions, the *last* H tone in the appropriate phrase gets raised whereas in ideophones, the raising applies to the *first*. (Of course, with a monosyllabic word the first syllable and the last happen to be the same.) Thus we get a contrast such as in (33).

(33)

(a) yáa sàyí rìigáa bá ↑ ƙáa? "Did he buy a black gown?"
(b) yáa sàyí rìigáa báƙáa ↑ wúlík. "He bought a very black gown"
Not (c) *yáa sàyí rìigáa báƙáa wú ↑ lík.

The obvious next question is what takes place when a yes/no question contains an ideophone? In this case, as correctly described by Inkelas and Leben (1990), the ideophone loses its extra H and the interrogative key raising dominates, see (34).

(34)

yáa sàyí rìigáa báƙáa wú ↑ lík? "did he buy a very black gown?"

Up to now, for sake of the discussion, I have accepted the oft-stated claim that ideophones obligatorily manifest an extra high tone because of key raising (unless overridden by the interrogative key raising). This turns out to be inaccurate when one looks at a more expanded corpus. Of course if you specifically ask a native speaker to give you a phrase with an ideophone, "How do you say *very* old?" you will undoubtedly get an answer such as *tsóohóo túkúf*, with *túkúf* pronounced louder and higher than normal – but this is not required. Although all Hausa ideophones probably have a *latent* potential for what I will call expressive prominence, if the prominence is not there, then the ideophone will not have the extra H tone. For example, ideophones in negative sentences generally lack expressive prominence and thus are pronounced without the extra High, e.g., (35).

(35)

bài sàyí bàabûr̃ sáabóo fíl bá	"he didn't buy a brand new motorcycle"
Súlè dà Béllò bà sù gàjí túɓús bá	"Sule and Bello didn't become exhausted"
bài zámá tsóohóo túkúf bá	"he hasn't become very old"

Answers to questions containing ideophones often lacked key raising, i.e., with the focus having switched to the truth value of the sentence, the ideophone no longer qualified for expressive prominence, e.g., (36).

(36)

ée, káayân sún wànkú fés	"yes, the loads were washed spanking clean"
ée, náa gá ɗán tsàakóo tsígíl	"yes, I saw a wee small chick"

To highlight the contrast, the sentences in (37) allow us to compare statements with ideophones having expressive prominence, yes/no questions with obligatory key raising, and answers to questions in which the ideophone is out of focus and does not carry expressive prominence.

(37)

(a)	cíiwòn yáa hánàa tá ↑ sákát.	"the illness prevented her completely"
	cíiwòn yáa hánàa tá sá ↑ kát?	"did the illness prevent her completely?"
	ée, cíiwòn yáa hánàa tá sákát.	"yes, the illness prevented her completely"
(b)	báƙ ín kèekè ↑ síɗík yáa ɓátà.	"a very black bicycle got lost"
	báƙ ín kèekè síɗík yáa ↑ ɓataa?	"did a very black bicycle get lost?"
	ée, báƙ ín kèekè síɗík yáa ɓátà	"yes, a very black bicycle got lost."
(c)	míyàr̃ táa yí gíshíríi ↑ fáu	"the soup is much too salty"
	míyàr̃ táa yí gíshíríi ↑ fáu?	"is the soup too salty?"
	ée, míyàr̃ táa yí gíshíríi fáu	"yes, the soup is much too salty"

Finally, in (38), we illustrate an ideophone in a question-word question. Since the focus here is presumably on the word "who?", the ideophone does not quality for expressive prominence and thus occurs with its normal tone.

(38)

wàa yá báa kà ɗányée shátâf?	"who gave you a real fresh one?"
Hàbúu nèe yá báa nì ɗányée shátáf	"Habu gave me a real fresh one"

5 Summary and Conclusions

In this chapter, I have demonstrated that if one studies a particular language in great depth, using a full array of synchronic (including dialectal) and comparative data, and if one allows oneself to draw on one's linguistic intuition and accumulated knowledge, one can come up with insights that provide a different perspective from the normally accepted analyses and generalizations. I have presented new findings and interpretations about Hausa, all of which have implications for our ideas about phonological theory and general phonological processes: (1) At some level (and this level will vary from language to language), contour tones in Hausa have a linguistic reality all their own and cannot be analyzed simply as a High-Low sequence attached to a single syllable. This is consistent with the asymmetry of Rising vs. Falling tones and the ongoing tendency to simplify contours to level tones. (2) With regard to the phonetic specification of the diphthong / ai /, tone has been shown to affect segments. (3) Tonal polarity is an inherent property of certain morphemes (generally short grammatical elements) rather than being a surface result of manipulations such as dissimilation or default assignment affecting fully specified underlying tones. (4) The key raising on ideophones is a function of “expressive prominence” and is not the same as the intonational key raising that characterizes interrogative sentences.

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1 In the transcriptions, c represents English *ch*, and j either the affricate *j* (as in English jury) or the fricative *zh* (as in French jour), depending on dialect. The digraph ts is an ejective sibilant, which belongs to the set of “glottalized” consonants including the implosives ɓ and ɗ and the ejective ƙ. The phoneme ʔy is a glottalized semivowel, derived historically from *ɗy < *ɗiy. Glottal stop is indicated by ʔ. The symbol r̃, which is not used in standard orthography, represents the rolled rhotic which contrasts with the retroflex flap / r /.

2 A typologically aberrant exception is Grebo, a Kru language of Liberia, whose contour tones do seem to be basic and fundamental (see Newman 1986).

3 Although Maddieson acknowledges that Falling tones probably predominate numerically over Rising tones - and he is thought to be a key authority for this generalization - a rereading of his paper shows that he actually has doubts about the significance of this view. He goes on to make the following statement, surprising for a scientifically trained, empirical phonetician: “The … absence of any marked prevalence of HL over LH in level tone sequences suggests that any possible articulatory … or perceptual … asymmetries favoring falling patterns do not play a major role in determining the constraints on phonological inventories of tone.” But it is *precisely* these phonetic factors which account for the asymmetry between L-H / H-L sequences, on the one hand, and Rising and Falling contours on the other.

4 This drift runs counter to the strong tendency in Hausa to preserve tones when segments are deleted, which, in the case of L tones, results in the ever-constant creation of new Falling tones. Other examples of the ebb and flow of language diachrony due to conflicting tendencies are described for Hausa in Newman (1991).

5 This description embodies the results of primary research carried out by Dr. Mahamane L. Abdoulaye and myself.

6 The -*ẁáa* is also preceded by a floating mora which ensures that any verb-final vowel before -*ẁáa* is long, i.e., / -ẁáa/ is perhaps better represented as / -ːẁáa/.

7 The general notion of friendly and hostile tones was stimulated by a more elaborate system presented by Matthew Y. Chen at the 18th Annual Meeting of the BLS (February 1992).

8 Note that the “diphthongal” contour Falling tone is associated with the most diphthongal pronunciation of the / ai / whereas the level tones are associated with a vowel pronunciation that is tending towards monophthongal. For the moment, I leave open the question whether this correlation is fortuitous or significant.

9 The clitic *wo*- alternates in morphosyntactically defined environments with a free marker *wói*, which doesn't concern us here. The negative subjunctive (which serves as the negative imperative) uses the same

final *-u* but a different initial marker (*bò*).

10 The underlyingly toneless schwa gets its surface tone either by copying the preceding syllable or, when attached to a monosyllabic Rising tone verb, by tone spreading.

11 Rising tones in Margi are much more common than Falling tones; this is unusual in the Chadic family.

12 Disyllabic proper names in Hausa that have tonal variants are invariably H–L or L–H (e.g., Shátù = Shàtú); there are no cases where a name can, for example, be pronounced alternatively as H–L and H–H.

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