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FLOATING TONES AND CONTOUR TONES IN KENYANG*

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Tonal alternations in the Bantu language Kenyang appear on first consideration to be rather complicated but yield to analysis into a small number of rules, which reveal interesting properties of floating tones, contour tones, and the tone-bearing unit in the language. This study focuses on the following problems. First, there is a phonetic contrast, found only at the end of the utterance, between the downgliding L of eket and the unreleased L of basem˚ . Unreleased L will be shown to derive from rising tone. Second, I argue that syllable final consonants may be tone-bearing, a claim supported by analysis of tone alternations resulting from postlexical resyllabification. Third, Kenyang uses floating L prefixes to form morphological verb tense distinctions. There is a behavioral contrast between the free L tone marking the progressive, which triggers downstep and blocks a spreading rule, versus the free L used in the recent past, which docks to the first root vowel, thereby causing the root tone to shift rightward. The analytic problem is to find a way to represent these two types of floating L. The distinction can be handled by assigning them to different levels of the lexical phonology, so that the shift-inducing L is added when verb roots are inserted, but the float-only L is added at a later stratum. Finally, I show that the interaction between the two rules H Spreading and Fall Simplification provides evidence for the cyclic application of postlexical rules.

1. Basic Tone Mapping and Distribution

The starting point for the analysis of Kenyang tone will be the two phonetic classes of L tones, namely the downgliding L on the final syllable of

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eket 'house', and the unreleased L of the final syllable of ǹgem° 'python', indicated by a raised circle. The lexical tone of nouns is determined solely by the noun root: noun class prefixes such as e and n are underlyingly toneless. In (1) I give representative samples of the major surface tone patterns found in nouns, along with suggested underlying tone patterns. Noun roots fall into two major tonal sets, those where the lexical tone pattern begins linking to the first root vowel, leaving the nouns class prefix with no tone, and a smaller set of nouns where the lexical tone pattern begins linking to the second root vowel (the first tone of the noun's melody is mapped to the vowel of the noun class prefix).

(1) Nouns without lexically linked tone

e-ket	'house'	L
ǹ-káp	'money'	H
e-nyáɣá	'spinach'	HH
ǹ-gem°	'python'	LH
ǹ-sɔ́	'saw'	LH
e-feŋé	'key'	LH
e-tâ	'calabash'	HL
sérêŋ	'shilling'	HL
ǹ-gɔrê	'woman'	LHL
ǹ-kuû	'long-necked antelope'	LHL

Nouns with root T_2 lexically linked to root V_1

sé-nkpɔ́q	'rap on head'	HH
é-têm	'hut'	HL
é-kírí	'compound'	HHH
é-rókin	'lock'	HHL or HLL
ń-súɣúru	'orange'	HHHL

I will assume that tone melodies in Kenyang may contain multiple adjacent H's

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earlier versions of this paper. Throughout the work, L tone will be unmarked, except that L toned syllabic nasals are marked with a grave accent.

and L's, in violation of the OCP, as exemplified by enyáɣá . This assumption will be justified below.

As (2) shows, the phonetic distribution of H and L is relatively unrestricted. H and L tone may appear word-finally preceded by either H or L; H and L may appear word medially, preceded by either H or L and followed by either H or L. The contour tones fall and rise are highly restricted; there are no final short rising tones and no medial short falling tones, although rising and falling tones on long vowels are possible in any position.

(2)	bacót	'forests'	basem•	'slaves'	eket	'house'
	sénkpóq	'hit on head'	áko•	(name)	ǹchíku	'I am buying'
	eérí	'scream'	béwɔ́ɔsi	'to dry up'	tatŭ wâ	'my bee'
	matrâs	'mattress'	sérêŋ	'shilling'	nyaá Tíkû	'Tiku's animals'
	ǹsɔɔ́	'saw (n.)'	*esĕ		*bêti	

These distributional patterns form the basis of the analysis of contour tones as well as unreleased L. First, fall and rise can stand on long vowels (transcribed as a geminate vowel sequence) anywhere in the word or utterance, whereas contour tones on short vowels are subject to severe restrictions. The asymmetry between long vowels and short vowels can be explained as follows. By "contour tone" we mean multiple tones associated to a single tone-bearing unit (TBU). By treating phonetic long vowels as two underlying vowels, and therefore as two TBU's, the lack of restrictions on rise and fall on long vowels is explained. What would have been contours on long vowel (ǹsɔ̌: and béwɔ̂:si) may be treated as simple H and L tones on a vowel sequence (ǹsɔɔ́ and béwɔ́ɔsi) with one tone per TBU. The rules or other distributional limitations which apply to contour tones need not be modified to prevent them from overapplying to long vowels, since the phonetic rising and falling tones of ǹsɔ̌: and béwɔ̂:si are phonologically not contour tones. Furthermore, treating long vowels as a single phonological unit requires the inclusion of a third contour, LHL, to account for nouns like tŭtuû 'cuckoo' (phonetically tŭtũ: with a rise-fall contour). The LHL contour may only appear on long vowels, and only in utterance-final position, just as the HL contour on short vowels may only appear in utterance final position. Treat-

ing long vowels as two phonological units, the LHL contour is analysed as a L on the first V followed by a true HL contour on the second V. That HL contour is subject to the same distributional restrictions exhibited by HL contours on phonetic short vowels.

The true contour tones, fall and rise on short vowels, have highly limited distribution. Fall can appear only at the end of the utterance, and rise can appear anywhere *except* at the end of the utterance. Looking at rise in utterance medial position, nearly all rises turn out to be morpheme-final. Since fall and rise are in complementary distribution, one might attempt a treatment of fall as the prepausal allotone of rise, or vice-versa. However there is another highly significant distributional fact to account for, namely the fact that the contrast between plain L and unreleased L is also limited to final position. Since rise and unreleased L are also in complementary distribution, distribution alone cannot provide an account of the relations between various contours and the two types of L tone.

Phonological alternations clarify the picture. To test the underlying representation of unreleased L, a word which ends with either type of L is simply placed in the middle of the utterance, as in (3). Without exception, the unreleased L becomes rise in medial position, while regular L never alternates.

(3)	setə̀°	'axe'	setə̌ sέwύ́	'the axe is broken'
	ǹsi°	'fish'	ǹsǐ yâ	'my fish'
	ǹden°	'clothes'	ǹdě̌n bέnére	'the clothes are wet'
	eket	'house'	eker e yâ	'my house'
	benɔ	'hoes'	benɔ bekɔ	'new hoes'

This motivates the derivation of surface unreleased L from a LH sequence, since the unreleased L in final position alternates with rising tone. What is unclear at this point is whether the LH sequence which surfaces as a phrase medial rising tone in (3) is also a phonological rising tone in final position (subject to a phonetic rule realizing final rising tone as unreleased L tone). The input to the phonetic rule generating unreleased L might be either (4a), with a rising tone (a tone sequence linked to one vow-

el), or L tone followed by floating H tone as in (4b). A representation such as (4b) was in fact proposed by Asongwed and Hyman [1976] for the analogous unreleased tone of Ngamambo.

(4) a. 

b. 

Evidence for the rising tone representation (4a) will come from analysis of the tone-bearing unit in Kenyang.

With this basic understanding of the unreleased L tone in Kenyang, and in particular the fact that it derives from a more abstract rising tone, the next task is to explain why the distribution of contour tones is highly restricted within both the stem and the utterance. To solve this problem it is necessary to consider how tones are represented in underlying forms. To explain the distribution of contour tones in Kenyang, we need to assume that tones are not associated with tone bearing units in underlying representations, i.e. to assume lexical representations like those in (5a) with unlinked tones, as opposed to ones like (5b), with linked tones.

(5) a.

L L H	L H L	H
teŋasaa	kuu	noq
[se-teŋasáá] 'crane'	[nkuû] 'antelope'	[e-nóq] "drum"

b. 

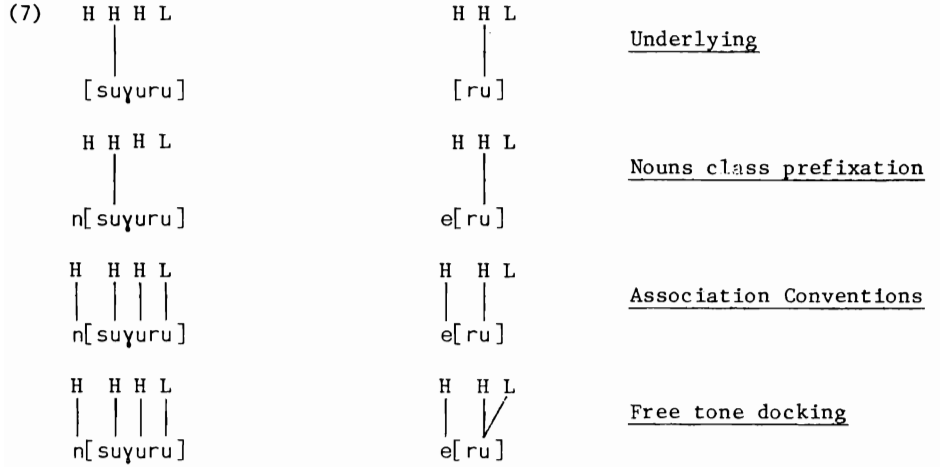
The analysis in (5a) assumes that free tones link to free vowels one-to-one left-to-right by universal association conventions. Such linking applies in the lexicon prior to addition of the noun class prefixes such as e and se, which are underlyingly toneless. The noun prefix usually takes a default L tone, as in (5), which is representative of most nouns in the language. However, some stems cause these same class prefixes to appear with a phonetic H tone, as in (6).

(6)	sé-nchét	'food item'	ké-nchét	'food items'
	né-rá	'tongue'	ń-súɣúru	'orange'
	é-rû	'vegetable'	bé-rû	'vegetables'
	é-cháá	'meeting house'	bé-cháá	'meeting houses'

The problem here is that the phonologically unusual behavior, a H toned noun class prefix, is conditioned by the noun stem but is phonetically manifested on the prefix. As the derivation (7) shows, these stems can be handled by giving an exceptional lexical link between the second tone and the first vowel in specific words. In fact, given that there is precisely one class of irregularly prelinked stems, one might postulate a lexically conditioned Initial Tone Association Rule mapping the second tone to the first vowel and mark the forms in (6) as undergoing that rule rather than the more general rule which maps the first tone to the first vowel. In nouns such as those in (6), the initial tone of the stem remains phonologically unattached until the class prefix (se- , ke- , be- , or n- , inter alia) is added. When the toneless class prefix is added, the free H tone at the left of the stem links to the free prefix vowel. (Later, it will be shown that é rû has the underlying tone pattern HL, where L is prelinked to the first root vowel; the surface falling tone derives from the H Spreading rule, to be motivated below.) Noun stems which cause class prefixes to become H toned are an overwhelming minority in Kenyang, and the analysis proposed here explains that status, given that lexical linking of tones is less highly valued (see Goldsmith [1976] or Odden [1986] inter alia for discussion of the relationship between lexical association lines and the evaluation metric).

A further advantage of treating tones as unlinked in the general case is that it explains why contour tones appear only at the end of the morpheme. Left-to-right one-to-one linking results in more tones than TBU's only at the end of the stem. Given the analysis proposed above, the only way to create a contour tone on a nonfinal vowel would be to lexically prelink *two* tones to a single vowel. Since the only lexical prelinking is between the second tone and the first vowel, contours in the middle of the stem can never arise. This analysis also correctly predicts that nouns with no class pre-

(7)



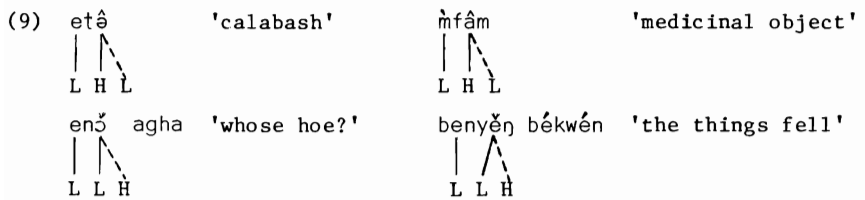
fix and a lexical prelinking between the first vowel and the second tone will exhibit contour tones on the initial vowel. An example of such a noun is tŭtuû 'cuckoo'.[1]

The free-tone docking rule, which applies to the leftover tones at the end of the stem to generate contour tones, is given in (8).

(8) Free Tone Docking

This rule applies quite transparently to medial LH sequences and final HL sequences, as shown in (9).

(9)



[1]This predicts that when preceded by a class prefix, the initial L should shift to that prefix, resulting in an initial level H. Unfortunately this

Since fall does not occur medially and rise does not occur finally, one might try to formulate (8) so that positional restrictions on contours would result from the formal statement of the rule. Such restrictions would be impossible to formulate without angled brackets or the like. Neither utterance final versus utterance medial position intrinsically blocks rule (8) nor does the nature of the free tone being docked, that is, H versus L. The two remaining positional restrictions on contour tones (lack of medial fall and final rise) will therefore be handled by independent phonological rules, and Free Tone Docking will remain in its maximally general form.

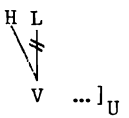
The first of these rules, Fall Simplification, delinks the L part of medial falling tone with the consequence that fall can only surface prepausally. Fall Simplification (11) is motivated by the fact that any word which has a falling tone in isolation always changes that fall to a level H in the middle of the utterance, as in (10).

(10)

ǹkû	'dress'	ǹkú pyɔ̂	'black dress'
ǹgɔrê	'woman'	ǹgɔ́ré Tíkû	'Tiku's wife'
matrâs	'mattress'	matrás aápɔɔ	'the mattress is rotting'

The formulation of (11), with reference to "...]$_U$", should be taken to read "when something follows within the utterance".

(11) Fall Simplification



Note that in these examples (especially ǹgɔ́ré Tíkû from ǹgɔrê Tíkû), no downstep results from decontouring fall to H. This is due to the application of Free L Deletion (12) which applies to a free L tone standing at the end of its morphosyntactic domain, viz. word or phrase.

(12) Free L Deletion

$L' \rightarrow \emptyset$ /___]

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noun takes no class prefixes.

When Fall Simplification applies to a tone which is not word-final, (12) cannot apply since a free tone in the middle of a word is not domain-final. In such a case, the resulting free L tone is realized as a downstep. One environment where this may arise is when vowels between words are (optionally) contracted; if the word final vowel of the first word is H toned and the following word begins with the tone sequence LH, vowel contraction results in the phonetic sequence H!H.

(13)	m̀bɔŋ́	'owner'	ǹgɔ́	'I saw'
	enɔ	'hoe'	ebá	'bag'
	enóq	'drum'	enyáɣá	'spinach'
	m̀bɔŋ́nɔ	'owner of the hoe'	(/m̀bɔŋ́ enɔ/)	
	m̀bɔŋ́!bá	'owner of the bag'	(/m̀bɔŋ́ ebá/)	
	m̀bɔŋ́!nóq	'owner of the drum'	(/m̀bɔŋ́ enóq/)	
	m̀bɔŋ́!nyáɣá	'owner of the spinach'	(/m̀bɔŋ́ enyáɣá/)	
	ǹgɔ́!nóq	'I saw the drum'	(/ǹgɔ́ enóq/)	
	ǹgɔ́ enóq	(id.)		

Contraction fuses the vowel sequences in (13) into a single vowel, with both tones of the underlying sequence preserved; ǹgɔ́ enóq thus becomes intermediate ǹgɔ̂nóq , whereupon the utterance medial falling tone undergoes (11) resulting in surface ǹgɔ́ˋnóq . The resulting free L is not deleted since it is not domain final, so it is interpreted as a downstep.[2]

The remaining rule is a rule of phonetic interpretation, which interprets final rising tone as unreleased L. I have formalized the rule as a feature fusing and changing rule (14), since the precise formulation of this low-level phonetic rule is not important here.

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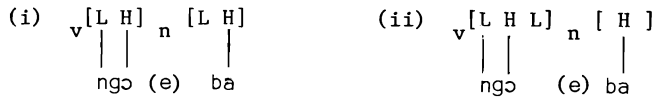
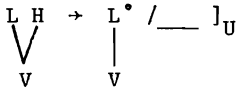
[2]While vowel contraction results in the automatic reassociation of the tones of the underlying vowel sequence to the remaining vowel, I assume that the morphosyntactic relations between tones is not affected. In other words, I assume that contraction results in (i) rather than (ii).



(14) Unreleased L rule



2. H Tone Spreading and the TBU

Having seen the basic rules that create and simplify contour tones, we may turn to a tone spreading rule which applies when words are concatenated, illustrated in (15). When a word ends in a H tone and stands before a word beginning with at least two L tones, the initial L becomes a H tone. In the examples in (15), the rule only applies in relatively fluid speech, and as a speech-rate controlled variant, the underlying LL sequence may be retained phonetically.

(15) ǹku• 'taro' setéŋé 'broomstick'
Tambey (PN) bataŋ• 'judges'
sekwob• 'eating spoon' ewú 'broken'

ǹkǔ bátaŋ• ~ ǹkǔ bataŋ• 'judges' taro'
ǹkǔ Támbey ~ ǹkǔ Tambey 'Tambey's taro'
setéŋé Támbey ~ setéŋé Tambey 'Tambey's broomstick'
setéŋé bátaŋ• ~ setéŋé bataŋ 'judges' broomstick'
ewú sékwob• ~ ewú sekwob• 'broken eating spoon'
ǹgɔ́ bátaŋ• ~ ǹgɔ́ bataŋ• 'I saw the judges'

A further example illustrates H Spreading. The Class 2 noun ba-baberi 'guards' has no lexical H tones, but when followed by Tambey in the possessive phrase bababerǐ Tambey ~ bababerǐ Támbey 'Tambey's guards', a H tone is assigned to the final vowel of that noun, resulting in a rising tone. This syntactically conditioned H tone also triggers H Spreading.

When the following word starts with the tone sequence LH, H Spreading is impossible, as (16) shows.

(16) ǹtí bebá (*ǹtí bé...) 'I sold bags'
ǹkǔ ekáti (*ǹkǔ é...) 'school's taro'
setéŋé Ayɔ́q (*setéŋé á...) 'Ayoq's broomstick'

ǹgɔ́ ekáti	(*ǹgɔ́ é...)	'I saw the school'
ewú setéŋé	(*ewú sé...)	'broken broomstick'

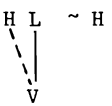
This blockage of the spreading pattern might be due to a requirement that there must be a L tone after the vowel to which H spreads, or it could be blocked by the presence of the H tone. The examples in (17) resolve this question and also shed light on the formulation of the rule. When a L toned monosyllable at the end of the utterance stands after H, L tone becomes fall. As in (15), this spreading is optional.

(17)

pyɔ	'black'	chu	'red'
nyaa pyɔ	'black animal'	nyaa chu	'red animal'
ǹtaá pyɔ̂	'black stone'	ǹtaá chû	'red stone'
ǹkú pyɔ̂	'black frock'	ǹkú chû	'red frock'
nyoŋ	'crocodile'	nyoŋ o	'crocodile?'
eyɔq	'feather'	eyɔɣ ɔ	'feather?'
ebɔ́q	'piece'	ebɔ́ɣ ɔ̂	'piece?'
enɔ́q	'drum'	enɔ́ɣ ô	'drum?'

We can account for both the H tone variant of spreading seen in (15) and the falling tone variant seen in (17) with a single rule, (18), which is blocked by following H.

(18) H Spreading (optional)



After H Spreading applies, Fall Simplification applies. The falling tone which would have been created by H Spreading (18) in the case of the examples in (15) (which show a simple H tone on the surface) undergoes Fall Simplification, as shown in the derivation (19) on the next page. These examples motivate an ordering relation as well, one which will become important below: H Spreading precedes and feeds Fall Simplification.

(19)

Now we may turn to another tonal problem which bears on the nature of the tone-bearing unit in Kenyang. There is an interesting alternation involving rising tones which argues that syllable final consonants in Kenyang are tone bearing. This alternation is exemplified in (20), which involves word-pairs where the first word ends in rising tone. The underlying rise shows up as a rise on the surface when the first word is vowel final or when the first word is consonant-final and the following word is consonant-initial. As expected, the H tone part of rise conditions the optional H Spreading rule. What is not expected is that, in case the first word is consonant final and the second word is vowel initial (labelled below as C+V), the H tone obligatorily and completely detaches from its original syllable, shifting to the following syllable. I have indicated the resyllabification of the final consonant with the following syllable by a hyphen. This will suggest a possible solution.

(20)

V-final L• first word			
setə•	'ax'	ǹsi•	'fish'
C-final L• first word			
enɔq•	'tree'	menɔq•	'trees'
epem•	'owl'	bepem•	'owls'
ǹgwot•	'I have tied'	nyoq•	'porcupine'
C-initial second word			
sekɔ	'new (Cl. 19)'	bekɔ	'new (Cl. 8)'

V-intial second word

ekɔ	'new (Cl. 9)'	ekɔ	'new (Cl. 7)'
enóq	'drum'	achí!wú	'it is dying (Cl. 9)'

Rise + LL, LL•

setə̌ sékɔ ~ setə̌ sekɔ	'new ax'	V+C
ǹsɪ̌ ékɔ ~ ǹsɪ̌ ekɔ	'new fish'	V+V
menə̌ɣ békɔ ~ menə̌ɣ bekɔ	'new trees'	C+C
enɔ ɣ-ékɔ (*enə̌ ɣ-ekɔ)	'new tree'	C+V
epe m-ékɔ (*epə̌ m-ekɔ)	'new owl'	C+V
bepə̌m békɔ ~ bepə̌m bekɔ	'new owls'	C+C
ǹgwə̌r ménɔq• ~ ǹgwə̌r menɔq•	'I have tied trees'	C+C
ǹgwo r-énɔq• (*ǹgwə̌ r-énɔq)	'I have tied a tree'	C+V

Rise + LH

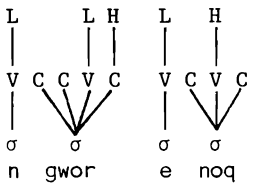
nyo ɣ-á!chí!wú	'the porcupine is dying'	C+V
ǹsɪ̌ achí!wú	'the fish is dying'	V+V
ǹgwo r-é!nóq (*ǹgwə̌ r-enóq)	'I have tied a drum'	C+V
ǹgwə̌r menóq (*ǹgwor mé!nóq)	'I have tied drums'	C+C

In the case of vowel-final words such as setə̌ or consonant final words when they stand before consonant initial words such as ǹgwə̌r menɔq• , spread of H to the following word can be explained as the result of applying H Spreading. This does not explain forms like enɔ ɣ-ékɔ or ǹgwo r-é!nóq . First, H Spreading is optional and applies only in fast speech, whereas the C-plus-V tone shift is obligatory and does not depend on speech rate. Second, H Spreading only *spreads* H to the right; it does not remove the H tone from its original syllable entirely, whereas in the C-plus-V tone shift, the H tone is removed completely from the original syllable. Third, while H spreading is blocked by a following H tone, as in ǹgwə̌r menóq , a following H does not block the C-plus-V tone shift, as in ngwor é!nóq .

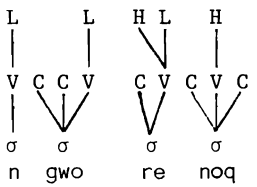
The C-plus-V tone shift can be explained quite simply if we assume that the H part of rise is underlyingly associated with the syllable final consonant, which is to say that syllable final consonants are tone bearing units. When the stem ends in a consonant and the next word begins with a vowel, as in the

derivation (21), the consonant resyllabifies with the following vowel. Resyllabification does not intrinsically affect tone, so the final consonant carries along its tone. Making the further assumption that only segments in the syllable nucleus can bear tone (an assumption which is doubtless part of linguistic theory, since no language has been reported with tone-bearing syllable onset consonants), the tone of the consonant shifts to the nucleus of its new syllable,[3] and the derivation terminates with the application of Fall Simplification to the syllable which received a contour tone as a side-effect of consonant resyllabification. Note that the rule Free L Deletion (12) does not apply, since the floating L is not at the end of the word. The floating L tone which results from Fall Simplification is therefore realized phonetically as downstep when it stands before another H, as in ǹgwor é!nóq .

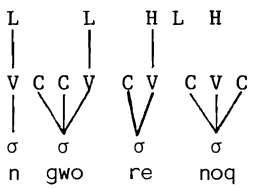
(21)



Underlying



Resyllabification and Readjustment



Fall Simplification

[3]An alternative analysis suggested by Larry Hyman is for the tone of the consonant to be merely set afloat by convention and then invoke a later rule linking a free H to the right.

For further examples of tone shift induced by resyllabification, consider the forms in (22) involving the question clitic e . It can be seen here that words with final rise move the H tone to the clitic, which surfaces with a falling tone since Fall Simplification is inapplicable.

(22)	enɔqˑ	'tree'	enɔ ɣ-ô̌	'tree?'
	epemˑ	'owl'	epe m-ê	'owl?'
	nyoqˑ	'porcupine'	nyo ɣ-ô	'porcupine?'

Thus, assuming final C's to be tone bearing units in Kenyang accounts for an otherwise unusual segmentally-conditioned tone shift.

It should be pointed out that the only syllable final consonants which provide compelling evidence for consonants as TBU's are root-final consonants. Underlying syllable final consonants which are not word final are quite rare (words like matrâs 'mattress' are syllabified ma.trâs). The n of mă-njáɣa 'Keyaka person' is probably syllabic in underlying form, viz. ma-ńjáɣa , since it is root initial. Only a very few loan words like brígda 'bricklayer' have clearly root-medial syllable final consonants. Still, postulating that syllable final consonants are TBU's may explain why the rule H Spreading appears to have failed in brígda . It will be shown later that underlying áchwi becomes phonetic áchwî by H Spreading; however, brígda does not become *brígdâ . If g is tone-bearing in this word, H Spreading would spread H to the syllable final consonant, and no further. By application of Consonant Tone Transfer (23), the syllable final consonant loses its tone, nullifying the effect of H Spreading.

The conclusion that syllable final consonants are tone bearing in Kenyang has another implication for the treatment of unreleased L. It was conjectured earlier that unreleased L might derive either from rise or from L plus floating H. One argument against the floating H treatment of unreleased L is that it would entail a considerable complication of the Free Tone Docking rule to keep the rule from applying to free H at the end of the utterance. However, since consonants are tone bearing, then in the form nyoqˑ in (22), the stem tone pattern LH will be mapped by the universal association conventions to the two TBU's of the stem, and there *are* no free tones left for Free

Tone Docking to apply to in this instance. Thus deriving unreleased L from L plus floating H would complicate not just the Free Tone Docking rule but would also run afoul of the association conventions.

One detail has not yet been spelled out. While onset consonants cannot bear tone, nuclear consonants clearly can. Since syllable final consonants do not bear distinctive phonetic tone, we must seek an explanation for the surface lack of tone on the consonant when it remains in its original syllable. The H tone of underlying ḿ in bepĕ́m bé́kɔ is phonetically transferred to the preceding vowel, which is the result of a general rule (23) drawing a tone off of a consonant and associating it to the immediately preceding vowel.

(23) Consonant Tone Transfer

Rule (23) can be motivated quite easily, since it applies as a sentence level sandhi rule as well. When a phonetically tone-bearing nasal stands after a vowel, the nasal transfers its tone to the preceding vowel. When preceded by a consonant or in utterance initial position, an initial syllabic nasal retains its contrastive tone.

(24)	ḿsúɣúru	'orange'
	ǹsân	'bird (sp)'
	ache	'he gave'
	asɔt	'he took'
	asɔr ḿsúɣúru	'he took an orange'
	asɔr ǹsân	'he took a bird'
	ache-n sân	'he gave a bird'
	achĕ́-n súɣúru	'he gave an orange'

When the preceding word ends with a H toned vowel and the following nasal is L toned, that L tone shifts to the preceding vowel. Subsequent application of Fall Simplification sets that L tone afloat. If it precedes a L tone, it has no phonetic realisation, but if it precedes a H tone it is realised as a

downstep between H tones. As in the case of vowel contractions discussed in (13), the floating L is not deleted since it is not final.

(25) aghɔ́ 'he saw'
ǹkə• 'farm'
ǹtɪ́ 'head'
aghɔ́-n kə• 'he saw the farm'
aghɔ́-n !tɪ́ 'he saw a head'

The postlexical component needs Consonant Tone Transfer (23) anyway for these alternations, and this same rule accounts for the fact that the underlying tone of consonants in the syllable nucleus is phonetically manifested on the preceding vowel.

One might contemplate the elimination of Tone Transfer (23) from the grammar, especially in the case of forms like achě-n súɣúru , in favor of certain assumptions about phonetic representations. As Larry Hyman has pointed out to me, languages with contour tones never contrastively mark the position within a syllable where the tone rises or falls. Thus, no language contrasts the hypothetical syllables ǎḿ with àḿ or àm̌ . Conceivably, then, the correct surface phonological representation of underlying ache ń-súɣúru is simply a-cheń-sú-ɣú-ru , where hyphens represent syllabification.

There are solid reasons for maintaining (23) as a part of Kenyang grammar, even if such lack of tonal contrasts is universal. The Unreleased L rule (14) and Fall Simplification (11) provide the necessary arguments. First, the Unreleased L rule simplifies a final rising tone linked to a single TBU, viz. ebə̌ becomes ebə• 'bush farm'. Final "rising tone", that is, a LH tone sequence, when distributed over two TBU's within the syllable will not simplify, as in ǹsɔɔ́ 'saw'. Without (23), underlying baseḿ 'slaves' should behave like ǹsɔɔ́ and surface as *basěm ~ baseḿ rather than as basem• . Similarly, Fall Simplification affects only a sequence of medial HL on one TBU, viz. ŋgɔré... from underlying ǹgɔrê , but not HL distributed over two TBU's within a syllable, viz. béwɔ́ɔsi 'to dry up'. However, a short falling tone derived from H+L via (23) will undergo Fall

Simplification, viz. aghɔ́-n ꜜtí 'he saw a head' from aghɔ́ ǹtí , showing that the intermediate stage aghɔ̂n tí is justified.

3. Tone in the Verb and Lexical Rule Application

Tone alternations in the verb illustrate further cases of the tone rules discussed above in the lexical phonology. Let us first consider the remote past of the H verb tí and the L verb ku . In (26), we see that adding a H toned subject prefix before a L-toned verb causes L to become fall.

(26)	L verb:	ku 'buy'	H verb:	tí 'sell'	Person
		ǹ-ku		ǹ-tí	1s
		ɔ-ku		ɔ-tí	2s
		a-ku		a-tí	3s
		sé-kû		sé-tî	1p
		bǎ-kû		bǎ-tî	2p
		bá-kû		bá-tî	3p

This illustrates application of H Spreading within words. While postlexical application of the rule is optional, word internally Spreading is obligatory. A similar change in rule properties when a rule is manifested in the lexical component versus the postlexical component has been noted elsewhere, e.g. Kiparsky [1985].

In (27) we see an example of a L toned polysyllabic verb. After a H toned prefix, the first root vowel becomes H.

(27)	L verb:	dayati 'tear'	Person
		ǹ-dayati	1s
		ɔ-dayati	2s
		a-dayati	3s
		sé-dáyati	1p
		bǎ-dáyati	2p
		bá-dáyati	3p

These forms illustrate application of H Spreading, followed by Fall Simplification. Thus underlying sé-dayati becomes sé-dâyati by Spreading and sé-dáyati by Fall Simplification. As with the alternations in (26), Spread-

ing in (27) is obligatory.

While the forms in (26) and (27) illustrate application of H Spreading within a word, they do not by themselves show whether these particular rule applications are postlexical or lexical. In fact, the applications in (26) and (27) can be shown to be lexical. Consider the data in (28), which consists of L toned verb stems preceded by a H prefix and followed by the L toned question clitic e . Notice that H Spreading applies once in the lexicon to give sékôt , followed by Fall Simplification and then H Spreading applies again postlexically to e .

(28) sé-kôt 'we cut' sé-kór ê 'did we cut?'
bá-jêt 'they ran' bá-jér ê 'did they run?'

Forms like sédáɣati in (27) show that we cannot simply revise H Spreading to apply to a string of L toned vowels; indeed, the only case where we get multiple applications of spreading is where the environment of the rule is brought about by independently applying the rule lexically and postlexically. Thus the forms in (26) and (27) represent lexical application of H Spreading. We will return to the lexical and postlexical application of H Spreading and Fall Simplification below.

In (29), another verb form, the progressive, exhibits two anomalies. First, Spreading fails to apply between the prefix H and the L toned verb, and second, there is a downstep before the prefix H and the H toned verb.

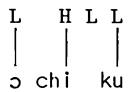
(29)	L verb:	ku	H verb:	tí	Person
		ǹ-chí-ku		ǹ-chí-!tí	1s
		ɔ-chí-ku		ɔ-chí-!tí	2s
		a-chí-ku		a-chí-!tí	3s
		sé-chí-ku		sé-chí-!tí	1p
		bǎ-chí-ku		bǎ-chí-!tí	2p
		bá-chí-ku		bá-chí-!tí	3p

Both of these difficulties can be explained by postulating a floating L before the verb root in the progressive. Thus, the underlying representations of (29) would be (30).

(30) L verb:	ku	H verb:	tí	Person
	ǹ-chí`-ku		ǹ-chí`-tí	1s
	ɔ-chí`-ku		ɔ-chí`-tí	2s
	a-chí`-ku		a-chí`-tí	3s
	sé-chí`-ku		sé-chí`-tí	1p
	bǎ-chí`-ku		bǎ-chí`-tí	2p
	bá-chí`-ku		bá-chí`-tí	3p

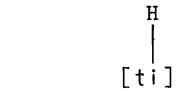
Treating downstep as a floating L tone, the H toned verbs are accounted for directly. The failure of H Spreading is also explained, since the floating L tone blocks Spreading, standing between the H tone and the L toned vowel to which the H would spread. Free L Deletion cannot apply since the floating tone is in the middle of the word, and Free L Deletion only applies at the end of the word.

(31)

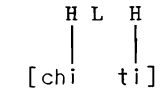


Now let us consider how prefix and root tones are linked to vowels in a lexical phonological analysis of Kenyang. Parallel to the argument which Pulleyblank [1986] makes for Tiv, we can see that mapping from tone to vowel is cyclic, and the floating L prefix must be added after root tones are linked to root vowels, as in (32a). If tone were to be mapped to vowels non-cyclically as in (32b), the lexical H would be shifted to the right, and after free tone docking, it should surface as a rising tone or else final unreleased L. Notice that Free Tone Deletion later links the floating L of (32a) to chi , but Fall Simplification then detaches that L tone. The medial L tone does not link by the Association Conventions, especially in the second step of (32), since the conventions assign the leftmost free tone to the leftmost free vowel. Thus, the floating L prefix of the progressive must be added to the root on a cycle after the initial association of root tones and vowels.

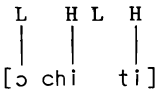
(32) a.



Association conventions

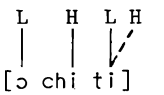


Association conventions



Association conventions

b.



Association conventions, Free Tone Docking

*[ɔchíti•]

There is a second past tense in Kenyang, the recent past, which is tonally distinct from the remote past illustrated in (26). This tonally distinct past tense exists only for H toned verbs. The recent past of L verbs is the same as the further past. Note that H toned stems in this tense change the lexical H tone to a rising tone, which becomes unreleased L before pause.

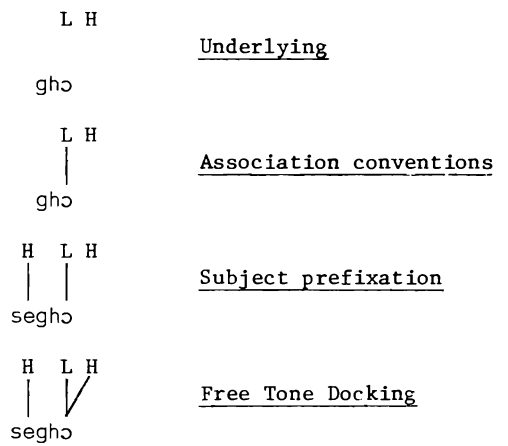
(33) H verb

ɔkpɔ́t	'you hacked (rem)'
ɔkpɔt•	'you hacked (rec)'
sékpɔ́t	'we hacked (rem)'
sékpɔt•	'we hacked (rec)'
ɔkpɔ r-ê	'have you hacked? (rec)'
ɔkpɔ́ r-ê	'have you hacked? (rem)'
ǹgɔ́	'I saw (rem)'
ǹgɔ•	'I saw (rec)'
séghɔ́	'we saw (rem)'
séghɔ•	'we saw (rec)'
séghɔ̌ betâ	'we saw (rec) calabashes'

L verb	
ɔku	'you bought (rec,rem)'
sékû	'we bought (rec,rem)'
ɔkɔt	'you cut (rec,rem)'
sékɔ̂t	'we cut (rec,rem)'

There is a simple explanation for the tone shift which H verbs undergo, as well as for the neutralization of the tense distinction in L verbs. The recent past is marked by a floating L added before the root tone, whereas the remote past has no such L. The recent past is therefore tonally similar to the progressive in selecting a floating tone which is inserted to the left of the root tone. However its floating L is concatenated with the root tone on the first cycle, prior to application of the association conventions. Adding the recent past L tone has the unusual effect of shifting the lexical tone one tone bearing unit to the right, or in case the stem has only one tone bearing unit as in (34), leaves the lexical tone unassociated at the end of the stem, which is then linked to the final vowel by the free Tone Docking rule.

(34)

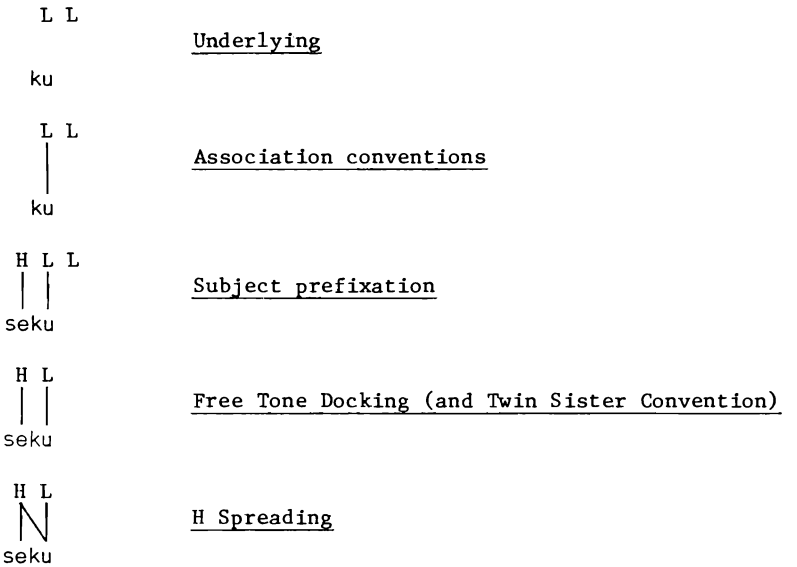


(→ [ségho˚] by phonetic interpretation of prepausal rise)

This same L prefix also explains why the two past tenses of L toned verbs are homophonous. Consider the derivation in (35). The recent past L tone

maps to the stem vowel, the lexical tone is left floating, and when it is eventually affiliated with the final vowel, it is simply deleted by the Twin Sister Convention.

(35)



In the case of a H toned verb stem with a final consonant, the floating pre-stem L is assigned to the initial stem vowel and the root H is assigned to the final consonant. If the consonant resyllabifies with the following vowel, as in ɔkɔr énɔq• , the H tone shifts to the following syllable. Otherwise the tone is retracted to the previous vowel by (23), resulting in a rising tone that becomes unreleased L in final position.

(36) ɔkɔt• 'you hacked' ɔkɔr énɔq• 'you hacked a tree'
ɔkɔ̌r menóq 'you hacked drums' ɔkɔr é!nóq 'you hacked a drum'

4. Lexical and Postlexical Rule Applications

The next problem to be considered here is the interaction between H Spreading and Fall Simplification, especially in terms of their relative ordering and their application within words and between words. It would seem that the interaction of these rules should be a fairly simple matter—we

have seen that H Spreading creates a falling tone which later simplifies, a situation which is amenable to a simple ordering statement "Spreading precedes Simplification". By antisymmetry of rule ordering, we incorrectly predict that a H tone which derives by Fall Simplification therefore cannot trigger H Spreading. This is not the case. In (37) we have the lexical L toned verb stem ku which undergoes H Spreading due to the preceding subject prefix. That H tone then spreads to the following word, i.e. we have double application of H Spreading, with an application of Fall Simplification in the middle.

(37)	sé-kû	'we bought'	bɔmatrâs	'mattresses'
	sé-kú bɔ́matrâs	'we bought mattresses'	(/sé-ku bɔmatrâs/)	
	bá-kɔ̂ŋ	'they loved'	baghɔrê	'women'
	bá-kɔ́ŋ bághɔrê	'they loved the women'	(/bá-kɔŋ baghɔrê/)	

Thus arises the paradox that Fall Simplification applies before H Spreading in order to provide the latter rule an opportunity to apply, but Fall Simplification also applies after H Spreading, to clean up the result of utterance medial Spreading.

One response to this interaction between Spreading and Simplification would be to modify Spreading in some way so that it simply spreads H tone through the maximum sequence of L toned vowels and eliminate the intermediate step in which Simplification applies. According to this approach, the H of se in (37) would spread to the root, then to the following syllable, and would simply constitute a case of the self-feeding application of an iterative rule. This approach can be ruled out immediately by the data in (38). Here we see that both underlying H and H derived from a falling tone will spread to the first syllable of the succeeding word. If spreading is to apply to the maximal sequence of L tones, then it should not stop with the first syllable of the next word as it does in (38).

(38)	sé-ghɔ́	'we saw'	sé-kɔ̂ŋ	'we loved'
	sé-ghɔ́ séteŋasáá	'we saw cranes'	sékɔ́ŋ séteŋasáá	'we loved cranes'
	*séghɔ́ sétéŋasáá		*sékɔ́ŋ sétéŋasáá	

Moreover, the revised iterative spreading rule would incorrectly generate forms such as *sé-dáɣáťí instead of sé-dáɣaťi 'we (remote) tore' in (27).

The crucial observation which distinguishes those cases where H Spreading applies more than once from those cases where it applies only once is that multiple application of the rule always involves the word-external application of Spreading. We might try to handle the forms in (38) by applying Spreading once in the lexical phonology and then reapplying the rule a second time in the postlexical phonology, with Fall Simplification and Free L Deletion (12) applying in between. Such an approach is on the right track, but there is more to be said about multiple application of spreading. In (39) we see that spreading can apply to more than one vowel in a sequence of L toned monosyllabic words.

(39) mpɔŋ 'cow' mpɔŋ pyɔ 'black cow'
mpɔŋ pyɔ ajet 'the black cow ran'
nkû 'dress' nkǘ pyɔ̂ 'black dress'
nkǘ pyɔ́ ádaq 'the black dress tore'

The H tone of ǹkǘ (from ǹkû by Fall Simplification) spreads to the following adjective pyɔ , and from there to the initial syllable of the verb adaq.[4]

If we consider only the sequence of underlying tones and number of syllables, there is no significant difference between the forms in (38) where Spreading applies to only one following syllable and those in (39) where Spreading applies to two following syllables. However, if we include morphological and syntactic bracketing, a striking difference between these cases arises.

(40) a. $[_S\ [_{NP}\ [_N$ nkû $_N]\ [_A$ pyɔ $_A]\ _{NP}]\ [_{VP}$ adaq $_{VP}]\ _S]$

b. $[_{VP}\ [_V$ sé[kɔt] $_V]\ [_{NP}$ seteŋasáá $_{NP}]\ _{VP}]$

[4]The noun ǹkû is in class 9, a class which does not induce insertion of the floating H tone in N+adj constructions, discussed in section 5. The H tone on the initial syllable of the verb therefore derives by Spreading from the noun ǹkû .

The difference between (40a), with maximal inter-word spreading of H, and (40b), with restricted spreading between words, can be explained under the assumption that the tone rules in question apply cyclically and that syntactic bracketing contributes to the definition of cyclic domains. The derivation of (40a) is that in (41).

(41)

$_{N}$[nkû]...	Underlying
$_{N}$[nkú`]...	Fall Simplification
$_{N}$[nkú]...	Free L Deletion
$_{NP}$[nkú pyô]...	H Spreading
$_{NP}$[nkú pyó`]...	Fall Simplification
$_{NP}$[nkú pyó]...	Free L Deletion
$_{S}$[nkú pyó âdaq]	H Spreading
$_{S}$[nkú pyó á`daq]	Fall Simplification

In contrast, (40b) involves only two cyclic domains, namely, a lexical domain involving the subject prefix and the stem within the verb, and one involving the verb plus its object.

(42)

$_{V}$[sé - ku]...	Underlying
$_{V}$[sé - kû]...	H Spreading
$_{V}$[sé - kú`]...	Fall Simplification
$_{V}$[sé - kú]...	Free L Deletion
$_{VP}$[sékú sêteŋasáá]	H Spreading
$_{VP}$[sékú sé`teŋasáá]	Fall Simplification

The problem of multiple applications of Spreading, Simplification, and Free Tone Deletion can be solved by applying these rules cyclically. However, since syntactic structure contributes to defining a cyclic domain, this conclusion has theoretical consequences for the theory of lexical phonology. It is claimed in Mohanan [1986] and Kiparsky [1985] that the phonological cycle derives from the interaction between the phonological and morphological components within the lexicon. It is further claimed that postlexical rule application can never be cyclic. The evidence for postlexical cyclic applica-

tion presented here challenges this claim. Similar counterexamples to the claimed non-cyclic application of rules in the postlexical domain are presented by Liu [1980], Dresher [1983], and Kaisse [1985].

5. HF Pattern Nouns

The final problem in Kenyang to be discussed is the underlying representation of nouns with the surface tone pattern HF in isolation. Examples of these nouns are given in (43).

(43)

é-rû	'vegetable'	bé-rû	'vegetables'
áchwî	'car'	né-bâ	'breast'
sérêŋ	'shilling'	é-têm	'hut'
á-sâ	'fish net'	bá-sâ	'fish nets'
kápâ	'penny'	wîndɔ́	'window'
kasárâ	'cassava'	bɔ́kît	'bucket'

There are two conceivable underlying representations for these nouns. The noun áchwî might have the underlying tone pattern HHL, i.e. its surface isolation form is its underlying form. On the other hand, it might have the underlying form HL (áchwi), and it undergoes H Spreading. There is evidence that the latter analysis is the correct analysis in most nouns, including áchwî ; however, for some nouns, including bɔ́kît , the former analysis appears to be correct.

Let us consider the evidence relating to nouns such as áchwî , which includes all of the nouns in (43) except kasárâ and bɔ́kît . These nouns are phonologically anomalous in a number of ways. First, when the former type stand before another word with an initial H tone, their tone pattern shifts to HL.

(44)

étem échîsɔŋɔ	'the hut is burning'
ǹku éru é!yú	'I bought vegetables yesterday'
ǹku áchwi é!yú	'I bought a car yesterday'
m̀bɔ́ŋ séreŋ é!yú	'I found a shilling yesterday'
m̀bɔ́ŋ sérêŋ	'I found a shilling'
ásə áchîsap	'the fishing net is long'
éru é!pɔ́ɔ́	'the vegetable rotted'

Nouns ending with a falling tone not preceded by H simply change that F to level H by Fall Simplification, viz. bẹtâ 'calabashes', bẹtá bé!pɔ́ɔ́ 'calabashes rotted'.

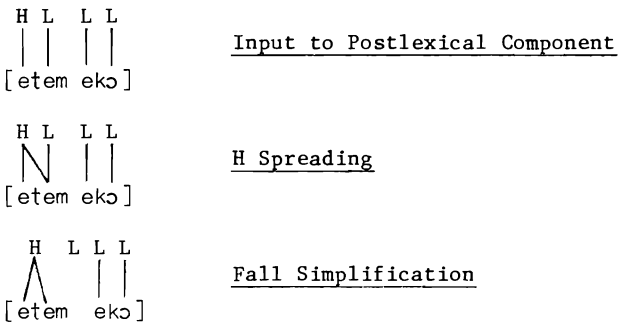
Second, when one of these nouns stands before a word with two initial L tones, H Spreading cannot apply between the HF noun and the following word.

(45)	sérẹ́ŋ e wa	'my shilling'	*sérẹ́ŋ é wa
	étém e kɔ	'new hut'	*étém é kɔ
	érú e kɔ	'new vegetable'	*érú é kɔ

In contrast, nouns with final falling tone which is not preceded by H will spread their H tone to the following word, as in ǹkû 'frock', ǹkú é kɔ 'new frock'.

These anomalies are explained if their underlying tonal representation is HL, not HHL. In the case of étêm where the first H is phonetically assigned to a noun class prefix, the L tone is lexically prelinked to the root initial V. The surface falling tone will then derive by the postlexical application of H Spreading. First, the blockage of H Spreading in (45) is explained since there is only one phonological cycle where Spreading can apply, hence it can only apply once (later we will consider why Spreading does not apply in the lexical component).

(46)



The unusual apparent change of fall to L in (44) is explained similarly: since H Spreading cannot apply to L tone before H tone and the word final L of ásə in ásə áchísap is before a H tone, Spreading is blocked.

These explanations require application of Spreading in nouns such as

áchwî to take place in the postlexical component, since the crucial blocking H tone in ásə áchísap is only available postlexically. There is one further anomalous pattern exhibited by these nouns which supports the postlexical application of Spreading. When a noun in the appropriate noun class is followed by a modifier which does not agree with it in morphological class, such as the adjectives chu 'red' and pyɔ 'black' or a noun serving as a possessive modifier such as Tambey , a floating H tone is inserted between the modifier and what precedes it (either the head noun or another modifier). If the head noun ends in a H tone, this floating H simply disappears. When the noun ends in a L tone, the H tone docks to the final vowel resulting in a rising tone. That H tone then spreads to the following adjective by H Spreading. Note also that nouns in classes 1, 4, and 9 do not select this floating H tone.

(47)

nki	'lion(s)'(Cl.9,10)	nchu	'thatch(es)'(Cl.9,10)
nki pyɔ	'black lion'(Cl.9)	nkǐ pyɔ̂	'black lions'(Cl.10)
nchu chu	'red thatch'(Cl.9)	nchŭ chû	'bunches of red thatch' (Cl.10)
mbaberi	'guard'(Cl.1)	bababeri	'guards'(Cl.2)
ǹkû	'frock'	kentémé	'hunting'
ǹkú pyɔ̂	'red frock'	kentémé Támbey	'hunting of Tambey'

mbaberi Tambey 'Tambey's guard'(Cl.1)
bababerǐ Támbey 'Tambey's guards'(Cl.2)
nki chu Tambey 'Tambey's red lion'(Cl.9)
nkǐ chŭ Támbey 'Tambey's red lions'(Cl.10)

However, nouns of the surface HF class are anomalous (when compared to nouns like ǹkû) in that their final syllable takes a rising tone.

(48)

áchwǐ chû	'red car'	áchwǐ Támbey	'Tambey's car'
kápă Tíkû	'Tiku's penny'	wíndɔ̌ Tíkû	'Tiku's window'

These examples have a very simple explanation: the nouns have the underlying tone pattern HL, and the floating H tone is assigned to the final vowel by (8) to yield a rising tone. Consequently, the final L tone is now followed by a H tone, so H Spreading cannot apply. If H Spreading applies postlexical-

ly in áchwî , blockage of Spreading by this morphosyntactically triggered floating H tone is not unusual. If the application of H Spreading in áchwî were a lexical application, then we would incorrectly exprect the floating H tone to have no influence on the applicability of H Spreading, since that tone is not accessible within the lexicon.

There is a very strong argument that H Spreading in the áchwî type of noun does not take place in the lexicon. We have already seen one clear set of cases where H Spreading applies in the lexicon, namely between H toned subject prefix and L toned stem in verbs, viz. sékû 'we have bought'. Unlike the HF pattern in nouns, the clearly lexically derived HF pattern is not blocked by a following word which begins with H (sékú béwám 'we have bought fishhooks') and will spread to a following word by reapplication of H Spreading (sékú békpəre 'we have bought wooden plates'—cf. bekpəre 'wooden plates'). Given that H Spreading is applying in the lexicon in the case of sé-kû , neither the irrelevance of the tone of the following word nor the reapplication of H Spreading on a later postlexical cycle is any surprise.

One might wonder why H Spreading does not apply until the postlexical component in nouns like áchwî or é-rû , whereas it applies lexically in verbs like sé+ku . In fact this is nothing more than the familiar blockage of rules in underived environments (Kiparsky [1973]). H Spreading can apply to verbal forms such as sé+ku lexically since their structural description is satisfied only in a morphologically derived representation, namely after a H toned subject prefix. On the other hand, in nouns such as áchwî or é-rû from áchwi and e-'ru , the form to which H Spreading would apply is not a derived form. The phonological environment for H Spreading is a H tone before a L toned vowel, which is present in the underlying representation of the roots for áchwi and e-'ru . Although e-'ru is morphologically complex, the noun prefix e- contributes nothing to satisfying the phonological requirements of the rule, hence e-'ru is an underived form in the relevant sense. Since lexical rule applications are constrained not to apply to underived forms in the theory of lexical phonology (whether that blockage is derived from the Elsewhere Condition or is stipulated as an independent con-

straint), H Spreading therefore cannot apply in underived nouns. Since the postlexical component is not so constrained, H Spreading can apply in that component to give áchwî and é-rû .

At the beginning of this section the existence of a second class of nouns was noted, which in my data includes the nouns bɔ́kî̀t 'bucket' and kasárâ 'cassava', as well as the noun pɔ́brî̀k 'public works' which exhibits variable behavior. These nouns differ from the larger áchwî class, which includes a mixture of native Kenyang and borrowed words, in that they exhibit none of the tonal irregularities of that class. Their final H tone undergoes Fall Simplification before another H toned word, their final H will spread to the next word, and in general they do not replace their final fall with L tone as the áchwî group does.

(49) bɔ́kîr átey° 'the bucket is broken' (atey° 'it is broken')
bɔbɔ́kîr bá!téy 'the buckets have broken' (bá!téy 'they have broken')
bɔ́kîr é wa 'my bucket'
kasárâ Tîkû 'Tiku's cassava'
pɔ́brîk é wesé 'our public works'
pɔ́brîk e wesé id.

There are two conceivable explanations for these nouns. The less likely explanation is that, like verbs, they undergo H Spreading within the lexicon. This would require specially marking each member of the much larger áchwî group to not undergo H Spreading in the lexicon; furthermore, we are still faced with the theoretical prediction that H Spreading should be prevented from applying within the lexicon to underived bɔ́kî̀t . A more likely explanation for this class of nouns then is that they do not involve H Spreading at all. Instead, their underlying representations contain two H tones, rather than one H linked to two vowels. The noun pɔ́brî̀k has two underlying representations, one with a single H and one with two H's.

(50)


The postulation of two consecutive identical tones violates the OCP. However violation of the OCP is independently motivated for Kenyang (as argued in Tyhurst [1985] for another dialect). Some of the nouns requiring OCP violation for the representation of their root tones are given in (51).[5]

(51)	se-teŋasáá	'crane'	LLHH
	ń-súɣúru	'orange'	HHHL
	é-rókin	'lock'	HLL
	á-róŋori	'tree sp.'	HLLL
	me-ŋɔɣɔrí	'laziness'	LLH
	kpárákpára	'mat for drying cocoa'	HHHL
	ajigijá	'string of beads'	LLLH

Adding nouns like bɔ́kî̀t to the list will not complicate the grammar of Kenyang in any way and will provide a principled explanation for the contrasting behaviors of bɔ́kî̀t and áchwî .

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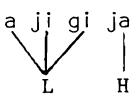
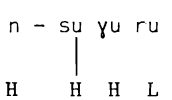
[5]The usual alternative to OCP violation is postulating a single tone and lexically prelinking that tone to a sequence of vowels. Thus, [ajigijá] might be given the underlying representation (i).

(i)



As argued above, lexical tone melodies are not linked to root vowels in underlying representations, except for the class of nouns which prelink the second root tone to the first root vowel. Therefore, nouns like ajigijá cannot be accounted for by lexical prelinking of L to the initial vowel sequence. Furthermore, prelinking of tones cannot account for nouns like ń súɣúru , whose underlying representation is (ii).

(ii)



The presence of a free H tone before a linked H is in clear violation of the OCP: lexical linking of tone does not provide an alternative to violating the OCP. It seems to be the case that the OCP plays no role in Kenyang tonology.

5. Summary

To summarize, a wide range of alternations in Kenyang have been accounted for here primarily by the action of two general phonological rules, H Spreading and Fall Simplification, in conjunction with the treatment of syllable-final consonants as tone-bearing. We have seen that two tenses are marked by prefixation of a floating L, but that the different tenses add their tones to the verbal melody at different points relative to the initial application of the Association Conventions. Finally, it has been shown that the core phonological rules of Kenyang apply both cyclically and postcyclically and that in the postcyclic component, rules apply cyclically with the domain of the cycle being defined by syntactic bracketing.

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