MINISTRY OF SCIENTIFIC AND TECHNICAL RESEARCH

TONE IN THE OKU NOUN AND VERB

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1. INTRODUCTION

This paper provides a detailed description of tone research carried out in the Oku language (ALCAM 925, Kuo) under the authorisation of research permit no. 007/MINREST/DOO/D20. Oku is a Grassfields Bantoid language spoken in Bui Division, North West Province of Cameroon. The Primary Report to which this paper is appended covers fieldwork performed between January 1995 and December 1996.

The goal of this research operation was to analyze and describe the tonal system of the Oku language, in order to provide a sound basis for establishing a tone orthography for the language and to prepare for study of Oku grammar and discourse structures. This paper describes the surface tone melodies found in several types of noun and verb phrases. I have also proposed underlying representations accompanied by rules for deriving the surface melodies. For words in isolation, the tone melodies of nouns are more complex than those of verbs. However, in the verb phrase the tone melodies can also be quite complex because of the influence of aspectual grammatical tones. An interesting feature of noun tone melodies is that the tones of certain nouns are raised in isolation and phrase-initially.

2.0 Methodology

At the beginning of the research period there were approximately 1500 words in the Shoebox lexical database. During the first few months of the research period, more words, especially nouns, were elicited and entered into the database, which now contains approximately 3000 entries. From the database 600 verbs and 1000 nouns were selected to form a corpus for the tone study.

The nouns and verbs were studied separately, but the method used was the same for both: the isolation forms were recorded, transcribed and classified according to their tone patterns. This process was then repeated using various other frames, which provided the basis for analysis of the tone patterns. The frames and tone patterns will be described in the sections below. Nouns and verbs will be considered separately.

3.0 Nouns

All of the nouns chosen had either CVC or CVV roots. Nouns with suffixes or reduplicated roots were omitted, e.g. kebunten 'pillow' and feghagha 'swallow (bird)'. The only exceptions were words from noun class 10, which has a suffix. Both singular and plural forms were used. After using the isolation form to create the initial tone pattern groupings, other tone frames were used: the associative noun phrase (noun of noun), demonstrative phrase, and the possessive noun phrase using several different possessive pronouns.

3.1 Tone Patterns in Isolation

Although the underlying tone melodies are the same for all noun classes, the surface patterns of nouns in classes 1, 9 and 10 are different than the surface patterns of nouns in the other classes. We will first consider nouns in classes 1, 9 and 10.

Oku has thirteen noun classes: 1, 2, 3, 4, 5, 6, 6a, 7, 8, 9, 10, 13 and 19, which may be combined in the formation of twelve genders: 1/2, 1/10, 3/4, 3/6, 3/6a, 5/6, 5/6a, 5/13, 7/6, 7/8, 9/10, and 19/6a (Davis 1992:18,19). All classes are characterized by a prefix, except class 10 which has a suffix. In isolation there are eight surface tone patterns on noun roots (Patterns 1, 2, 3.1, 3.2, 4.1, 4.2, 5 and 6). Low-falling tones are indicated with a vertical bar above the segment: a. L denotes a floating low tone.

3.1.1 Noun Classes 1 and 9

Words in these noun classes have either a non-syllabic nasal prefix or a zero prefix. In the table below, those with a zero prefix (ZP) are distinguished from those with a nasal prefix (NP) because of certain tonal differences that will be described later.

Pattern Number	Root Tone	Zero .	Prefix _	Pattern Number	Root Tone	Nasal	Prefix
1 2	H HL	ché sêk	'old man' 'profit'	1 2	H HL		'scorpion' 'afternoon'
3 4	H HL	jéŋ fôf	'hunger' 'co-wife'	3 4	$\frac{M}{ML^2}$		'night' 'plain'
5	L LF	lòn sėk	'misfortune' 'throat'	5 6	L LF	ndàf njàŋ	'thread' 'song'

Table 1. Surface Tones in Noun Classes 1 and 9

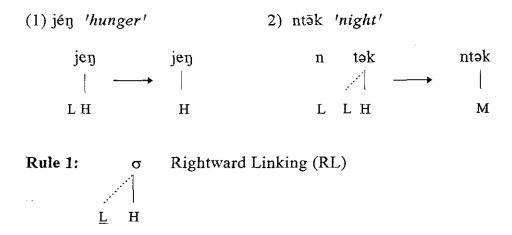
Table 1 shows that whether the prefix is zero or nasal, the root tones are the same, except in patterns 3 and 4. In these two patterns, when the prefix is zero, the surface tones are H (pattern 3) and HL (pattern 4). However, when there is a nasal prefix, the tones are M and ML respectively. In order to account for this asymmetry it is necessary to make reference to the underlying tone patterns, which are shown in Table 2 below. (As we will see later, these patterns apply to all nouns, not just to noun classes 1 and 9). Three patterns have a final L and three do not.

	Root		Root
<u>Pattern</u>	<u>Tone</u>	<u>Pattern</u>	Tone
1	Н	2	$H\underline{L}$
3	<u>L</u> H	4	<u>LHL</u>
5	L	6	${ m L}{ m L}$

Table 2. Underlying Root Tone Patterns

Patterns 3 and 4 are the only ones which have an underlying initial \underline{L} on the root ($\underline{L}H$ and $\underline{L}H\underline{L}$ respectively). One way of accounting for the difference in surface tone between ZP and NP nouns in these patterns is to suggest that in ZP nouns the initial \underline{L}

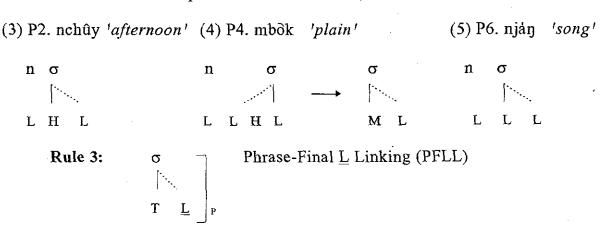
fails to link with the root, which leaves pattern 3 roots with a H tone and pattern 4 roots with HL (the final \underline{L} links leftward to the root). In NP nouns the initial \underline{L} does link to the root, and combining with H is realized as M.³ This is shown in (1) and (2) below, which are both Pattern 3 nouns.



Nasal prefixes are considered to have a floating tone associated with them (Hyman 1979:169), which may be related to why the presence of a nasal prefix allows a rootinitial \underline{L} to link. If phrase-initial floating tones are deleted, this would have the effect of deleting the root-initial \underline{L} in ZP nouns, and deleting the \underline{L} of the nasal prefix in NP nouns, leaving the root-initial \underline{L} free to link. In Rule 2 below "P" stands for "phrase". Rule 2 must be ordered before Rule 1, and applies only to the noun phrase.

Rule 2:
$$_{NP}[\underline{T} \Rightarrow 0]$$
 Phrase-Initial Floating Tone Deletion (FTD)

Patterns 2, 4 and 6 have a final floating L tone which links leftward onto the root, creating HL, ML or LF tones respectively. Derivations using examples from Table 1 are shown below. "P2" corresponds to Tone Pattern 2, "P4" to Pattern 4, etc.



In Grassfields languages a LF surface tone such as that in (5) is usually considered to be a low tone which is realized as LF phrase-finally, and its non-falling counterpart is $L\underline{H}$. However, in Oku, words in Pattern 6 clearly have the pattern $L\underline{L}$ rather than just L. Evidence for this is seen best in the associative phrase, where the \underline{L} of N1 spreads to the Associative Marker and changes it from H to M. This is described in Section 3.2. Hyman (1979:168) proposes that some noun roots are $L\underline{L}$ in Babanki, a language related to Oku.

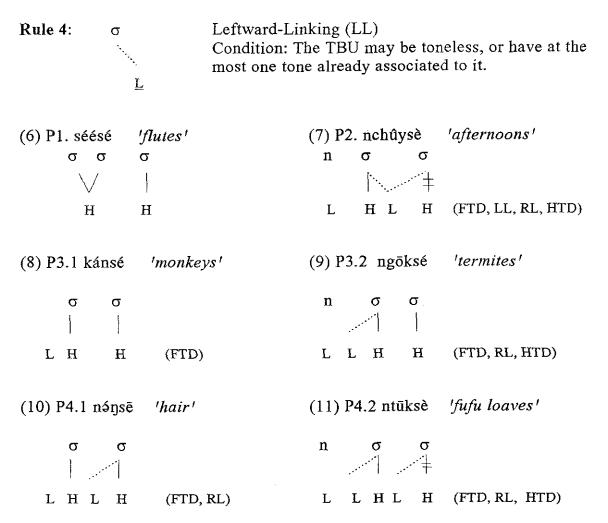
3.1.2 Noun Class 10

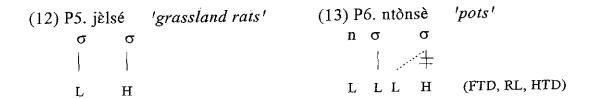
The plural of noun class 9 and of some members of class 1 is class 10, which has a suffix -sé. Table 3 gives examples of singular/plural sets for each tone pattern.

Pattern	Tone	Singular	Tone	Plural _	Gloss
1	H	séé	H-H	séésé	'flute(s)'
2	HL	nchûy	HL-L	nchûysè	'afternoon(s)'
3.1	H	kán	H-H	kánsé	'monkey(s)'
3.2	M	ngōk	M-H	ngōksé	'termite(s)'
4.1	HL	nậη	H-M	nánsē	'hair(s)'
4.2	ML	ntûk	M-L	ntūksè	'fufu loaf/loaves'
5	L	njàm	L-H	njàmsé	'axe(s)'
6	LF	fìàk	L-L	fìàksè	'knife/knives'

Table 3. Genders 1/10 and 9/10

Class 10 nouns have no associative marker. Note that the class 10 suffix is realized as H, M or L, but will be treated as underlyingly H. Derivations for each pattern are shown below. In (7), \underline{L} links not only rightward by RL but also leftward, as shown in Rule 4. In the nasal forms (7, 11 and 13), RL causes the word-final H to be deleted. It is not yet clear how to formulate this in a rule, but the process will be referred to as High Tone Delinking (HTD).





3.1.3 Remaining Noun Classes

The underlying root tone patterns for words in noun classes 2, 3, 4, 5, 6, 6a, 7, 8, 13 and 19 are the same as for noun classes 1, 9 and 10, and are reproduced in Table 4.

Pattern_	Tone	<u>Pattern</u>	_Tone_
1	H	2	H <u>L</u>
3	LH	4	<u>LHL</u>
5	L	6	$L\underline{L}$

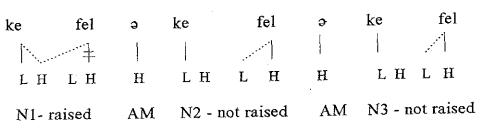
Table 4. Root Tone Patterns

Floating tones on words in these noun classes behave in the same way as in noun classes 1 and 9: the underlying form $\underline{L}H$ is always realized as M, and root-final \underline{L} tones link leftward and create a falling tone in isolation and phrase-finally (see examples (3)-(5)).

Noun classes 2-8, 13 and 19 have either V-, VC- or CV- prefixes, and there are a small number of nouns in class 2 which have a zero prefix. Class 6a has a syllabic prefix /m-/ which behaves tonally in the same way as the other prefixes in these classes. This prefix will be transcribed əm- in this paper.

Some nouns in these classes are subject to a process whereby the prefix is raised to M and the root is raised to either H or HL. Note that this is not the same process that we saw operating in nouns belonging to noun classes 1 and 9. Raising occurs only in isolation or in N1 position in an associative noun phrase, as shown in (30). In this example the noun is repeated three times ("plum of plum of plum"). The tones of N2 and N3 are phonetically the same.

(30) /kèfēl á kèfēl á kèfēl/ ⇒ [kēfél á kèfēl] 'plum of plum of plum'



In Table 5 the nouns are categorized as either -Raising or +Raising.

Pattern Number	- Raising Tone Example	Gloss	+ Raising Tone Example	Gloss
1	L-H àbjás	'mistakes'		
2	L-HL kènchâm	'frog'		
3	L-M fènchīī	'dark clothes'	M-H ēyfám	'boundary'
4	L-ML kènsên	'storm'	M-HL kētâm	'trap'
5	L-L tènsèm	'foxes'	M-H āblán	'cocoyams'
6	L-LF fèton	'sunbird'	M-HL əmkâk	'trees'

Table 5. Noun Classes 2-8,13,19

The underlying tone of the prefixes is L<u>H</u>. Hyman suggests that Proto-Ring prefixes are H, and this may be the source of the <u>H</u> we see here (Hyman 1977:251). In the +Raising group, <u>H</u> spreads both left onto the prefix, and right onto the root, as shown in (14) below:

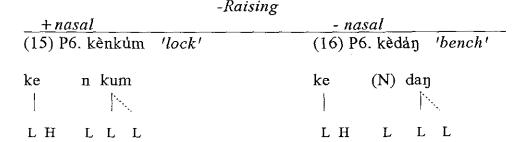
(14) P5. felúm 'spice'



H spreads left and combines with the L of the prefix to form M, and also spreads right onto the root, replacing the underlying tone. The process is the same for all the tone patterns in which raising occurs.

Although Rule 5 accurately describes the process of spreading of the \underline{H} of the prefix, a simpler rule would be preferable.

Many -Raising nouns have a "double prefix", such as ke-n-sen 'storm', which has the class 7 prefix ke- and also the class 9 prefix n-. Hyman suggests that these kinds of nouns once belonged to class 9 and were re-classified at some point, acquiring the prefix of the new class but retaining the prefix of the old class (Hyman 1977:227). He also asserts that class 9 prefixes are L tone. It is possible that the low tone of the second, nasal prefix prevents the \underline{H} of the first, non-class 9 prefix from spreading to the root. The -Raising nouns which do not have a nasal may have lost it at some point, but retain the L tone which serves to prevent spreading just as when the nasal is present. An example of each kind is shown below.



In the rightmost example, although no nasal segment is realized in speech, the nasal slot, represented by (N), has a floating L tone. \underline{H} is prevented from linking rightward by the \underline{L} of the nasal. It is not clear why the \underline{H} does not link left, however.

Most + Raising nouns do not have a nasal, but there are exceptions. It may be that in those nouns where there is a nasal its tone has been lost, allowing H-spread. Two + Raising nouns are shown below, one with a nasal and one without. Note that although the nasal is present in the first example, it has no tone.



In the Kom language there are also +Raising nouns and -Raising nouns, and the correlation between raising and presence or absence of a nasal is much higher than in Oku (Jones 1996:19). No nouns with nasals are raised, and nouns without nasals are almost always raised. Examples are shown in Table 6.

R	<i>Gloss</i>	+ R	Gloss
ànchès	'cricket'	fītê?	'hedge'
finjàm	'axe'	fītám	'fruit'
ànchūf	'small chisel'	īyáf	'pain (sg.)'

Table 6. Raising in Kom

Raising in Oku never occurs in patterns 1 and 2; it may be that nouns in these patterns have an underlying L prefix rather than LH. This may be a better way to account for raising or lack of raising, and proposing different underlying tones for prefixes is not without precedent. Hyman (1979:169) suggests that in Babanki some prefixes are underlyingly L and some are H.

3.2 Associative Noun Phrase

The associative noun phrase ("noun of noun") consists of Noun 1 (N1) + Associative Marker (AM) + Noun 2 (N2). The N1 surface tone patterns are almost identical to the isolation patterns, with a few exceptions which will be discussed later.

3.2.1 The Associative Marker

Selection of the associative marker depends on the noun class of N1, as shown in Table 7.

Noun class	AM	Example	Gloss
6a	mè	ə̃mtém mə̀ wān	'calabashes of child'
1, 9	à	jém à wān	'dream of child'
all others	á	kèngòm ó wān	'banana of child'

Table 7. Associative Marker

In an associative noun phrase, root-final floating low tones spread onto the AM if it is H; the resulting LH is simplified to M (19).



When N1 ends in a vowel or when N2 begins with a vowel, the AM vowel is elided.

(20)	/shíí à g	gáy/	\Rightarrow	[shíì gáy]	'concern of shepherd'
(21)	/bē à g	gày/	\Rightarrow	[bɛ̃ gáy]	'friend of shepherd'
(22)	/kènlúú ó g	gáy/	\Rightarrow	[kènlúú gày]	'fat rat of shepherd'
(23)	/kèngòò á	gåy/	\Rightarrow	[kèngòó gáy]	'fool of shepherd'
(24)	/èbjás á	àbjás/	\Rightarrow	[àbjás âbjás]	'mistakes of mistakes'
(25)	/èynsèm á è	èynsèm/	\Rightarrow	[èynsèm êynsèm]	'foxes of foxes'

The AM segment may also be elided when N1 ends in a consonant, especially when that consonant is a nasal or glide. However, since in careful speech the segment is not elided, more study is necessary to determine what conditions elision.

N1 ending in nasal (26	5)	kân wān	or	kán à wān	'monkey of child'
(27	⁷)	ntum wān	or	ntūm è wān	'message of child'
N1 ending in non-nasal C (28	3)	ngôk wān	or	ngök à wān	'termite of child'
(29)	kêl wān	or	kél à wãn	'fufu basket of child'

3.2.2 Surface Patterns in the Phrase

The surface melody of the first noun in a noun phrase is almost identical to the its melody in isolation, with the exception that final floating L tones link rightward onto the AM instead of linking to the root. This means that roots which in isolation are HL, ML or LF will be H, M or L in N1 position. Table 8 shows the difference between the surface tones of the isolation form and of N1 in an associative phrase. Since Patterns 1, 3 and 5 do not have a word-final floating L, they are not shown. (Keep in mind when looking at the table that + Raising nouns are raised in N1 just as they are in isolation.)

Tone Pattern	Isolation	N1 of Associative Phrase	Gloss
2	sêk	sék è wān profit of child	'profit of child'
2	kèlûŋ	kèlúŋ 5 wān	'water yam of child'
4.1	kêl	kél à wān	'fufu basket of child'
4.2	mbìk	mbīk à wān	'kidney of child'
4A	kènchôk	kènchōk 5 wãn	'key of child'
4B	ēylâk	ēylák ə wān	'home of child'
6	sėk	sèk à wān	'throat of child'
6A	fèfiak	fefiák a wan	'knife of child'
6B	kĕbâm	kēbám ā wān	'bag of child'

Table 8. Isolation vs. NI Forms in Patterns with Word-Final L

The N2 forms of words in Patterns 1, 2, 3.2, 4.2, 5 and 6, and of -Raising words in Patterns 3-6 are identical to their isolation forms. This is so for two reasons: 1) N2 does not undergo raising in any environment, and 2) since the N2 form is phrase-final a final floating L links with the root just as it does in isolation.

This concludes the description of the tonal patterns found in the associative noun phrase. In the sections to follow, we will consider the possessive and demonstrative phrases. In both of these types of phrases, the tones of N1 and the AM interact in the same ways as have just been described in the associative phrase. Possessive noun phrases have the same AM as associative phrases. (I will continue using "Associative Marker", for want of a better term.) However, some of the pronouns which follow the AM have floating tones which spread leftward onto the AM, resulting in several surface patterns which differ from those in the associative phrase.

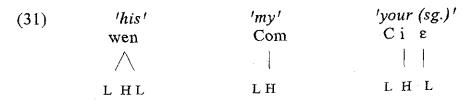
3.3 Possessive Phrase

Possessive phrases consist of noun + associative marker + pronoun. The AM is the same as in the Associative Phrase. There are many possessive and demonstrative pronouns in the Oku language, but for present purposes I have selected one from each of the three patterns that occur on pronouns. These patterns are shown below with their underlying tones. In some cases the initial consonant is transcribed as C, because that consonant varies depending on the noun class of the head noun. Others, such as wen 'his', are invariable.

Underlying Tone	Pronoun	Example	Gloss
LH	Com	kèngòm à kóm	'my banana'
		àbjás à wóm	'my mistakes'
LHL	Ciε	kèngòm à kíè	'your (sg.) banana'
		àbjás à víè	'your (sg.) mistakes'
LHL	wen	kèngòm á wèn	'his banana'
<u>-</u>		àbiás á wên	'his mistakes'

Table 9. Tone Patterns of Pronouns

These patterns are depicted below. Each pronoun will be considered in turn in following sections.



3.3.1 Third Person Singular Pronoun

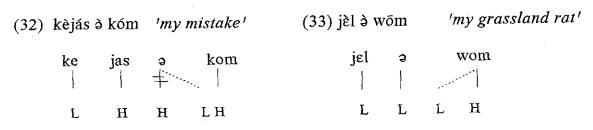
Because the third person singular pronoun has no initial floating tones, it has no effect on the tone of the AM to its left. Any change of the tone of the AM is due to the spreading of a \underline{L} from the noun, just as we saw in the Associative Phrase. The final \underline{L} of 'his' links to the root by FLL, resulting in wen in all cases. Since raising has no bearing on this section, in the examples there is no distinction made between + Raising and -Raising nouns.

Pattern	Example	Gloss	Example	Gloss
1	nkáŋ à wèn	'his cornbeer'	kèjás á wên kènchám ā wèn	'his mistake' 'his frog'
3	bíà wền sûn wền	'his pear' 'his friend'	ēydíl á wên	'his chin'
4		'his trouble'	kēföl ə wên əbvəs ə wèn	'his cap' 'his gun'
5 6	lòn à wên sèk à wên	'his misfortune' 'his throat'	ēlúk ā wèn	'his raffia palms'

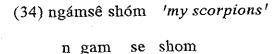
Table 10. Third Person Singular Pronoun

3.3.2 First Person Singular Pronoun

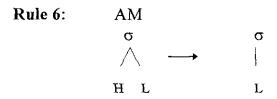
The pronoun 'my' has the underlying tonal melody LH. The floating low tone links leftward onto the AM if the tone of the AM is H, and rightward if the tone of the AM is L. Examples are shown below.



In (32) notice that the \underline{L} of the pronoun spreads leftward and replaces the H of the AM. Contrast this with (34), where a HL contour tone is formed.

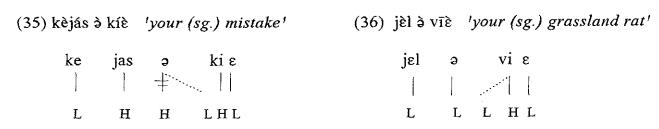


It is possible that the reduced syllable of the AM cannot support a contour tone and thus simplifies HL to L, as shown in Rule 6.

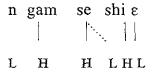


3.3.3 Second Person Singular

The underlying melody of the second person singular pronoun is <u>LHL</u>. The floating L behaves in the same way as we saw in Section 3.3.2: it docks left if the preceding tone is H, and docks right if the preceding tone is L. In the examples below the nouns used are the same as those in the previous section.



(37) ngámsê shíè 'your (sg.) scorpions'



3.4 Demonstrative Phrase

Thus far I have studied only one demonstrative pronoun: 'this'. The demonstrative phrase consists of noun + pronoun with no intervening associative marker. As was the case with the possessive pronouns, the initial consonant of the pronoun accords with the noun class of the noun. The underlying tones of the pronoun are $L\underline{L}$.

Pronoun	Example	Gloss
Cin	kèngòm kin	'this banana'
	fēnán fin	'this bird'
	njàm yin	'this axe'

Table 11. Demonstrative Pronoun 'this'

Since this pronoun has only a final floating L tone, it has no effect on preceding tones. The final floating L links leftward phrase-finally by Rule 3, creating a low-falling tone.

3.5 Conclusion and Recommendations for Further Research

This concludes the description of tone in the noun phrase. In this section I have described the surface and underlying tone melodies of nouns in isolation and in three kinds of noun phrases. I have also proposed underlying representations along with several rules to show how the surface melodies are derived from the underlying tones.

Research on Oku noun tone should continue in order to confirm and refine what has been described in this paper, and to find better explanations where those presented here are unsatisfactory. Some specific areas where more study is necessary are a) the possibility that there are two kinds of prefixes, some which are L and some which are LH; b) the role of nasal prefixes and the raising phenomenon; c) the tone melodies of nouns with suffixes and of reduplicated nouns, which were omitted from this research; and d) the tonal interactions between the noun phrase and verb phrase. A more detailed comparison with Kom and other Ring languages could also be very instructive.

4. Verbs

There are fewer tonal melodies on verbs than on nouns, and in general the tone melodies of verbs in isolation are simpler than noun melodies. However, the interaction of verb lexical tone with the grammatical tones found in verb phrases creates more complex patterns. Although the grammatical tones are presented in 4.1, the tonal changes occurring on the verb radical will be in focus here rather than the melodies of the grammatical particles of the verb phrase.

The majority of verb radicals in Oku consist of one CVC syllable, although there are a handful of CV radicals. There are also some bisyllabic radicals: CVV⁴ and CVVC. Some verbs have suffixes, either CVC or CV. Examples of verb radicals and suffixes are shown below.

Syllable	Without		With	
Туре	Suffix	Gloss	Suffix	Gloss
CV	fo	'to give'	bo-nen	'to heal'
CVC	gom	'to conceal'	fəm-ten	'to ferment'
CVV	kuo	'to die'	baa-le	'to drain'
CVVC	naay	'to cook'	fiak-sen	'to crowd'

Table 12. Verb Syllable Patterns

4.1 Underlying Representation of Tone Melodies

According to this analysis, two underlying verb tone melodies are posited: L and LH. If a verb is bisyllabic, having a suffix or a bisyllabic radical, the underlying tone of the first syllable spreads to the second syllable. All verbs with two-syllable radicals are LH verbs. The two verb tone patterns are shown in the present tense forms in 38 and 39.

The spreading shown in 38 is one manifestation of a more general process in which the last tone of the verb phrase links to the last TBU. This is described in Rule 7. (See Rule 1 for linking of L in 39.)

Before considering the surface tonal patterns, a description of the tense and aspectual particles that can occur in the verb phrase is necessary. The grammatical functions ascribed to them here are only approximate, as they have not yet been studied systematically, nor is this a complete listing of all verbal particles. The particles have tones and may also have a floating tone not necessarily adjacent to them (see Hyman 1981:51). For example, in the P1 'today past' form, the auxiliary $k \geq 0$ comes first, then the

verb radical, and then the grammatical \underline{H} tone. The grammatical tones are not always realized phonetically.

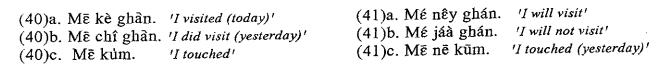
Label	Function	Particle	Example	Gloss
PO	present tense		mē kùm wên	'I touch him'
Pf	perfective	`mén	mē kúmmén wēn	'I have touched him'
P2.2	yesterday past	chí`	mē chî kùm wen	'I touched him (yesterday)'
P1	today past	kè ´	mē kè kùm wên	'I touched him (today)'
Р3	distant past	nè´	mē nè kùm wên	'I touched him (last week)'
F1	near future	´ nèy ´	mé nêy kùm wên	'I will touch him (soon)'
N1	future negative	´ jàà ´	mé jáà kùm wên	'I will not touch him'
Pg	progressive	$^{\prime}$ e^{5}	më kumè wen	'I am touching him'
P2.1	yesterday past	`né ´	mē nē kūm wen	'I touched him (yesterday)'

Table 13. Selected Verbal Particles

Various combinations of these tense and aspect forms are possible:

4.2 Surface Melodies

Verbs which are phrase-final have a final L tone, as in (40a-c). However, three forms - F1, N1 and P2.1 - do not have a final L (41a-c). Rule 8 applies to these examples. Grammatical tones are in **bold** type.



Rule 8: σ Phrase-Final L Linking (PFLL)⁶

Verbs which are not phrase-final do not have the L tone in any grammatical form. All the data to follow will reflect the non-phrase-final forms.

There are four different surface melodies, depending on the tense and aspectual particles accompanying the verb radical. We will consider first the "basic form", which corresponds most closely to the underlying tones.

4.2.1 Basic Form

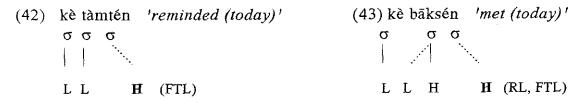
The basic form occurs in the following grammatical constructions: P0, Pf, P2.2, P2.2+Pf and P2.1+Pf. Examples of the P0 and Pf forms are given in Table 14.

Tense/				
Aspect	L	Gloss	<i>LH</i>	Gloss
P0	mē kùm	I touch	mē ghān	I visit
	mē tàmtèn	I remind	mē bāksén	I meet
Pf	mē kúmmēn	I have touched	mē ghānmén	I have visited
	mē tàmtènmēn	I have reminded	mē bāksénmēn	I have met

Table 14. Basic Form

4.2.2 Form 2

With another set of grammatical particles, the first syllable retains the same tones as in the basic melody, but the second syllable is H in L and LH verbs. This tonal pattern will be referred to as Form 2. The grammatical H tone links to the second syllable of the verb by Rule 7 (Final Tone Linking), as shown in (42) and (43). The lexical \underline{L} in (43) links by Rule 1 (Rightward Linking).



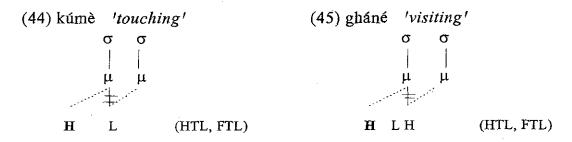
The particles associated with Form 2 are P1, P3, F1, N1, P1+Pf and P3+Pf. Table 15 gives examples of P1 and F1.

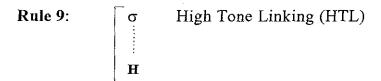
Tense/				
Aspect	L Verbs	Gloss	LH verbs	Gloss
P1	mẽ kè kùm	'I touched (today)'	mē kè ghān	'I visited (today)'
	mē kè tàmtén	'I had reminded (today)'	mẽ kè bāksén	'I had met (today)'
F1	mé nêy kùm	'I will touch'	mé nêy ghān	'I will visit'
	mé nêy tàmtén	'I will remind'	mé nêy bāksén	'I will meet'

Table 15. Form 2

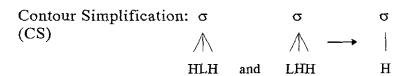
4.2.3 Form 3

In a third surface form, which includes all the progressives, the tones of both syllables are affected, but in different ways depending on the structure of the verb. Those which have only one syllable acquire a second syllable consisting of e, which is toneless. A phrase-initial grammatical H links to the radical (see Rule 9). If the syllable has only one TBU, HTL delinks the underlying tone, as in (44), (45) and (46a). The final syllables acquire their tone by FTL.

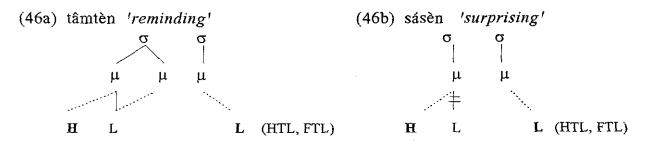




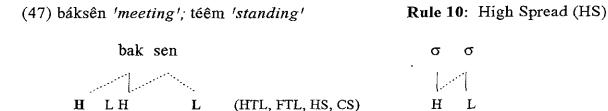
In (45) the HLH contour created by application of Rule 9 is simplified to H, reflecting a ban on MH and HM contours on one syllable. (MH and HM are permitted on two syllables, e.g. tēém 'stand'.) Perhaps the same explanation can account for the raising of kèfel to kēfél in (30).



Verbs which already have two syllables do not acquire the progressive marker e. They have two grammatical tones: H to the left of the verb and L to the right. The initial H links to the first syllable by Rule 9, and the second syllable acquires its tone by Rule 7. In (46a) HTL creates a HL contour, which is permitted on one syllable when it has two TBUs. When the syllable has only one TBUs, as in (46b), HTL delinks the L tone, as we saw in (44) and (45).

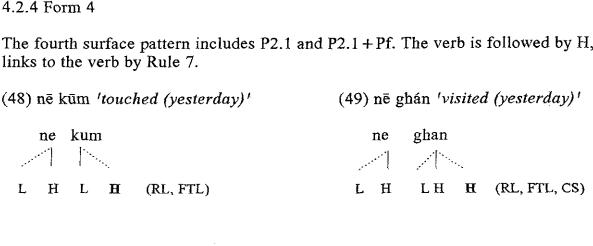


In (47) the suffix acquires one of its tones by a rule in which H spreads to a following L (Rule 10-High Spread). Rule 10 must be ordered after Rule 7.

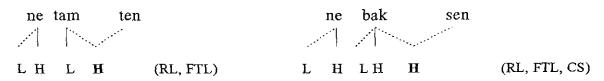


4.2.4 Form 4

The fourth surface pattern includes P2.1 and P2.1 + Pf. The verb is followed by H, which links to the verb by Rule 7.



(50) në tāmtén 'reminded (yesterday)' (51a) në báksén 'met (yesterday)' (51b) në téém 'stood (yesterday)'



In 50 and 51 the grammatical H links to the first syllable by FTL; the suffixes are added at another stage and FTL applies again.

4.3 Conclusion and Recommendations for Further Research

The tone melodies of Oku verbs are much less complex than those of the nouns. Two tonal melodies were described: L and LH, which accounted for all verbs, including those with suffixes. Each verb type has four possible surface melodies, depending on the tense and aspectual particles accompanying it. Of the rules presented, several need to be ordered: Rule 1 must apply before Rule 9, and Rule 7 must apply before Rule 9 is sensitive to syllable structure.

Further research should focus on the interplay of grammatical tone and lexical tone in the verb phrase, and on determining more precisely how the rules apply (i.e., lexically, post-lexically, etc.) It would also be very interesting to see if the tone rules for the nouns and verbs can be harmonized. There are hints that the same processes are at work in both nouns and verbs, but a thorough study of that was not possible at this time.

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ENDNOTES

¹ There is one other pattern, HM, which has not been included in the table because only two examples have been found: $j\bar{l}\bar{l}$ 'way', and $m\delta\bar{o}$ 'water'. More data is necessary before positing an analysis of this pattern.

² With the aid of CECIL, a ML contour can be distinguished from M followed by a discrete L by the shape of their contours. A true ML contour tone has a gradual sloping fall from mid to low, while L following M has a steep fall from M to L.

³ Section 3.2 shows more evidence that $\underline{L}H$ is realised as M in Oku, and that this is a synchronic process.

⁴ Nouns with CVV syllable shapes are considered to be bisyllabic (Davis 1992:89-90), and on the same principle verbs with CVV syllables will be treated as bisyllabic.

⁵ Bisyllabic verbs have a slightly different form: '__ `.

⁶This rule is different than Rule 3 in which a root-final L links to the noun (FLL).