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OULDEME TONE SKETCH

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1. INTRODUCTION

Ouldeme (*mà wùzlàm*) is a Chadic language, belonging to the Mafa South group of the Centre-West branch of Chadic (ALCAM p 357). It is spoken in the district of Tokombere, Mayo Sava department in the Far North province of Cameroon by some 8-10,000 speakers.

The present study of Ouldeme tone is not the first undertaken for this language. It received its impetus from the perception that previous treatments have been inadequate in their explanations of the function of tone in the language. One major motivating factor has been the question of orthography: whether to mark tone or not, and if so, how to mark it.

Work has been done on Ouldeme since the arrival of the Catholic mission in the early 1950's. Much material remains from these years of study, the most significant of which is the *Essaie sur la langue Uldémé* (PROVOOST 1987) of the Belgian priest Pierre Provoost and the Ouldeme Pierre Koulifa. Comprising some 1000 typed pages, this work covers every aspect of the language, but the section on tone is very scant. Provoost says himself that *le système tonal n'a pas été étudié (à l'exception de certains radicaux verbaux). Voici simplement quelques remarques.* (§21) Some of these observations - and others elsewhere in the work - are quite pertinent, nevertheless, and we shall have occasion to look into them in more depth. Other remarks have not been substantiated by our researches.

Provoost's section on phonology represents a little more than 10% of the entire work. A later study, dedicated almost exclusively to the phonology of Ouldeme is the *PHONOLOGIE QUANTITATIVE ET SYNTHÉMATIQUE avec application à l'ouldémé, langue tchadique du Nord-Cameroun* of Véronique de Colombel (DE COLOMBEL 1986.) Some 27 pages of this 356 page work are dedicated to the tonal analysis of words spoken in isolation, with a further 8 pages on the interaction of tone with consonants and vowels. Although she speaks of a large corpus of transcribed texts which she has collected during her fieldwork, de Colombel apparently used only one text in her study. Her phonology is based mostly on her lexicon and on a collection of survey questionnaires.

More recently (DE COLOMBEL 1996), she has published a small lexicon of some 3500 items prefaced by an excellent 100 page summary of the phonology and grammar of the language. This is a very useful reference work

Data for this study has been gathered from our own 2700-entry Ouldeme-French dictionary, on 21 recorded and transcribed texts, and on extensive work together with Mr Oumaté Timothée, our principal language helper since the beginning of this work.

2. GENERAL REMARKS

2.1 Tone patterns

In isolation or in the citation form, all lexical items carry a definite tone pattern in Ouldeme: either high, mid or low tone in one syllable words or a combination of those in longer words.

<i>hám</i>	'all'	<i>názàkày</i>	'I will take'
<i>hām</i>	'to yawn'	<i>nāzàkày</i>	'I take', 'I took'
<i>hàm</i>	'well...' 'and so....'	<i>nàzàkày</i>	'I ought to take'

The number of lexical items differentiated solely by differences in tone is extremely limited (see 6.3 for complete listing) The three contrastive levels are most clearly illustrated in the conjugated forms of verbs, mainly in differentiating various moods or differentiating pluractionals from simple action. (see 4.2.3).

In two syllable words, 8 different tone combinations can be found: LL, LH, ML, MM, MH, HL, HM and HH. The pattern LM is not found anywhere in the data.

LL	LH	ML	MM	MH	HL	HM	HH
<i>màsàf</i>	<i>màmáy</i>	<i>māvad</i>	<i>māghā</i>	<i>mākéts</i>	<i>mánzàr</i>	<i>mútā</i>	<i>mádkú</i>
			<i>r</i>				
iron	beard	sickle	twin	knife	termite	car	white millet powder

An analysis of the correspondence between tone patterns and grammatical category on two-syllable words shows very little significant correlation. (see 6.2). Between nouns and verbs, for example, apart from the lack of the HH pattern for verb roots, there is no clear preference for any particular tone pattern.

2.2 Tone-consonant interaction

Consonants in Ouldeme can be divided into classes depending on how they influence tone. This is a well-attested phenomenon in Chadic languages. In many Chadic languages, there is a class of *depressor* consonants that tends to be associated with such things as low tones, tone lowering phenomena, and the blocking of Hi-tone spreading rules. The following chart shows which consonants in Ouldeme are depressors and which are non-depressors.

A Non-depressor	<i>p</i>	<i>t</i>	<i>ts</i>	<i>k</i>	<i>kw</i>	<i>h</i>	<i>hw</i>	<i>s</i>	<i>f</i>	<i>sl</i>	<i>ʃ</i>	<i>l</i>	<i>r</i>	<i>m</i>	<i>n</i>	<i>ŋ</i>	<i>w</i>	<i>y</i>
B Depressor	<i>b</i>	<i>d</i>	<i>dz</i>	<i>g</i>	<i>gw</i>	<i>gh</i>	<i>ghw</i>	<i>z</i>	<i>v</i>	<i>zl</i>				<i>mb</i>	<i>nd</i>	<i>ŋg</i>		
															<i>nz</i>			

Table 1

The depressor consonants can simply be described as the class of voiced obstruents that are articulated with egressive lung air (i.e., does not include implosive consonants).

Depressor consonants block certain sandhi processes. Following certain words (see 5.2.1.1 for listing), changes which take place when the following word begins with a non-depressor consonant do not take place when that word begins with a depressor

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consonant. Take, for example, the low-tone nouns *wùrà̀m* 'girl' and *gùbà̀r* 'man' preceded by *ántā́* 'with':

ántā́ + *wùrà̀m* → *ántā́ wùrá̀m* 'with the girl'

ántā́ + *gùbà̀r* → *ántā́ gùbà̀r* 'with the man'

In *wùrà̀m* the low tones change to high following *ántā́*, which belongs to the group of words that causes tone changes in the following word. Amongst the group of words which cause a tone change in the following word are certain *functional* words which end in mid or low tone, all the subject pronouns and certain verbs (see 5.2.1.1).

2.3 Glides

There are no lexically contrastive glides in the data. The only glides found are those caused by 1) the coalescence of two syllables, as in the following table - one tone-bearing unit (TBU) is deleted but both tones remain on the remaining TBU:

<i>slēmāy</i> +	<i>áhē</i>	→	[<i>slēmǎhe</i>]	'its ear'
<i>zəwà̀y</i> +	<i>áhē</i>	→	[<i>zəwǎhē</i>]	'its fly'
<i>səwà̀</i> +	<i>áhē</i>	→	[<i>səwǎhe</i>]	'its calabash'
<i>māgwà̀mu</i> +	<i>áhē</i>	→	[<i>māgwǎmǎhe</i>]	'its cat'

and those 2) conditioned by the syllable coda. Syllable codas ending in liquids l, r; nasals m, n, ŋ, or approximants w, y tend to pull the tone down:

a. <i>slàsláy</i>	[<i>slàslây</i>]	'egg'
b. <i>āhár</i>	[<i>āhâr</i>]	'hand'

As another example, consider the conjugation of the verb *dām(ar)* - "to say (to someone)", a Mid tone verb. The tone is level all the way through except for the 3ps, where the final syllable is closed by a liquid, causing the Mid tone to glide down to Lo:

	Singular		Plural	
1	<i>ādēmī</i>	he said to me	<i>ādēmēmē</i>	he said to us
2	<i>ādāmāk̄w</i>	he said to you	<i>ādēm̄k̄lī</i>	he said to you
3	<i>ādāmâr</i>	he said to him	<i>ādāmātā</i>	he said to them

3. NOUNS

3.1 Contrastive tonal melodies in noun roots

A study of nouns spoken in isolation shows a certain degree of correlation between word-initial consonants and tone. With monosyllabic nouns, a fairly clear pattern emerges, as in Table 2:

Tone group												
Lo	A	<i>bàl</i>	<i>slà</i>	<i>slàl</i>	<i>dāf</i>	<i>hwàý</i>	<i>yàm</i>	<i>mà</i>	<i>sèk</i>	<i>wàl</i>		
		part	cow	person	fufu	neck	water	mouth	leg / foot	woman		
	B	<i>ghày</i>	<i>ghàr</i>	<i>ghwàzl</i>	<i>mbàsl</i>	<i>mbèf</i>	<i>ngwèsł</i>	<i>vàl</i>	<i>vàr</i>	<i>vàk</i>	<i>vù</i>	<i>zìk</i>
		house	head	cave	leaves	lung	rapid birth	trough	woman's hut	storage area	body	chief
Mid	A	<i>slū</i>	<i>fār</i>	<i>fāt</i>	<i>hāf</i>	<i>hāý</i>	<i>hās</i>	<i>māŋ</i>	<i>māt</i>	<i>wār</i>		
		meat	piece	sun	wood	sorghum	glaze	mother	sacrifice	child		
	B	<i>mbāŋ</i>										
		father										
Hi		<i>bík</i>	<i>gáw</i>	<i>kúp</i>	<i>vér</i>	<i>vát</i>	<i>záp</i>					
		pen	soldier	cup	glass	vote	skirt					

Table 2

Depressor consonants have a tendency to be associated with Lo tone. Non-depressor consonants can be associated with Hi tone as well as Low and Mid. High tone words in Ouldeme appear to all be loan words, *gáw* from Fulfulde and the rest from French. The only anomaly in the table is *mbāŋ* 'father' with Mid rather than the expected Lo tone.

With disyllabic the pattern is much less clear:

Tone group	LL	LH	ML	MM	MH	HL	HM	HH
A	<i>hàdàm</i>	<i>hàwá</i>			<i>hālá</i>		<i>háypā</i>	<i>háyé</i>
	tax	courtship			gleaning		sin	lake, sea
	<i>màsàf</i>	<i>màmàŋ</i>	<i>màmáy</i>	<i>māghār</i>	<i>mākéts</i>	<i>mánzàr</i>	<i>mútā</i>	<i>mádkú</i>
	iron powder	penis	beard	twin	knife	termite	car	white millet
B	<i>dàgwà</i>	<i>dàftár</i>				<i>dāngàzl</i>		<i>dáwá</i>
	young man	doctor				buttocks		conflict
	<i>bàbù</i>	<i>bàzlám</i>				<i>bázlàm</i>		<i>búdzí</i>
	billy goat	straw hat				protector		straw mat

Table 3

In the section on the phrase (section 5) we shall examine the behaviour of nouns in context.

4. VERBS

4.1 Morphology

Ouldeme nouns and modifiers are disarmingly simple in their morphology but the verb makes up for this with its complexity. Provoost and de Colombel have isolated some sixty elements which can be affixed to the root. De Colombel has determined that there are a total of twelve slots for the verb. Our own, as yet incomplete, study of the verb differs in some respects from de Colombel's analysis, but we have summarized in one table below (in a slightly modified form) her analysis, taken from various of her publications. She postulates 12 slots for the verb, with the root in fourth place.

SbPr	Mode	Aux	Root	Aspect	Imp	Attr	Act	DO	Sp/TP	IO	Dir
1	2	3	4	5	6	7	8	9	10	11	12
<i>n</i>	<i>é</i>	<i>ngà</i>				<i>(w)ī</i>		<i>wī</i>	<i>əwā</i>	<i>ī</i>	<i>ārá</i>
<i>k</i>	<i>ə</i>	<i>lá</i>		<i>āl(áŋ)</i>		<i>ākw</i>	<i>áy</i>	<i>kwār</i>	<i>ākā</i>	<i>ākw</i>	<i>ārāy</i>
<i>ā, m</i>	<i>ə</i>	<i>ngələ</i>		<i>ərə</i>		<i>ār</i>	<i>éŋ</i>	----	<i>āká</i>	<i>nā</i>	<i>égè</i>
<i>ām</i>	<i>á</i>			<i>āy</i>	<i>ēm</i>	<i>ēmē</i>		<i>ēmē</i>	<i>ākāŋ</i>	<i>ēmē</i>	<i>érgè</i>
<i>ākw</i>	<i>à</i>			<i>āwāy</i>	<i>əm</i>	<i>kūlī</i>		<i>kūlī</i>	<i>āhá</i>	<i>kūlī</i>	
<i>t</i>						<i>tā</i>		<i>tā</i>	<i>āhāŋ</i>	<i>tā</i>	

Table 4

Key

1	Subject Pronoun	5	Aspect	9	Direct Object
2	Mode	6	Imperative marker	10	Spatio-Temporal markers
3	Auxiliary	7	Attributive pronoun	11	Indirect Object
4	Root	8	Causative, intransitive (aktionsart)	12	Directionals

4.2 Contrastive tonal melodies in verb roots

The first question we must address here is, What is the root of the verb? De Colombel takes the nominalized or infinitive form of the verb and removes the prefixes and suffixes: eg *māpádiyù* 'to eat (meat)' from which she extracts *pád*, with the non-depressor *p* yielding Hi tone on the *a* vowel. We have taken the 2nd person singular imperative *pàd*, which carries a Lo tone by default, as the base. What is the difference?

The form abstracted from the infinitive shows clearly the consonant/tone relationship [except in mid-tone verbs], whereas in the imperative form this is not obvious. De Colombel favours the abstract root, as its tone can be predicted from the initial consonant [de Colombel 1995, p19]. As for the imperative, she [*ibid.* p22] states that *Le ton de l'impératif est toujours bas*, citing two examples:

<i>tásl</i>	'to cut in two'	<i>tàsl</i>	'cut in two'
<i>tábày</i>	'to look for'	<i>tèbày</i>	'look for'

Whilst these two examples are correct, this is not, in fact, the general case. Even in her own data de Colombel has numerous examples of imperatives with other than low tone, for example:

<i>slār</i>	‘send’
<i>dāl</i>	‘burn’ (intr)
<i>tsātsākw</i>	‘stop’, ‘stand up’

and many more. From this it is clear that the tone of the imperative is not predictable from the root.

We would argue that it makes little or no difference which form is taken as the base form of the verb. We have chosen the imperative since it is a form which is actually attested in isolation, and as such is more accessible as the citation form of the verb in a vernacular dictionary. There is one other reason, however, which would strengthen the case for using the imperative form.

We stated above that the imperative does not show the consonant/tone interdependence. If we take this as the base form then we can say that the relationship only becomes apparent when this form is conjugated, that is, when it is put into some kind of phonological context:

nā + tàsl → *nātásl* ‘I peel’

nā + dād → *nādàd* ‘I fall’

Mid tone verbs do not change:

nā + sār → *nāsār* ‘I know’

There is a perfect parallel in this with the noun. In its basic, citation form, the noun shows little correspondence between consonant and tone. In context, however, the relationship becomes abundantly clear. Take, for example, the case of the low-tone nouns *wùrà̀m* ‘girl’ and *gùbà̀r* ‘man’ cited above:

wùrà̀m → *ántā wúrá̀m* ‘with the girl’

gùbà̀r → *ántā gùbà̀r* ‘with the man’

It would be counter-intuitive to take the high-tone form *wúrá̀m* and use that as the citation form of the word.

4.2.1 Frequency of tone patterns in 1-, 2- and 3-syllable verbs

In isolation, verbs consist prominently of low tones in 1-, 2- and 3-syllable verbs so that 78% of one syllable verbs, 60% of 2-syllable verbs and 59% of 3-syllable verbs have low tones only. In a phrase there are no such dominant tone patterns in 2- and 3-syllable verbs but a much more equal distribution amongst several patterns. (See Appendix). In the phrase, MH is the most common tone pattern in 2-syllable verbs and HLL in 3-syllable verbs.

4.2.2 Modal verb forms

The three levels of tone are most clearly illustrated in the verb. Between the personal prefix and the verb root there is an obligatory morpheme which de Colombel calls the Mode. This can be one of the two vowels *ə* or *a*, the former representing *realis*, the

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latter *irrealis*. The realis mode has three tonal realizations, Hi, Mid and Lo, whereas the irrealis has only the Hi and Lo¹:

	realis	irrealis
Potential	é	á
Aorist	ē	-
	è	à

Table 5

For convenience we refer to the various modal forms in this study as *aorist*, *future definite*, *future indefinite*, *jussive* and *conditional*:

Base form	Gloss	Aorist <i>a</i>	Fut. Def <i>a</i>	Fut. Indef <i>a</i>	Jussive <i>a</i>	Conditional <i>a</i>
<i>bàzl</i>	'construct'	<i>tābàzl</i>	<i>tábàzl</i>	<i>tábàzl</i>	<i>tèbàzl</i>	<i>tàbàzl</i>
<i>nzàd'</i>	'snatch'	<i>tānzàd'</i>	<i>tánzàd'</i>	<i>tánzàd'</i>	<i>tènzàd'</i>	<i>tànzàd'</i>

Table 6

4.2.3 Pluractionals

Pluractional forms are common in Ouldeme. The *pluractional* must be distinguished from the *habitual*, which refers to simple, repeated action, whereas the pluractional indicates plurality of the object of the verb. That they are semantically distinct is indicated by the fact that both forms can occur together in the same word. In each of the following examples, note that the noun *slà* 'cow' is always in the singular, its plurality being indicated by the verb form:

<i>ākádéràgè slà</i>	he slaughtered a cow	simple action
<i>ākédéràgè slà</i>	he slaughtered a number of cows	pluractional, noun in singular
<i>akēdēwéràgè slà</i>	he used to slaughter cows	pluractional + habitual, noun in singular

Paul Newman in his study of verbal pluractionals in Chadic (Newman 1990:58) speaks of three major classes of pluractional formation: reduplication, internal vowel ablaut or suffixation. Ouldeme does not use reduplication in this function, whereas vowel ablaut and suffixation are found. However, there is one further feature: pluractionals are characterized by mid tone. Generally, this is in conjunction with vowel ablaut and the addition of the suffix *ay*:

Base form	Gloss	rule	pluractional form
<i>gàs</i>	catch	+ a +MID + <i>ay</i>	→ <i>gāsāy</i>

Where the base form contains the vowel *a* or is a mid-tone verb, the rule is applied vacuously:

¹ This differs from de Colombel's analysis. She also has Mid-tone on *a* but supports it in all her writings with the same single example. In all our own research we have never once found a Mid-tone *a* modal prefix.

<i>tsāl</i>	cut	+ a +MID + ay	→	<i>tsālāy</i>
<i>tsāl</i>	climb			<i>tsālāy</i>

In the imperative of the second person plural, however, pluractionals are exclusively marked by tone change:

<i>slàpàm</i>	weave one thing!	+MID →	<i>slāpām</i>	weave many things!
<i>gàsàm</i>	catch one thing!		<i>gāsām</i>	catch many things!

As before, with mid-tone verbs the rule applies vacuously:

<i>sārām</i>	know one thing!	+MID →	<i>sārām</i>	know several things!
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5. TONE IN THE PHRASE

5.1 Previous studies

5.1.1 Provoost

Provoost, in his brief treatment of the subject, states that tone in the word can only be changed by the influence of the final tone in the preceding word.²

We might summarize his conclusions as follows:

1. mid tone changes (to low) only after low tone
2. low tone changes (to high) only after mid tone
3. no changes after high tone
4. words beginning with high tone are stable.

These remarks do not explain all the conditions for tone change. We will show below that 2 is only partially correct. In addition, Provoost states that "all tonal combinations seem possible" and that tone is independent of the "*contexte phonique*", by which he means, presumably, the segments. He does caution us that he has done very little analysis of tone, and more extensive analysis shows neither of these general statements to be the case.

5.1.2 de Colombel

De Colombel, in her far-ranging analysis of the consonantal system of Ouldeme, observes the interaction between initial consonant and tone, which we have outlined above, and draws an important distinction between the function of tone on different grammatical categories. Her main interest is the quantification of phonological combinations, and to this end her doctoral thesis (de Colombel 1986) represents the outworking of her own phonological theory which she calls *Phonologie synthématique et quantitative*, by which she means the examination of all possible phoneme combinations. Her analysis of tone is approached using the same method, which has

² Provoost p32, sect. 107

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merit in being truly exhaustive but which suffers from the mechanical application of theory.

Otherwise she approaches the tonal system in much the same way as Provoost. She herself summarizes her findings as follows:³

In the noun phrase:

1. Lo tone lowers Mid tone to Lo
2. Functionals with Mid tone raise Lo tone to Hi
3. Hi tone does not raise Mid tone

Rule 2 is more specific than Provoost's corresponding rule but it too is only partially true. Not only functionals with final Mid tone raise Lo tone but also those ending in Lo tone, eg: *ghàr*, *áslàm*, *àkà*, as well as the Lo tone pronouns *nàkw*, *àlèm*, *àkùlì*.

In the verb phrase:

1. Lo tone on modal prefix lowers Mid tone to Lo
2. Mid tone of modal prefix does not change tone of root
3. Hi tone on modal prefix lowers Hi and Mid tones to Lo

Regarding rule 3, our findings lead us to agree more with Provoost, that Hi tones are stable. If we have an essentially Hi tone verb - ie one that doesn't depend for its high tone on the type of initial consonant - then the Hi tone of the root is unchanged even when preceded by a Hi tone prefix. In the following example, from a text,⁴ the Hi-tone verbs *gyá* 'do' and *náy* 'be' are not lowered by the Hi-tone modal prefix *-á-* :

nàkw kánáy kágyá zìk gli
you you-will-be you-will-do chief our
'you will act as our chief'

All of these general statements of both Provoost and de Colombel seem to imply the wholesale application of rules in a manner not born out by our own studies. In particular, there are certain lexical items which have a fixed tonal pattern and are unaffected by their tonal or consonantal context.

5.2 The present study

Our own study has caused us to take a different tangent. We understand the tonal changes noted above to be motivated by two separate processes: Hi tone spreading and Lo tone spreading.

5.2.1 Hi tone spreading

We stated above that de Colombel explains the tone melody of the underlying verb roots as being derived from the initial consonant. It seems to us, however, that the majority of verb roots are essentially toneless and are allotted a Lo tone by default. In some contexts - explained in detail below - a floating Hi tone attempts to spread to the following TBU. If this TBU is toneless - that is, not Mid or Hi - its acceptance of the floating Hi tone is conditional on the type of its initial consonant: a depressor consonant will block this spread, a non-depressor will accept it.

³ de Colombel 1996, p22

⁴ Text EZ, line 49

There is a small class of Mid-tone verb roots and an even smaller class of Hi-tone roots. They are impervious to Hi-tone spreading. The majority of verb roots are toneless and are allotted a Lo-tone by default. For the most part tone melodies are the result of a process rather than existing as a simple state.

5.2.1.1 Trigger words

There are two classes of words: 1) those which have their own, independently motivated tone melody, unaffected by their immediate environment 2) those which carry a variable tone melody. Both groups contain *trigger words*

We have chosen the term 'trigger words' for those words which cause tone sandhi in the words which follow them. These trigger words can be subdivided into two groups: those which have an invariable tone pattern, regardless of context and those which are themselves subject to the tone changes when preceded by another trigger word. Table 7 gives a list of these words. While this list makes no claim to exhaustivity, it is complete as at this point of our researches.

Invariable (or independently motivated)		Variable	
<i>ántā</i>	with, and	<i>ī</i>	<i>of, for</i>
<i>ghār</i>	with		
<i>ā</i>	to, towards	<i>nāy (nī)</i>	<i>I</i>
<i>áslām</i>	with, depending on	<i>nākw</i>	<i>you (sg)</i>
<i>dāhāy</i>	just, only	<i>nāt</i>	<i>he, she, it</i>
<i>ākā</i>		<i>àlēm (àlì)</i>	<i>we</i>
<i>àkà</i>		<i>àkùlì</i>	<i>you (pl)</i>
<i>ákā</i> (but not <i>ákà</i>)	on	<i>àtà</i>	<i>they</i>
Verbs			
<i>zàkày</i>	take		
<i>tàbày</i>	look for		
<i>vāl</i>	give		
<i>sār</i>	know		
<i>slār</i>	send		
<i>ndàbàr</i>	divide, distribute		
<i>gàsàrày</i>	snatch for oneself		

Table 7

Examples

1) Invariable or independently motivated:

áslām + *wùràṁ* → *áslām wùràṁ* 'it depends on the girl'

Outline of Ouldeme Tone

<i>ákā</i>	+ <i>mèltìvì</i>	→	<i>ákā méltìvì</i>	'on the road'
			(cf <i>ákà mèltìvì</i>)	'at the side of the road')
Verbs				
<i>zàkày</i>	<i>āzàkày wúrám</i>			'he took a girl (as his wife) (<i>wùràṃ</i> 'girl')
'take'				
<i>tàbày</i>	<i>ātábày wál dé, ānzākú dàw</i>			'he looked for a wife but didn't find one (<i>wál</i> 'woman, wife')
'look for'				
<i>ndàbàr</i>	<i>tāndàbàr dáf ánē</i>			'they're dishing out the fufu' (<i>dáf</i> 'fufu')
'distribute'				
<i>sār</i>	<i>tāsār mámlú ī māláftú dàw</i>			'they don't know the voice of God' (<i>màmlú</i> 'throat, voice')
'know'				

2) Variable

Pronoun

a) pronoun as trigger

<i>nī mārèz āṅgwàlāṅ dàw</i>	'I am not a good person'	(<i>mārèz</i> 'person')
<i>nī málàmàṅ gùkùlì dàw</i>	'I am not your brother'	(<i>màlàṃàṅ</i> 'brother')
<i>nàkw wúrám</i>	'you are a girl'	(<i>wùràṃ</i> 'girl')
<i>àlèm áslàvà</i>	'we are friends'	(<i>àslàvà</i> 'friend')
<i>àtà mākār éntā wárám</i>	'the three of them with the girl'	(<i>màkār</i> 'three' <i>wùràṃ</i> girl)

b) pronoun as modified

<i>nēwārà áslàm nákw</i>	'I have come to you (with some purpose)'	(<i>nàkw</i>)
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5.2.2 Lo tone spreading

Lo tone spreading functions in a more general way than Hi tone spreading in that a Lo tone will lower a following Mid tone regardless of the type of initial consonant or of the category of the word which follows. De Colombel's verb phrase rule 1 states that a Lo tone verbal prefix will lower a Mid tone root, as in the following:

àm - -ā- sār → *àmàsàr* 'we know'

We saw from Table 7 that the functional *ákà* 'on, by' does not have a floating high tone. Here the Lo tone spreading rule takes effect:

ákà + dēdēw → *ákà dēdēw* 'beside the claypot'

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6. APPENDICES

6.1 Modal forms in verbs

Base form	Gloss	Aorist	Fin. Def.	Fut. indef.	Jussive	Conditional
<i>pàb</i>	couvrir	<i>tāpáb</i>	<i>tápàb</i>	<i>tápàb</i>	<i>təpàb</i>	<i>tàpáb</i>
<i>tràb</i>	tordre	<i>tātráb</i>	<i>tátràb</i>	<i>tátráb</i>	<i>tətràb</i>	<i>tàtráb</i>
<i>tsàd</i>	médire	<i>tātsád</i>	<i>tátsàd</i>	<i>tátsád</i>	<i>tətsàd</i>	<i>tàtsád</i>
<i>tày</i>	décortiquer la corde	<i>tātáy</i>	<i>tátày</i>	<i>tátày</i>	<i>tətày</i>	<i>tátáy</i>
<i>kwál</i>	refuser	<i>tākwál</i>	<i>tákwàl</i>	<i>tákwàl</i>	<i>təkwàl</i>	<i>tàkwál</i>
<i>kád</i>	tuer	<i>tākád</i>	<i>tákàd</i>	<i>tákàd</i>	<i>təkàd</i>	<i>tàkád</i>
<i>bàs</i>	cultiver	<i>tābàs</i>	<i>tábàs</i>	<i>tábàs</i>	<i>təbàs</i>	<i>tàbàs</i>
<i>dàsl</i>	pondre	<i>tādàsl</i>	<i>tádàsl</i>	<i>tádàsl</i>	<i>tədàsl</i>	<i>tādàsl</i>
<i>mèt</i>	mourir	<i>tāmát</i>	<i>támèt</i>	<i>támèt</i>	<i>təmèt</i>	<i>támát</i>
<i>nùh</i>	mûrir	<i>tānúhw</i>	<i>tánùhw</i>	<i>tánùhw</i>	<i>tənùhw</i>	<i>tánúhw</i>
<i>ftày</i>	frapper	<i>tāftáy</i>	<i>táftày</i>	<i>táftày</i>	<i>təftày</i>	<i>tàftáy</i>
<i>flàk</i>	décortiquer	<i>tāflák</i>	<i>táflàk</i>	<i>táflàk</i>	<i>təflàk</i>	<i>tàflák</i>
<i>fàd</i>	se tordre	<i>tāfád</i>	<i>táfàd</i>	<i>táfád</i>	<i>təfàd</i>	<i>tàfád</i>
<i>sàf</i>	respirer	<i>tāsáf</i>	<i>tàsàf</i>	<i>tàsàf</i>	<i>təsàf</i>	<i>tàsáf</i>
<i>sèŋ</i>	couper	<i>tāséŋ</i>	<i>tàsèŋ</i>	<i>tàsèŋ</i>	<i>təsèŋ</i>	<i>tàséŋ</i>
<i>həràz</i>	grater	<i>tāhəràz</i>	<i>táhəràz</i>	<i>táhəràz</i>	<i>təhəràz</i>	<i>tàhəràz</i>
<i>hwáf</i>	achète	<i>tāhwáf</i>	<i>táhwàf</i>	<i>táhwàf</i>	<i>təhwàf</i>	<i>tàhwáf</i>
<i>hàb</i>	se casser	<i>tāháb</i>	<i>táhàb</i>	<i>táhàb</i>	<i>təhàb</i>	<i>tàháb</i>
<i>slàb</i>	sucer	<i>tāsláb</i>	<i>táslàb</i>	<i>táslàb</i>	<i>təslàb</i>	<i>tàsláb</i>
<i>wàr</i>	faire mal	<i>tāwàr</i>	<i>táwàr</i>	<i>táwàr</i>	<i>təwàr</i>	<i>tàwàr</i>
<i>lèm</i>	chanter	<i>tālí</i>	<i>táli</i>	<i>táli</i>	<i>təli</i>	<i>táli</i>
<i>ràsl</i>	serrer	<i>tāràsl</i>	<i>táràsl</i>	<i>táràsl</i>	<i>təràsl</i>	<i>tāràsl</i>
<i>yì</i>	se fatiguer	<i>tāyí</i>	<i>táyì</i>	<i>táyì</i>	<i>təyì</i>	<i>táyí</i>

No change – consonants *b d g gh mb nd ng v r z l*

<i>bəlùkw</i>	'weave'	<i>tābəlùkw</i>	<i>tábəlùkw</i>	<i>tábəlùkw</i>	<i>təbəlùkw</i>	<i>tàbəlùkw</i>
<i>bàzl</i>	'build'	<i>tābàzl</i>	<i>tábàzl</i>	<i>tábàzl</i>	<i>təbàzl</i>	<i>tàbàzl</i>
<i>dzàb</i>	'spit'	<i>tādzàb</i>	<i>tádzàb</i>	<i>tádzàb</i>	<i>tədzàb</i>	<i>tàdzàb</i>
<i>dzi</i>	bécher	<i>tādzi</i>	<i>tádzi</i>	<i>tádzi</i>	<i>tədzi</i>	<i>tàdzi</i>
<i>dəb</i>	'be sticky'	<i>tādəb</i>	<i>tədəb</i>	<i>tədəb</i>	<i>tədəb</i>	<i>tādəb</i>
<i>gwàd</i>	'point'	<i>tāgwàd</i>	<i>tágwàd</i>	<i>tágwàd</i>	<i>təgwàd</i>	<i>tàgwàd</i>
<i>gád</i>	'leave in secret'	<i>tāgád</i>	<i>tágád</i>	<i>tágád</i>	<i>təgád</i>	<i>tágád</i>
<i>mbàd</i>	'turn'	<i>tāmbàd</i>	<i>támbàd</i>	<i>támbàd</i>	<i>təmbàd</i>	<i>tàmbàd</i>
<i>ndàb</i>	'distribute'	<i>tāndàb</i>	<i>tándàb</i>	<i>tándàb</i>	<i>təndàb</i>	<i>tándàb</i>
<i>nzàd</i>	'snatch'	<i>tānzàd</i>	<i>tánzàd</i>	<i>tánzàd</i>	<i>tənzàd</i>	<i>tánzàd</i>
<i>ndày</i>	'eat'	<i>tāndày</i>	<i>tándày</i>	<i>tándày</i>	<i>təndày</i>	<i>tándày</i>
<i>ngád</i>	'shape'	<i>tāngád</i>	<i>tángád</i>	<i>tángád</i>	<i>təngád</i>	<i>tángád</i>

<i>vəràzl</i>	'brown'	<i>tāvəràzl</i>	<i>távəràzl</i>	<i>távəràzl</i>	<i>tàvəràzl</i>	<i>tàvəràzl</i>
<i>vàh</i>	'burn'	<i>tāvàh</i>	<i>távàh</i>	<i>távàh</i>	<i>tàvàh</i>	<i>tàvàh</i>
<i>zàd</i>	'accompany'	<i>tāzàd</i>	<i>tázàd</i>	<i>tázàd</i>	<i>tàzàd</i>	<i>tàzàd</i>
<i>zèŋ</i>	'putrify' (caus)	<i>tāzèŋ</i>	<i>tázèŋ</i>	<i>tázèŋ</i>	<i>tàzèŋ</i>	<i>tàzèŋ</i>
<i>ghwàr</i>	'jump'	<i>tāghwàr</i>	<i>tághwàr</i>	<i>tághwàr</i>	<i>tàghwàr</i>	<i>tàghwàr</i>
<i>zlàb</i>	'strike'	<i>tāzlàb</i>	<i>tázlàb</i>	<i>tázlàb</i>	<i>tàzlàb</i>	<i>tàzlàb</i>

6.2 Tone and grammatical Category

A summary of all the different tone patterns and their frequencies as found on mono and disyllabic lexemes broadly divided in 6 categories (roughly following de Colombel's division)

	Nouns		Verbs		Ideophones		Modifiers		Functionals		Pronouns	
L	21	57%	130	78%	85	50%	7	58%	7	44%	2	29%
M	10	27%	31	19%	65	38%	4	33%	3	19%	5	71%
H	6	16%	5	3%	19	11%	1	8%	6	38%		
	37	100%	166	100%	169	100%	12	100%	16	100%	7	100%
LL	195	45%	217	61%	35	49%	41	44%	3	10%	5	71%
LH	43	10%	23	6%	2	3%	16	17%	5	17%		
ML	32	7%	7	2%	30	42%	2	2%	2	7%		
MM	52	12%	45	13%	3	4%	16	17%	4	13%	2	29%
NH	47	11%	60	17%	2	3%	5	5%	3	10%		
HL	43	10%	3	1%			7	8%	5	17%		
HM	3	1%	1	0%			4	4%	8	27%		
HH	17	4%					2	2%				
	432	100%	356	100%	72	100%	93	100%	30	100%	7	100%

6.3 Minimal tone pairs

Verb/verb

tsāl

climb

tsəl

call so. by name

bāz

sharpen

bàz

urinate

Outline of Ouldeme Tone

Noun/noun

<i>bàràv</i>	lap	<i>ḃàràv</i>	anger
<i>àslàsl</i>	bone	<i>āslàsl</i>	firewood
<i>bàzlám</i>	straw hat	<i>bázlàm</i>	protector
<i>àkwàr</i>	kidneys	<i>ākwár</i>	stone
<i>màlà mú</i>	brotherhood	<i>mālāmū</i>	edible paste
<i>mángwàrú</i>	mango	<i>mángwàrú</i>	large bean
<i>àmàd'</i>	wind	<i>āmād'</i>	bean

Verb/noun

<i>wàr</i>	hurt (tr.)	<i>wār</i>	child
<i>fāt</i>	germinate	<i>fāt</i>	sun
<i>hàs</i>	eat fufu without sauce	<i>hās</i>	decorative powder

Noun/modifier

<i>kùléd'</i>	shard of pottery	<i>kūlēd'</i>	far
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