

A FIRST ACCOUNT OF TONE IN MYEBON SUMTU CHIN*

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Abstract: Sumtu Chin is spoken by some 20–30,000 people in four townships southeast of Sittwe in Arakan State, western Burma. Close analysis of tone systems in other southern Chin languages has proved difficult because the tones vary greatly between dialect; the data in this paper is from a single dialect of Sumtu, spoken in Myebon. Sumtu monosyllables may have lexical high or low tone. Grammaticalised morphemes may lose their underlying lexical tone and are assigned the polar opposite tone to the tone of the morpheme on the left. Functional morphemes may be lexically toneless, assigned a surface tone in a similar way. Restricted minor syllables preceding major syllables surface with the polar opposite tone to the major syllable to their right; verb-subject prefixes take the form of such minor syllables. The formation of the dual seems to flip the tone sequence of verbs.

Keywords: Chin languages, tonal phonology, polarity, agglutinative verbal morphology

1. INTRODUCTION

1.1. Background to the present study: Ritual Sumtu

Initially, a project was devised to document Ritual Sumtu, a critically endangered speech form used in recitations and ritual performances, known now by only three spirit mediums all aged in their seventies or eighties, living in Minbya and Myebon townships. When they die, Ritual Sumtu will live on only partially in fragments known by others in the community. Involvement in the Ritual Sumtu project led to a curiosity about colloquial Sumtu.

1.2. Sumtu Chin

Sumtu belongs to the Southern Chin sub-branch of the Kuki-Chin (Bradley 2002: 91; VanBik 2009: 23) branch of Tibeto-Burman, and is spoken in four townships (Kyaukpyu, Ann, Minbya and Myebon) of Rakhine State. Perhaps 2,800 households speak Sumtu, amounting to a speaker-population of approximately 20,000, though no accurate figures exist. Sumtu is currently not listed in the most recent edition of the SIL Ethnologue (Lewis 2009); its ISO 639-3 code csv is pending approval. The closest language to Sumtu which is listed in the SIL Ethnologue is Asho (ISO 639-3 csh), unintelligible to Sumtu speakers. Another

* Thanks to Mai Ni Ni Aung for introducing me to Sumtu. I'm grateful to her and our colleagues on the Sumtu Ritual Documentation project, from which this work is a spin-off, for sharing their language with me. Without the remarkable patience of U Daung (Dong Ling), this data would not have become available. Moira Yip helped me to understand exactly why it was interesting. Thanks to Connor Youngberg and an anonymous reviewer for their valuable comments, and especially to Alec Coupe for all his help preparing the manuscript under pressure. Naturally all errors are my own.

closely related language Laitu/Letu has yet to be listed in the Ethnologue (but has been assigned the code clj).

Much basic comparative linguistic research on Kuki-Chin languages, especially those in Burma, remains to be done. One reason for this is the general inaccessibility of northern Arakan State, which is largely closed to foreigners. The rate of transmission of Chin languages to new generations has slumped and as a result Sumtu and other Chin languages are highly endangered, so further research on these languages may be considered urgent.

1.3. *Myebon dialect*

A full account of Sumtu phonology would be complicated by the significant differences between tones and vowels in different dialects. The phonology of Sumtu has been described provisionally by Kerstin Herr (2012) and Kee Shein Mang (2012) of SIL International, with the goal of developing and promoting a standardised orthography for Sumtu.

At the time of writing the only material published in Sumtu is a reader *Sum: tu Hmyow Saw Uk* produced in 2008 by Dong Ling, aged 75, which represents the Myebon dialect of its author. The orthography in the reader was devised following principles suggested by Khoi Lam Thang of the Myanmar Bible Society, who is a speaker of a northern Chin language very unlike Sumtu. The orthography represents some sounds in a rather counter-intuitive way, but in general it is a faithful representation of Myebon dialect of Sumtu. An older speaker, Dong Ling's speech may preserve a number of vowel contrasts and consonant clusters which have changed or disappeared in other dialects and in the Myebon dialect of younger speakers.

This study is based solely on the Myebon dialect of Dong Ling, with whom the author spent a week in Minbya, the base of the ritual Sumtu documentation project, in February 2013. The entire text of the *Sumtu Reader* was recorded, transcribed and discussed in detail with its author during the course of a week, paying special attention to transcribing tones and checking tonal alternations. Recordings were made using a Zoom H4n digital recorder, with supplementary video and laryngographic recordings of some sounds of particular interest.

The *Reader* consists of 68 lessons of between 8 and 20 sentences. Each lesson introduces a particular initial consonant or syllable rhyme, so the material is contrived to illustrate all the sounds of the language. While such a corpus can only cover a small portion of the language's lexicon, a surprisingly wide range of syntactical and morphological forms are included.

2. TRANSCRIPTION OF MYEBON SUMTU

Some interesting aspects of the phonetics of Myebon Sumtu fall outside the scope of this paper. The details of segmental phonology are not under scrutiny here as tone is the prime focus, but the transcription used here is sufficiently self-explanatory to give a clear picture of the phonetics of the language. IPA values of symbols generally apply, but note the following conventions.

2.1. Tones

- / and \ , represent **high** and **low** tone on the preceding syllable, respectively. Each syllable, major or minor, has a tone.
- In phonological representations, T is a lexically assigned tone.

2.2. Vowels

- *ei* and *ou* represent the monophthongs [ɛ ɔ], respectively; digraphs are used for ease of transcription of these vowels without diacritics, but they are not diphthongs. There are five vowel heights in Sumtu: [i ɛ e ε a ɔ o ɔ u];
- *r* represents a central or back half-close vowel [ɤ ~ ɤ].
- *y* represents a palatal glide [j] in syllable-initial and syllable-final positions alike.

2.3. Consonants

- *hm hn hn hn hy* represent voiceless sonorants [m̥ n̥ ŋ̥ j̥]
- *ph th kh* represent aspirated stops [p^h t^h k^h]

2.4. Morphophonological structure

- In transcriptions, a hyphen ‘-’ indicates a morpheme boundary, independent of syllable structure.
- A dot ‘.’ in transcriptions represents the boundary between a restricted minor syllable preceding a major syllable. This may or may not coincide with a morpheme boundary, as the examples in (1) show.

Syllables may begin with an initial stop, nasal or glottal stop. Initial clusters with *l*, *r*, *y* or *w* in second position are permitted (in addition to some unusual clusters with initial *m* + stop). In the syllable rhyme, a final glottal stop may occur after a vowel or vowel + glide (*w* or *y*) combination; otherwise, syllables may end in a final nasal consonant (*m*, *n* or *ŋ*) or stop (*p*, *t* or *k*).

Sumtu syllables are very frequently preceded by an unstressed syllable, often as part of the system of prefixational morphology. These syllables are described here as minor syllables because they may only contain a short, non-contrastive epenthetic schwa [ə] which is not transcribed, even though it necessarily bears a tone. Therefore, when a minor syllable is transcribed with a single consonant, this indicates the form *Cə*, which may be the beginning of a monomorphemic sesquisyllable such as (1b), or the prefix of a major syllable, as in (1c). Where a minor syllable additionally contains a second consonant, it has the shape *Cə^m* or *Cəⁿ*. The final *-m* or *-n* is an additional morpheme associated with verb

morphology. Final *-m* in a minor syllable is TRANSITIVE, as shown in (1d), also (13), (14), (19), (52) and many others; final *-n* in a minor syllable indicates non-singular subject of a verb (see[85]).

(1) Examples illustrating the transcription of morphophonological structure

a. monomorphemic major syllable – one tone

msi\	[[̂] msi\]	L
salt		
‘salt’		

(Note the unusual initial cluster [ms]. Here, [m] is non-syllabic; there is no vowel between [m] and [s].)

b. single morpheme consisting of minor + major syllable (two tones)

ŋ/.hmɛt\	[ŋǎ/.mɛt\]	HL
chilli		
‘chilli pepper’		

c. two morphemes, minor syllable + major syllable (two tones in total)

m/-.siʔ\	[mǎ/.siʔ\]	HL
2.pl.incl-go		
‘we go’		

d. three morphemes: bimorphemic minor syllable + monomorphemic major syllable (two tones in total)

ʔ-m/-.khlaʔ\	[ʔǎm/.k ^h laʔ\]	HL
3-TR-cook		
‘he cooks for me’		

e. three morphemes: one major syllable with a non-syllabic prefix *m-* + one major syllable (two tones in total)

m-sik\ -aʔ/	[[̂] msik\ aʔ/]	LH
TR-pluck-NEG		
‘don’t pluck it’		

- In phonological representations, full syllables are represented as ‘x’, and minor syllables as ‘.’, thus (. x) represents a sequence of minor + major syllables: an iambic foot with two tones.

3. TONE IN CHIN LANGUAGES

Chin languages are known for their complex tone systems. Descriptions of tone and tone-sandhi processes have also been reported and described to varying degrees of completeness for Northern and Central Chin languages Lai (Hyman &

VanBik 2002, 2004; VanBik 2009), Mizo, Zahau, Thado, Zo, Tedim and Sizang (Button 2011) and Zahau (Yip 2004).

Within the Southern branch of Kuki-Chin, underlying lexical tone may be straightforward, but surface phonetic representations may be complex, subject to a number of syntactic and phonological processes. In the Southern branch of Kuki-Chin, only the tones of Daai and Khumi have been the subject of published descriptions. Of Daai, Hartmann (2002: 81) writes: ‘In the Daai orthography, tone is not marked. There was once an attempt to mark tone; it has since been abandoned, as tone differs from village to village.’ Writing on Khumi tone, Peterson (2010: 81) records five underlying tonal contrasts, but notes elsewhere (Peterson to appear) that the surface realisation of tones and their interaction with each other yields a system which is fairly convoluted, depending heavily on the morphosyntactic environment of nominal and verbal roots.

3.1 Verb-stem alternation in Chin languages

One apparent asymmetry in the corpus of Sumtu data presented here is that a majority of verbs have lexical low tone rather than high tone, though high tone verbs are attested. The reason for this is not clear, but one factor is likely to be the phenomenon of verb-stem alternations in Kuki-Chin languages, a major feature of the lexicon in Northern and Central Chin languages. The phonetic detail of the two alternatives and the linguistic function of the alternation are themselves complex subjects of study, and the situation is different in each language, but tone is certainly involved. For a selection of studies, see Henderson (1965: 84–9); Stern (1963: 243–51); Chhangte (1993: 135–75); King (2009); Hartmann (2002); Yip (2004).

Hyman & VanBik (2002) report that in the Northern Chin language Hakha Lai, 80% of verbs have two distinct forms (754 out of a verbal corpus of 910). In contrast, in the Southern Chin language Daai, 927 out of 1116 verbs have no stem alternation, suggesting that less than 20% of Daai verbs exhibit this phenomenon (Hartmann 2002: 81; So-Hartmann 2009: 71–75).

The data on Sumtu verb-stem alternations in the corpus are not sufficient to compare verb-stem alternation in Myebon Sumtu with other Chin languages, either in terms of the extent of the lexicon in which verb stem alternation is found, or in terms of the phonological nature of the alternation. However, preliminary impressions are that in Sumtu the proportion of the verbs in the lexicon with two stems is similar or less than Daai. It will be some time before data can be available to illustrate the situation more fully in Sumtu, but for now it appears that verb-stem alternation affects only a minority of verbs in the language.

The examples of verb-stem alternation which were identified in the Sumtu corpus are given below, using the terms Form 1 and Form II for Helga So-Hartmann’s Stem A and Stem B (Hartmann 2002: 81; So-Hartmann 2009: 79–81). The similarity to Daai extends also to the verb types of Daai: the high-tone Sumtu verbs in (2a) have a Form I with a final stop, and a derived open-syllable Form II (cf. Class II verbs in Hartmann 2002: 83; Group 1 verbs in So-Hartmann

2009: 72). The low-tone Sumtu verbs in (2b) have Form II with a final oral stop and a derived Form I with a final glottal stop (cf. Class III verbs in Hartmann 2002: 84; Group 2 verbs in So-Hartmann 2009: 73). There is insufficient data in the corpus to say with confidence whether all H-tone verbs behave like the verbs in (2a) and all L-tone verb behave like those in (2b), though that is certainly the pattern observed in the data which is available. Also, in the available data, we can say that the tone of a given verb is the same in Form I and Form II.

(2) Verb stem alternation in Myebon Sumtu

	Form I	Form II	gloss
(a)	ʔok/	ou/	‘drink’
	hleiʔ/	hlei/	‘buy’
	lɔk/	lɔ/	‘fetch’
(b)	ʔiʔ\	ʔip\	‘sleep’
	kɔʔ\	kɔt\	‘cross over’
	siʔ\	sit\	‘go’
	buʔ\	but\	‘cook’

For comparison, the Daai equivalents of four of the verbs are given in (3), from So-Hartmann (2009: 72–73). In the Daai orthography ‘:’ represents a high tone and ‘h’ represents a glottal stop [ʔ].

(3) Verb-stem alternation in Daai Chin

Form I	Form II	gloss
oo:k	o-	‘drink’
ih	ip	‘sleep’
seh	sit	‘go’
boih	booi:	‘cook’

In Sumtu, Stem I is found in finite verbs and Stem II in imperatives, as the examples in (4) show.

(4)	a.	k/.-ʔiʔ\ [kǎ.ʔiʔ] 1-sleep.I ‘I sleep.’	HL
	b.	ʔip\ -hni/ -e/ sleep.II-perf-imp ‘Go to sleep!’	LHH

or more bound functional morphemes attached to the stem. Noun complexes consist of a head noun, to which may be attached a single minor-syllable prefix to the left, and case- or role-marking morphemes, postpositions, particles and the like to the right. The head verb or noun may itself be a compound with internal structure. Verb complexes, usually last in the sentence, consist of a main verb, which may similarly have attached to it a minor-syllable prefix to the left, and modal or other auxiliary verbs, as well as morphemes expressing tense, mode and aspect, direction, mood, and so on, to the right. These agglutinative patterns are illustrated in the examples throughout this paper.

In this section we look first at sequences of tones in noun complexes and then verb complexes. Broadly, we observe that affixes attached to nouns and verbs exhibit two distinct patterns of tonal behaviour. Affixes may have a fixed high tone (no affixes with a fixed low tone are attested in the *Sumtu Reader*) which is lexically determined and surfaces unchanged as a high tone in the assembled verb complex. Alternatively, affixes may have no lexically determined tone: the tone assigned throughout the verb complex is contextually determined by the nearest lexically fixed root tone to the left, not necessarily adjacent. The root tone assigns alternating polar opposite tones to adjacent toneless affixes. Examples of noun and verb affixes belonging to both fixed-tone and toneless categories, and the resulting tone sequences, are illustrated in the following examples, with an analysis at the end of Section 5.

5.1. Fixed-tone noun affixes

The fixed-tone noun affixes which are most frequently attested in the *Sumtu Reader* are plural marker *-haʔ/* and a subject marker *-lxʔ/*. In (6–8), *-haʔ/* appears affixed to noun complexes of various shapes, each with a high tone immediately preceding *-haʔ/*. In (9) and (10), *-haʔ/* appears appended to a low-tone noun. For comparison, here and in examples throughout, the tone context of the phrase containing the syllable of interest (indicated by *_*) is shown to the right of the example sentence.

- | | | |
|-----|--|---------------|
| (6) | phɛt/-haʔ/ kiʔ/- haʔ/
sparrow-PL parrot-PL
'sparrows and parrots' | H_ → [HH] |
| (7) | ʔa\-sɔ/-haʔ/
chicken-DIM-PL
'chickens' | LH_ → [LHH] |
| (8) | buʔ\-ʔɔn/-hneŋ/- haʔ/
rice-curry-remain-PL
'leftover food' | LHH_ → [LHHH] |

- (17) ʔxyʔ/-**khɔ**\ k\.-ʔxyʔ/-laʔ\ H₋ → [HL]
 lullaby-also 1-sing-must
 ‘I will have to sing [the child] to sleep with a lullaby.’
- (18) lɔm/-**khɔ**\ ʔ\.-biŋ/-tʂʔ\ H₋ → [HL]
 road-also 3-block-too
 ‘The road is blocked as well.’
- (19) k\.-tu/-lʂʔ/-**khɔ**\ ʔ-m\.-tʂm/-i\.-ba/-beʔ/-hyʂ/ LHH₋ → [LHHL]
 1-grandchild-SBJ-also 3-TR-follow-APPL-again-yet-EMPH
 ‘My grandchild also came along with me.’

The locative suffix *-a* behaves in the same way. Attached to a high-tone noun, it surfaces with a low tone in (20) and (21). In (22) and (23), *-a* has a high tone, affixed to a low-tone noun.

- (20) lɔm/-**a**\ n\.-sɔ/ pʂm/-i\.-bʂy/ H₋ → [HL]
 road-LOC 2-child carry-APPL-EXH
 ‘Carry your child along the road.’
- (21) naŋ/-im/-**a**\ n\.-siʔ\.-hni/-mʂ/? HH₋ → [HHL]
 2-house-LOC 2-go-PRF-Q
 ‘Did you go to your home?’
- (22) kaw\/-**a**/ ŋɔ/-sa\ tɔŋ\.-pɔʔ/-hme\ L₋ → [LH]
 hearth_frame-LOC fish-dry put-RES-IMP
 ‘Put the dried fish up on the hearth-frame.’
- (23) pɔŋ\/-**a**/ aŋ\ki/ tɔŋ\.-pɔʔ/-hme\ L₋ → [LH]
 wall-LOC shirt hang-RES-IMP
 ‘Hang the shirt up on the wall.’

In (24), *-a* has a high tone because of the low tone to its left. This time it is not at the right edge of the noun complex, and is followed by *-khrʔ/*, an affix with fixed high tone like *-lʂʔ/* and *-haʔ/* above.

- (24) ʔuʔ\.-kan\/-**a**/-khrʔ/ k\.-plan\.-ba/ LL₋H → [LLHH]
 brick-pond-LOC-from 1-return-again
 ‘I came back again from the brick-built pond.’

More revealing is (25), where *-a* and *-khɔ* occur in sequence, attached to a noun complex which ends in a lexical high tone. Here, the two lexically toneless suffixes surface as a sequence of alternating tones, each with the polar opposite tone of its neighbouring tones.

- (25) ʔnɛm/-sɔ/-**a**/-**khɔ**/ n\.-myɛŋ/-i\.-mʂ/? LHH₋ → [LHHLH]
 low-DIM-LOC-also 2-fear-APPL-Q
 ‘Are you afraid down there also?’

5.3. Fixed-tone verb affixes

In verb complexes, a similar distinction obtains between verb affixes with and without lexically determined tone. Some affixes have lexically fixed high tone, such as the interrogative marker *-mɿ/* and negative suffix *-aʔ/*. In examples (26–29) and throughout the corpus, both keep their high tone in all contexts, irrespective of adjacent tones and adjacency to each other, as in (29) and other examples throughout this paper. We find no fixed-tone affixes which are not HIGH, though it remains to be seen whether or not this is consistently true and what the implications are.

- (26) *muʔ/* *ʔ/.-pɿyʔ\ -hni/ -mɿ/* HLH₋ → HLHH
 snack 3-finish-PRF-Q
 ‘Is the snack all finished?’
- (27) *ʔɛn* *ʔ/.-pa\ -mɿ/* HL₋ → HLH
 plum 3-blossom-Q
 ‘Is the plum [tree] in blossom?’
- (28) *lay/-a* *səŋ\ -khə/* *ʃom/-laʔ\ -aʔ/* HL₋ → HLH
 field-LOC rice_plant-also bundle-must-NEG
 ‘[We] don’t have to bundle the rice plants in the paddy field.’
- (29) *yu* *mɿy\ -aʔ/ -mɿ/* L₋ → LHH
 rice_mash exist-NEG-Q
 ‘Isn’t there any rice mash?’ (for making rice beer)

5.4. Toneless verb suffixes

The *Sumtu* Reader contains a diverse variety of verbal structures, illustrating a range of affixes, the majority of which are lexically toneless, unlike fixed-tone *-mɿ/* and *-aʔ/* above. Some of the most common toneless verb affixes are listed in (30) below.

- (30) toneless verb affixes
-ay/hmay/wayʔ IRR
-ba ‘again’
-beʔ ‘still’
-hni PRF
-hme IMP

In (31) and (32), a single toneless affix is HIGH adjacent to a lexical LOW; in (33) the affix is LOW when adjacent to two HIGHS on either side. In (34–38), a sequence of two toneless affixes surfaces as HL when adjacent to a LOW, but as LH when adjacent to a HIGH.

- (31) pɔn\nɔm/ k/.-hleɪʔ\-\bni/ HL_ → [HLH]
 cardamom 1-buy-PRF
 ‘I have bought the cardamom.’
- (32) ʔayʔ/-teʔ/ k/.-laʔ\-\bni/ HL_ → [HLH]
 plough-but 1-get-PRF
 ‘I have got the plough, however.’
- (33) ʔa\-sɔ/ msip/-ba\-tei/-aʔ/ H_HH → [HLHH]
 chicken-DIM cheep-again-still-NEG
 ‘The chicks are not cheeping anymore.’
- (34) k/.-hma\ ʔ/.-yɛm\-\ba/-hni\ HL__ → [HLHL]
 1-wound 3-heal-again-PRF
 ‘My wound has healed again.’
- (35) n\.-klan/-laʔ\-\ba/-hmay\ LHL__ → [LHLHL]
 2-repair-must-again-IRR
 ‘You will have to repair it again.’
- (36) n/.kɔ\ ʔ/-dɔm\-\ba/-hni\-mɻ/? HL__H → [HLHLH]
 2-illness 3-recover-again-PRF-Q
 ‘Has your illness got better again?’
- (37) yaʔ/ ʔ\.-htɻy/\-hni\-\ay/ LH__ → [LHLH]
 3 3-fall_over-PRF-IRR
 ‘He is [now] about to fall over.’
- (38) naŋ/-im/ ʔ\.-sim/\-hni\-\wayʔ/ LH__ → [LHLH]
 2-house 3-collapse-PRF-IRR
 ‘Your house is going to collapse.’

Note how *-ba* ‘again’ and *-hni* PRF in sequence surface as HL *-ba/-hni* in (34) and (36) above, but as a LH sequence *-ba\/-hni/* in (39) and (42) below.

- (39) yɔʔ\ ʔ\.-hɻn/\-ba\-\hni/ LH__ → [LHLH]
 rain 3-lessen-again-PRF
 ‘The rain has let up again.’

5.5. Phonological account of lexically toneless affixes in noun- and verb-complexes

Note the frequent occurrence of alternating HL or LH sequences within the noun complexes and verb complexes in this group of examples, and throughout this paper. These sequences of alternating tones may be accounted for by concluding that Myebon Sumtu is a language which tries hard to observe the Obligatory Contour Principle (OCP), a fundamental output constraint which stipulates that

adjacent identical elements, such as sequences of identical tones, are prohibited (e.g. Meyers 1997: 847).

If the OCP output constraint is observed in Myebon Sumtu, then the output of a lexically tonal noun or verb with one or more toneless affixes attached to it may be represented as in (40): a noun or verb complex consisting of a head noun or verb with lexically determined tone T (either H or L) is followed by a sequence of lexically toneless morphemes. (40b) represents the necessary output if the OCP is not to be violated if each syllable must have a surface tone, which is something we already know Sumtu prefers.

(40) a. Input

T
x x x x

b. Output

	H	L	H	L	(if T is high)
or	L	H	L	H	(if T is low)

This accounts for many of the examples in Section 5.4 where toneless syllables can be assigned tones in observance of the OCP such that no new sequences of adjacent identical tones are created (though the complex may already contain adjacent lexical highs, as in (33)).

A similar situation is described by Moira Yip (2002: 159) in the context of African tone languages: “In some languages, certain affixes have tones that are fully predictable from the tone of the foot to which they attach. [...] Words that end in L take H affixes, and words that end in H take L affixes. This is termed ‘polarity’ [...]”

(41a) is a representation of a hypothetical verb or noun complex with four syllables where, in addition to a syllable with a lexical tone T (which may be HIGH or LOW) at the head of the complex, the third syllable of the complex is an affix bearing a lexically determined tone. In practice, such an affix can only bear a high tone, since there are no lexically low-toned affixes. (41b) lists all possible outputs.

(41) a. Input

T	H		
x	x	x	x

b. Possible outputs:

if T is HIGH:

H	H	H	H	4 OCP violations
H	H	H	L	2 OCP violations
H	L	H	H	1 OCP violation
H	L	H	L	0 OCP violations → preferred

if T is LOW:

L	H	H	H	2 OCP violations
L	H	H	L	1 OCP violation → preferred?
L	L	H	H	2 OCP violations
L	L	H	L	1 OCP violation → preferred?

If T is high, the preferred output is clearly HLHL, with no OCP violation. If T is low, OCP violation cannot be avoided. Of the remaining options, LHHL and LLHL both contain a only single pair of adjacent identical tones and so are preferable to LHHH which has two pairs of adjacent highs. But which of LHHL and LLHL is to be preferred in Myebon Sumtu? So far, it has been sufficient to say that toneless affixes arrange themselves around any fixed lexical tones to avoid any two adjacent highs or lows. However, this cannot be achieved in the hypothetical case in (41) if the verb complex begins with a low tone, nor in the real example in (42): here there are two adjacent toneless syllables between two fixed HIGHS.

(42)	yaʔ/-a\	lei/	n\.-pek/	-ba\	-hni/	-mɿ/?	LH__H → [LHLHH]
	3-OBJ	debt	2-give	-again	-PRF	-Q	
	‘Have you paid him back the debt?’						

The input of the verb complex in (42) can be represented as in (43). There is no way to fill the two toneless syllable slots between two highs without violating the OCP.

(43) a. Input

L	H			H
x	x	x	x	x

b. Possible outputs:

L	H	H	H	H	3 OCP violations
L	H	H	L	H	1 OCP violation
L	H	L	H	H	1 OCP violation (actual output)
L	H	L	L	H	1 OCP violation

All outputs in (43b) violate the OCP somehow: LHHLH, LHLHH and LHLH each contain only one pair of adjacent identical tones, so we must consider why the actual output LHLHH is preferred over LHHLH and LHLH. Directionality or cyclicity of application of the OCP is one possible explanation. It might reasonably be argued that the final interrogative marker *-mɿ/* is a sentence-level clitic and that the OCP operates first within the domain of the verb-complex, without reference to the fixed tone of *mɿ/*. In this account, the verb complex of (42) appears as in (44), with the tones (as in example [39]) accounted for in (45).

- (44) n\.-pek/-ba\-hni/ -mɿ/? LH_ _ H → [LHLH H]
 2-give-again-PRF -Q
 ‘Have you paid back?’

(45) a. Input

((L	H)	verb complex	H)	sentence
x	x	x	x			x		

b. Possible outputs of the verb complex

L	H	H	H		
L	H	H	L		
L	H	L	H	no OCP violation	→ preferred candidate
L	H	L	L		

Here, the tones within the verb complex observe the OCP in the output LHLH verb without reference to the fixed tone sentence morpheme. The implication of this is that sentence-level clitics are necessarily fixed (high) tone, though a discussion of that possibility will have to wait until a fuller description of the syntax of Sumtu is completed.

6. TONE LOSS THROUGH GRAMMATICALISATION

In this section, we examine the relationship between grammaticalisation and tone. Syllables with a lexically determined ‘root’ tone may lose their lexical tone as part of the process of grammaticalisation, though segmental material remains unchanged. Note, however, that tone loss through grammaticalisation is not inevitable, given the existence of functional morphemes which maintain lexical tone, as seen in 5.1 and 5.3 above.

6.1. Tone loss in grammaticalised nouns

The Sumtu word for ‘fruit’ is ʔ\.thɛwʔ/, a sesquisyllable with a high tone on the major syllable. In the *Sumtu Reader*, the names of specific kinds of fruit are all compounds with -thɛwʔ ‘fruit’ in second position, shown in (46).

(46) Words for fruit in Sumtu

ʔ\.thɛwʔ/	LH	fruit	‘fruit’
hɔy\ -thɛwʔ/	LH	mango-fruit	‘mango’
kom\ -thɛwʔ/	LH	betel-fruit	‘betel nut’
pan/siʔ\ -thɛwʔ/	HLH	cucumber-fruit	‘cucumber’
pay/lom\ thɛwʔ/	HLH	long_bean-fruit	‘long bean’
tat\ -thɛwʔ\	HL	tat-fruit	‘monkey-head fruit’
thei\ -thɛwʔ\	HL	fig-fruit	‘fig’

In these compounds -thɛwʔ is grammaticalised as a bound-form nominal classifier of the noun to its left; the general word for ‘fruit’ alone is ʔ\.thɛwʔ/ [ʔə\.thɛwʔ/]. In grammaticalised form, -thɛwʔ takes the polar opposite tone of the

- (52) b/.ha\ ʔ-m/.-khlaʔ\-**laʔ**/ HL_ → [HLH]
 [bǎ/.ha\ ʔǎm/.khlaʔ\,laʔ/]
 snack 3-TR-cook-must
 ‘He had to cook the snack.’
- (53) yaʔ/ ʔ\.-ya/-**laʔ**\ LH_ → [LHL]
 3 3-stand-must
 ‘He had to stand.’
- (54) hyap\ ʔ-m\.-pek/-ba\-**laʔ**/-hni\ -ay/ LHL_LH → [LHLHLH]
 [jap ʔǎm.pək.ba.laʔ.ŋi.aj]
 fan 3-TR-give-again-must-PRF-IRR
 ‘He will have to give the fan back to me.’

Whether or not the tone of *laʔ* can be seen to be lexically fixed high or determined contextually in observance of the OCP is itself an indication of the identity of a particular occurrence of *laʔ* as the main verb ‘receive’ with lexical high tone or a toneless modal verb.

The corpus contains only one example of the low-tone verb *pɔʔ* ‘chase’, given in (55), while there are some two dozen examples of verb complexes containing the toneless resultative marker *-pɔʔ*. More data in a wider range of contexts will be necessary to arrive at a more precise description of its function, but it seems to have a resultative function, and is glossed as such here. In both main verb and functional roles, this verb seems to have much in common with Burmese *laiʔ*, which means ‘follow’ as a main verb but has a grammaticalised function somewhat close to resultative in serial verb constructions (see Okell & Allott 2001: 214 for examples).

- (55) hou/-haʔ/ **pɔʔ**\-bry/-ya/
 shout-PL chase-EXH-EMPH
 ‘Shout and drive them out!’

In (56–61), toneless *-pɔʔ* RESULTATIVE is shown in a variety of verb complexes, surfacing as low or high so as to avoid adjacent identical tones. The tone context of each example is given to the right; toneless syllables (including *pɔʔ*) are shown as ‘_’. These examples contain toneless morphemes *ba* ‘again’, *la* NEGATIVE and *tei* IMPERATIVE.

- (56) wei/ tuʔ\-**pɔʔ**/-hme\ L_L → [LHL]
 cradle rock-RES-IMP
 ‘Rock the cradle.’
- (57) ʃɿ\ -haʔ/ k-m/.-phlan\ -**pɔʔ**/ HL_ → [HLH]
 cow-PL 1-TR-return-RES
 ‘I returned the cows [to their home].’

Possible outputs:

H	L	H	H	1 OCP violation → preferred? (actual output)
H	L	L	H	1 OCP violation → preferred?
L	L	H	H	2 OCP violations
L	L	L	H	2 OCP violations

Why should the output HLHH be preferred to HLLH? Here we may need to consider the (perhaps by now conspicuous) absence of consecutive low tones in the corpus and conclude that Sumtu is a language in which the avoidance of adjacent low tones outranks the avoidance of adjacent high tones, stated formally in (65):

(65) *LL >> *HH

Applying this constraint, HLHH is the selected output in (64). A similar constraint avoiding adjacent low tones but tolerating adjacent high tones is described for Mandarin third-tone sandhi by Moira Yip (2002: 181). Another possible analysis which could be explored if more data become available is that Sumtu generally prefers fewer marked L tones in outputs, if other things are equal.

6.3. Tone loss in reduplicated adverbs

Adverb formation is another morphological process where we observe loss of lexical tone as part of a reduplicative process. Three of the adverbs which appear in the *Sumtu Reader* data set are listed in (66).

(66) na\,na/	LH	‘somewhat’
dε\,dε/	LH	‘firmly’
thin\,thin/.hiw?\.hiw?/	LHLH	‘silently’

These seem to be reduplicative forms, although base forms for these adverbs are not found in the corpus. In each, we see a sequence of LH alternations. It seems probable that in each case a verbal base-morpheme bearing the lexical tone is followed by a reduplicated toneless form of itself carrying the polar opposite tone of the base morpheme.

7. TONE IN IAMBIC FEET

Like many languages in the mainland South-East Asian linguistic area, Sumtu has many words iambic in form, as described in 2.4. Unrestricted major syllables, which may have the form of any permitted syllable in the language, may be preceded by a restricted half-syllable comprising a single initial consonant (most commonly *ʔ*) and a short epenthetic schwa [ə̃], unmarked in this transcription. In the transcription, ‘.’ indicates the boundary between minor and major syllables.

7.1. Tone in lexical sesquisyllables

Single lexical nouns may be sesquisyllabic with the shape Că.C(C)V(C). These may be monomorphemic, or in some cases lexicalised bimorphemes. A selection is shown in (67), where the treatment of minor syllables in the transcription is reiterated.

(67) Iambic lexemes

<i>transcription</i>	<i>IPA</i>	<i>tones</i>	<i>gloss</i>
ʔ/.bɛŋ\	ʔă.bɛŋ	HL	‘cheek’
ʔ/.mik\	ʔă.mik	HL	‘eye’
ŋ/.hmɛt\	ŋă.mɛt	HL	‘chilli pepper’
ʔ\.thɛwʔ/	ʔă.t ^h ɛwʔ	LH	‘fruit’
ʔ\.thi/	ʔă.t ^h i	LH	‘blood’
p\.khɛw/	pă.k ^h ɛw	LH	‘wildcat’
t\.hlay/	tă.laj	LH	‘yeast’
ʃ\.mi/	ʃă.mi	LH	‘child’

Both the minor and major syllable must have a tone, but the two tones are always polar opposites, so the tones of any sesquisyllabic lexeme are always H.L or L.H; we find no adjacent high or low tones, which we know to be something Sumtu avoids. We may infer that only one of the two tones is lexically specified, the other being assigned to avoid violation of the OCP. The phonological representation may be one of the options in (68): the tone is associated with the minor syllable (68a), with the major syllable as in (68b), or else the iambic foot has a tone which is unlinked to either syllable in the input, as in (68c). Note again that in the notation used here for phonological representations, ‘x’ is a major syllable, ‘.’ is a minor syllable, and square brackets indicate that a tone is lexically determined.

(68) possible representations of tones in an iambic foot

(a)	T	(b)	T	(c)	T
	. x		. x		. x

Further data from verbs and pronouns below suggest that the representation in (68b) is most justified.

7.2. Singular pronouns and pronominal verb prefixes

The overt singular pronouns of Sumtu are given in (69). The singular pronouns are all high tone. Dual and plural are left aside here, but examined further in Section 8 below.

(69) Overt singular pronouns

- | | |
|---|------|
| 1 | kei/ |
| 2 | naŋ/ |
| 3 | jaʔ/ |

Sumtu drops pronouns which are not stressed or in focus, but pronominal verb prefixes are obligatorily attached to verbs in indicative statements (though not in negative statements or imperatives). The singular pronominal prefixes are given in (70), where VERB stands for the verb stem to which the prefixes are attached. These are obviously derived from the overt pronoun forms: 1st person *kei/* to *k-*, 2nd person *naŋ/* to *n-* and 3rd person *jaʔ/* to *ʔ-*.

(70) singular pronominal prefixes

- | | | |
|---|------|------------|
| 1 | k-.V | [kǎ.]-VERB |
| 2 | n-.V | [nǎ.]-VERB |
| 3 | ʔ-.V | [ʔǎ.]-VERB |

7.3. Tone in singular pronominal prefixes

A scan through any selection of the example sentences in this paper will show these prefixes in a variety of contexts and with both high and low tones. A pair of examples of each of the three singular pronominal prefixes are reproduced in (71–73). The first example in each pair shows a high tone verb stem with a low tone pronominal prefix; in the second example in each pair, the verb stem is LOW, and the pronominal prefix HIGH. The tone context to the right shows toneless syllables in the input as ‘_’.

- | | | |
|---------|--|------------------|
| (71) a. | k\ .-myɿn/-ba\-laʔ/
1-soak-again-must
‘I have to soak again.’ | _ H _ _ → [LHLH] |
|---------|--|------------------|

- | | | |
|----|---|---------------|
| b. | k/ .-plan\-ba/
1-return-again
‘I came back again.’ | _ L _ → [HLH] |
|----|---|---------------|

- | | | |
|---------|---|------------------|
| (72) a. | n\ .-myeŋ/-i\-mɿ/?
2-fear-APPL-Q
‘Are you afraid?’ | _ H _ H → [LHLH] |
|---------|---|------------------|

- | | | |
|----|--|------------------|
| b. | n/ .-siʔ\-hni/-mɿ/?
2-go-PRF-Q
‘Have you gone?’ | _ L _ H → [HLHH] |
|----|--|------------------|

- | | | |
|---------|--|---------------|
| (73) a. | ʔ\ .-ya/-laʔ\
3-stand-must
‘He has to stand.’ | _ H _ → [LHL] |
|---------|--|---------------|

- b. $\text{ʔ/-pɣyʔ\ -hni/ -mɣ/}$ _ L _ H → [HLHH]
 3-finish-PRF-Q
 ‘Is it finished?’

The same pronominal prefixes are also used to express inalienable possession of (for example) body part and kinship terms (for alienable possession the full-form pronouns are used as possessives). Examples of these are given in (74–76).

- | | | | |
|-----------------------|---------|-----------------|---------|
| (74) $k\text{-tu/}$ | _H→[LH] | k/-lu\ | _L→[HL] |
| 1-grandchild | | 1-head | |
| ‘my grandchild’ | | ‘my head’ | |
| | | | |
| (75) $n\text{-.ʃɔm/}$ | _H→[LH] | n/-si\ | _L→[HL] |
| 2-hair | | 2-sister | |
| ‘your hair’ | | ‘your sister’ | |
| | | | |
| (76) ʔ/-nu/ | _H→[LH] | ʔ/-ta\ | _L→[HL] |
| 3-mother | | 3-brother | |
| ‘her mother’ | | ‘his brother’ | |

The pronominal prefixes in (74–76) occur with both high and low tones, in each case the opposite tone of the lexical tone of nouns and verbs they are prefixed to, avoiding violation of the OCP, as shown by the representation in (77).

(77) representation of tone in an iambic foot

a. Input

T
|
.
x

b. Possible outputs with a tone on each syllable:

If T is H:	H	H	
	L	H	no OCP violation → preferred candidate
If T is L:	L	L	
	H	L	no OCP violation → preferred candidate

(78a) is a schematic representation of a morpheme with fixed lexical tone T, preceded by a lexically toneless minor syllable and two toneless agglutinating affixes to the right - just as in example (71a). (78b) shows the possible assignment of tone to toneless syllables just as in Section 5.5 above, this time both to the left and right of the head verb or noun. Where there are lexical high tones in addition to the head verb or noun, as in (72b) and (73b), this may force violation of the OCP to allow two adjacent highs.

(78) a. Input

	T			
.	x	x	x	

b. Possible outputs with a tone on each syllable:

If T is H: HHHH LHHH
 HHHL LHHL
 HHLH **LHLH**
 HHLL LHLL

→ only LHLH avoids OCP violation

If T is L: LLLL HLLL
 LLLH HLLH
 LLHL **HLHL**
 LLHH HLHH

→ only HLHL avoids OCP violation

Examples of this pattern in context are given in (79) and (80), where toneless syllables ‘_’, including the pronominal prefixes, are assigned tones such that OCP violation is avoided.

(79) ʔ-m\.-pek/-ba\-laʔ/-hni\ -ay/ _ H _ _ _ H → [LHLHLH]
 [ʔǎm.pək.ba.laʔ.ŋi.aj]
 3-TR-give-again-must-PRF-IRR
 ‘He will have to give it back to me.’

(80) ʔ/.-laʔ\ -ba/ -hni\ _ L _ _ → [HLHL]
 3-receive-again-PRF
 ‘He has received again.’

8. NON-SINGULAR PRONOUNS AND DUAL TONE EXCHANGE

The final tone-related phenomenon examined in this paper is associated with the expression of non-singular verbal subjects. The overt dual and plural pronouns are shown in (81) and (82). The plural second and third person pronouns are composed of the high-tone singular pronouns *naŋ/* and *yaʔ/* with fixed high tone suffix *-hniʔ/* attached; all plural pronouns may additionally be suffixed with the fixed high-tone plural marker *-haʔ/* (examined above in section 5.1); the two first person plural pronouns *m\hniʔ/* [mǎ.ŋiʔ LH] 1.INCL-PL and *n\hniʔ/* [nǎ.ŋiʔ LH] 1.EXCL-PL are iambic in form. These pronouns are further evidence that *-hniʔ/* has a lexically fixed high tone.

(81) Plural pronouns

		<i>transcription</i>	<i>IPA</i>	<i>tones</i>
1	INCL	m\hni?/(-ha?/)	[mǎ.ŋi?(ha?)]	LH(H)
	EXCL	n\hni?/(-ha?/)	[nǎ.ŋi?(ha?)]	LH(H)
2		naŋ/-hni?/(-ha?/)	[naŋ.ŋi?(ha?)]	HH(H)
3		ya?/-hni?/(-ha?/)	[ja?.ŋi?(ha?)]	HH(H)

(82) Dual pronouns

		<i>transcription</i>	<i>IPA</i>	<i>tones</i>
1	INCL	m/.hni?\	[mǎ.ŋi?]	HL
	EXCL	n/.hni?\	[nǎ.ŋi?]	HL
2		naŋ\hni?/	[naŋ.ŋi?]	LH
3		ya?\hni?/	[ja?.ŋi?]	LH

The dual forms are the same as the plural forms except for tonal changes and the absence of *ha?/*. The dual is apparently formed by a process of tone exchange in which an H of the plural pronoun is substituted for L, illustrated in (83) and (84). This entails the assumption that the dual is marked and derived from the plural, or that there was a transparent derivation at some point before the dual and plural pronouns were lexicalised.

(83) formation of iambic 1st person dual pronouns

PLURAL	>	DUAL
H		L
.		.
x		x
[L H]		[H L]

(84) formation of 2nd and 3rd person dual pronouns

PLURAL	>	DUAL
H H		L H
x x		x x
[H H]		[L H]

The 1st person pronouns are each one iambic foot containing a minor syllable and a major syllable, so there is only one lexical H in the input which can be exchanged for L; in the case of the 2nd and 3rd person pronouns in which each syllable carries a lexical tone, it is the first H which switches to L.

We turn now to lexically toneless dual and plural pronominal prefixes, shown in (85). In Section 7.2 above we established that the tone of a pronominal prefix is the polar opposite of the lexical tone of the major syllable to which it is attached, observing the OCP when surface tones are assigned to each syllable.

(85) Dual and plural pronominal prefixes

		transcription	IPA
1	INCL.	m.-VERB	[mǎ.] VERB
	EXCL.	k-n.- VERB	[kǎn.] VERB
2		n-n.- VERB	[nǎn.] VERB
3		ʔ-n.- VERB	[ʔǎn.] VERB

Segmentally, the dual and plural pronominal prefixes are identical; as with the overt pronouns, only the tones tell them apart. Examples from the corpus of dual and the plural are shown below. (86–89) show the dual form of some lexically low tone verbs *siʔ* ‘go’, *paʔ* ‘pluck’ and *hla* ‘splice’; in the dual these verbs become high tone.

(86) han/-taʔ/-a\ k-n\.-siʔ/-ay/ plural pfx+verb: LH
tomorrow-LOC 1-DU.EXCL-go-IRR
‘We two will go tomorrow.’

(87) ʔa\ -khon/-khiŋ/ t\ .kxyʔ/ ʔ-n\.-siʔ/ dual pfx+verb: LH
chicken-crow-time directly 3-DU-go
‘The two of them went right at cock-crow.’

(88) p.t.ka\ -pa/ k-n\.-paʔ/ dual pfx+verb: LH
papaya-flower 1-DU.EXCL-pluck
‘We two pluck papaya flowers.’

(89) pat\ -khə/ m\.-hla/-pəʔ/-ay/ dual pfx+verb: LH
jute-also 1.DU.INCL-split-RES-IRR
‘We will splice the jute also.’

Unfortunately, only very few high-tone verbs occur in the corpus with a non-singular subject; the high-tone verbs which do occur are *kay*/ ‘be well’, shown with a plural subject in (90), *khew*/ ‘hatch’ with a plural subject in (91) and *fik*/ ‘argue’, with a dual subject in (92).

(90) yaʔ/-hniʔ/-teʔ/ ʔ-n\.-kay/-i\ -mɿ/? plural pfx+verb: HH
3-PL-but 3-PL-well-APPL-Q
‘And are they [your family] well?’

(91) bək\ b/ləw/-sə/-haʔ/ ʔ-n\.-khew/-hni\ plural pfx+verb: HH
[k.o.bird]-child-PL 3-PL-hatch-PRF
‘The *bekbalew* chicks have hatched.’

(92) naŋ\ -hniʔ/ n-n\.-fik/-mɿ/? dual pfx+verb: LH
2-PL 2-DU-argue-Q
‘Are you two arguing?’

The apparently problematic data are the adjacent high tones in (90) and (91), violating what has hitherto seemed a cast-iron constraint preventing a minor syllable from having the same tone as the major syllable to its right.

Elicitation from consultant Dong Ling revealed a fuller picture of the tone patterns when pronoun prefixes are attached to a low-tone verb *siʔ* ‘go’ and a high-tone verb *kay/* ‘be well’. They are set out in (93) and (94) in both phonological and narrow IPA transcription.

(93) Pronominal prefixes with low-tone *siʔ* ‘go’

		SINGULAR			PLURAL		
1	k\.-siʔ\	[kǎ.siʔ]		HL			
2	n\.-siʔ\	[nǎ.siʔ]		HL			
3	ʔ\.-siʔ\	[ʔǎ.siʔ]		HL			
		DUAL			PLURAL		
1	INCL	m\.-siʔ/	[mǎ.siʔ]	LH	m\.-siʔ\	[mǎ.siʔ]	HL
	EXCL	k-n\.-siʔ/	[kǎn.siʔ]	LH	k-n\.-siʔ\	[kǎn.siʔ]	HL
2		n-n\.-siʔ/	[nǎn.siʔ]	LH	n-n\.-siʔ\	[nǎn.siʔ]	HL
3		ʔ-n\.-siʔ/	[ʔǎn.siʔ]	LH	ʔ-n\.-siʔ\	[ʔǎn.siʔ]	HL

(94) Pronominal prefixes with high-tone *kay/* ‘be well’

		SINGULAR			PLURAL		
1	k\.-kay/	[kǎ.kaj]		LH			
2	n\.-kay/	[nǎ.kaj]		LH			
3	ʔ\.-kay/	[ʔǎ.kaj]		LH			
		DUAL			PLURAL		
	INCL	m\.-kay/	[mǎ.kaj]	LH	m\.-kay/	[mǎ.kaj]	HH
	EXCL	k-n\.-kay/	[kǎn.kaj]	LH	k-n\.-kay/	[kǎn.kaj]	HH
		n-n\.-kay/	[nǎn.kaj]	LH	n-n\.-kay/	[nǎn.kaj]	HH
		ʔ-n\.-kay/	[ʔǎn.kaj]	LH	ʔ-n\.-kay/	[ʔǎn.kaj]	HH

Low-tone verb *siʔ* ‘go’ retains its low tone in the singular and the plural but switches to high in the dual, making the dual appear to be the marked form. This is represented as in (95).

(95) low tone verb *siʔ* ‘go’ with pronominal prefix

SINGULAR	DUAL	PLURAL
input:	input:	input:
L	H	L
.	x	x
output:	output:	output:
[H L]	[L H]	[H L]

High-tone verb *kay/* ‘be well’ triggers low tone in the singular and the dual pronoun prefixes, but causes them to switch to high in the plural prefixes, with the result that the plural surfaces with an unexpected marked OCP-violating HH pattern, as represented in (96).

(96) high tone verb *kay* ‘be well’ with pronominal prefix

SINGULAR	DUAL	PLURAL
input:	input:	input:
H	H	H
.	.	.
x	x	x
output:	output:	output:
[L H]	[L H]	[H H]

One possible explanation for the plural HH in (96) is that Sumtu’s requirement for the dual and the plural to be different outranks the language’s preference for not violating the OCP. However, there is no explanation yet for the markedly different behaviour of low tone and high tone verbs. A phonological account in which a single process accounts for the tones in the dual and the plural of both types of verb is difficult to arrive at. Until further data can be obtained and checked carefully, this explanation must remain tentative and provisional, but as the last item in the only currently available catalogue of tonal phenomena observed in Myebon Sumtu Chin, it is an intriguing point on which to close.

9. PHONOLOGICAL REPRESENTATIONS

This section presents an overview and summary of the Myebon Sumtu Chin tone phenomena described in this paper. The constraints on tone output are the following:

- all syllables in the output have a tone, either present in the input or assigned in the output
- the OCP operates
- tone must make DUAL verb forms distinct from PLURAL

9.1. Lexical tone

Monosyllabic lexemes in Sumtu may have lexically specified tone T, either HIGH or LOW. Lexically specified tones are preserved. In practice functional agglutinative morphemes have a high tone if they have a lexical tone at all, while content morphemes such as verbs and nouns may have high or low tone.

Input	T ₁	T ₂
	x	x

has four possible outputs: HH, HL, LH, LL, depending on the respective identities of T₁ and T₂ as H or L.

9.2. Toneless morphemes and the OCP

Syllables may be lexically toneless, but in the output every syllable has a tone. Tones are assigned such that the OCP is observed.

T				
x	x	x	x	

has output:

H	L	H	L	(if T is high)
L	H	L	H	(if T is low)

When a noun- or verb-complex contains more than one lexical tone, the toneless syllables are assigned tone such that the OCP is violated as little as possible: the fewer adjacent identical tones the better. Where there are two possible outputs which violate the OCP to the same degree, with a choice between LL or HH, Sumtu prefers to avoid LL and selects the output with adjacent high tones.

input:

T			H	
x	x	x	x	x

preferred outputs with one OCP violation:

if T is high: HLHHL one OCP violation, HH tolerated over LL → preferred
 HLLHL one OCP violation, contains LL

if T is low: LHLHL no OCP violations → preferred

9.3. Tone in iambic feet

Iambic feet have a single lexical tone which aligns with the major syllable. The minor syllable is assigned the polar opposite tone, observing the OCP as in Section 9.2 above.

input:

	T
.	x

output:

if T is high:	L	H
if T is low:	H	L

Where an iambic foot is in a complex with further syllables to the right, including (typically) lexically high-tone agglutinative functional morphemes, but excluding sentence-level morphemes such as interrogative markers, the same principles in 9.1 and 9.2 apply: lexical tone is preserved; OCP violations are kept to a minimum; LL is avoided.

input:

	T			H	
.	x	x	x	x	x

output:

if T is high:	LHLHHL	one OCP violation, HH tolerated over LL → preferred
	*LHLLHL	one OCP violation, contains LL
if T is low:	HLHLHL	no OCP violations → preferred

9.4. Tone patterns in dual and plural pronouns and pronominal prefixes

In Sumtu, all dual and plural forms are distinguished by tone alone. In dual vs. plural pronouns, the tonal alternations may be considered lexicalised: compare (81) and (82). As set out in (93) and (94), dual vs. plural tone distinction in lexically low-tone verbs is different from that of lexically high-tone verbs, which are relatively uncommon in the language. Sumtu seems to prefer to violate the OCP in order to dissimilate dual and plural forms, however more data needs to be obtained before a fuller analysis will be possible.

ABBREVIATIONS

1	first person	DU	dual
2	second person	EMPH	emphatic
3	third person	EXCL	exclamative
APPL	applicative	EXH	exhortative
DIM	diminutive	HIGH	high tone
DIST	distal	I	verb stem I

II	verb stem II	PRF	perfect
IMP	imperative	PROX	proximal
INCL	inclusive	PURP	purposive
IRR	irrealis	Q	interrogative
LOC	locative	QUOT	quotative
LOW	low tone	RES	resultative
NEG	negative	SBJ	subject
OBJ	object	SG	singular
PL	plural	TR	transitive

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