

## Chapter 4

### Muak Sa-aak phonotactics

This chapter will review the analysis of some ambiguous sequences, then give a brief description of general Muak Sa-aak word structure. After that, syllable types and their respective phoneme inventory will be described.

#### 4.1 Potentially ambiguous sequences

There are two groups of segments in Muak Sa-aak which are potentially ambiguous sequences. The first are the diphthongs /ia, ua/; the second is the final approximants /w, j/.

##### 4.1.1 Diphthongs

Since there are consonant clusters with /w/ in Muak Sa-aak, the diphthongs /ua/ and /ia/ were considered to be potentially ambiguous. These sequences are interpreted as diphthongs in this analysis for the following reasons. First, they are found in clear contrast with monophthongs. The sequence /ia/ does appear after consonant clusters, as in /kwian<sup>1</sup> k.tit<sup>2</sup>/ “acquaintance” and /k<sup>h</sup>riat<sup>1</sup> kriŋ<sup>2</sup>/, “clean”. Therefore, the first part of the ambiguous vowel sequence cannot be interpreted as a semivowel, since clusters with three consonants are not found in Muak Sa-aak. The diphthong /ua/ also occurs after a consonant cluster, seen in /k<sup>h</sup>ruan<sup>2</sup>/, “gather”, and is audibly clearly distinguishable from the approximant-vowel sequence /wa/ by the length of the first segment, as in /kuanj<sup>3</sup>/, “hope”, vs. /kwanj<sup>3</sup> s.ruanj<sup>3</sup>/, “be lost”.

##### 4.1.2 Final approximants

The syllable-final semivowels (see examples in Table 28 below) could be interpreted as either vowels or semivowels. However, the ambiguous segments in question cannot be followed by stops, and syllable final consonant clusters are prohibited by Muak Sa-aak syllable structure. In addition, syllable-final

consonants are allowed in Muak Sa-aak phonotactics, so these ambiguous segments are interpreted as consonants.

Although some of these final semivowels are notably longer than others, this is not distinctive; therefore, length is not marked in the phonemic notation.

**Table 28. Final /-w, -j/**

aj	6	[c <sup>h</sup> ak <sup>2</sup> ŋa:j <sup>3</sup> ]	/c <sup>h</sup> ak <sup>2</sup> ŋa:j <sup>3</sup> /	“eyeball”
aj:	1649a	[p <sup>h</sup> aj: <sup>3</sup> ]	/p <sup>h</sup> aj: <sup>3</sup> /	“you (2D)”
ɣj:	549	[m.dɣj: <sup>3</sup> ka:j <sup>1</sup> ]	/m.dɣj: <sup>3</sup> ka:j <sup>1</sup> /	“bead”
a:w	306	[sa:w <sup>1</sup> ha:w <sup>3</sup> ]	/sa:w <sup>1</sup> ha:w <sup>3</sup> /	“be fierce”
aw:	708	[saw: <sup>1</sup> t <sup>h</sup> ɛŋ <sup>3</sup> ]	/saw: <sup>1</sup> t <sup>h</sup> ɛŋ <sup>3</sup> /	“bellows”
e:w	153	[le:w <sup>3</sup> ]	/le:w <sup>3</sup> /	“turn around” <sup>31</sup>

## 4.2 Overall word structure

Muak Sa-aak words follow general Mon-Khmer word structure in being mono- and sesquisyllabic. Taking into account main syllable structure, presyllables, and tone, the overall word structure can be represented as follows:

(C).C(C)V(C)<sup>T</sup>

Where C = Consonant, V = Vowel, . = Syllable boundary, <sup>T</sup> = Tone, and ( ) means the element is optional. Presyllable vowel and tone are not included in the formula, since they are non-contrastive (see Section 4.4, below).

Examples of the possible syllable and word structures are given in Table 29, below.

<sup>31</sup> Borrowed word from Tai Lue.

**Table 29. Syllable and word structures**

	Syllable Structure	Example	Gloss	Wordlist No.
1	CV <sup>T</sup>	/ci <sup>2</sup> /	“do”	702
2	CVC <sup>T</sup>	/puk <sup>2</sup> /	“rotten”	1250
3	CCV <sup>T</sup>	/kra: <sup>3</sup> /	“mat”	697
4	CCVC <sup>T</sup>	/k <sup>h</sup> rɛp <sup>2</sup> /	“fish scale”	1088
5	C.CV <sup>T</sup>	/k.tur <sup>2</sup> /	“nose”	11
6	C.CVC <sup>T</sup>	/k.can <sup>3</sup> /	“stand up”	151
7	C.CCV <sup>T</sup>	/t.krɔ: <sup>2</sup> /	“peel/ shell”	1203/ 1204
8	C.CCVC <sup>T</sup>	/t.pru: <sup>1</sup> /	“swallow”	145

### 4.3 Main syllable structure

The main syllable in Muak Sa-aak has a much wider variation in possible structure than does the presyllable. This includes the full range of consonants and of vowels. It may also have consonant clusters and final consonants, and there is a tonal contrast.

The main syllable has a structure of C(C)V(C)<sup>T</sup> as presented in this section. It can have any of the range of possible initial consonants in Muak Sa-aak, and any of the possible vowels. It can also include syllable-initial consonant clusters of a voiceless stop consonant (except the palatal or the unaspirated alveolar) plus either /r/, /w/ or /j/. Initial consonants are mandatory; there are no vowel-initial syllables. However, there are open syllables; these occur with all three tones, including both allotones of Tone 2:

C(C)V<sup>T</sup>

The vowel here may be short or long, since with the high allotone of Tone 2, this syllable structure can occur as an open syllable with short vowel; with other tones, it must be long.

#### 4.4 Presyllables

Muak Sa-aak word structure is mono- and sesquisyllabic; that is, many words consist of a main syllable preceded by presyllable. The presyllable in Muak Sa-aak consists of an initial consonant plus a very short vowel with predictable quality. The initial consonant inventory is very reduced, there are no consonant clusters, and there is no final consonant (although, when words are pronounced carefully, they may be realized with a final glottal stop).

The vowel occurring in presyllables is most commonly pronounced as a very short mid-centralized back vowel [ɤ̃]. There is also a short open central vowel [ǎ] if following the glottal stop or the bilabial nasal. but the actual pronunciation of the presyllable vowel may vary widely, from close vowels [i] or [ü]; sometimes it is deleted when following /m/ or /s/. Since neither tone nor vowel quality are distinctive in presyllables, they will be transcribed with only the contrastive initial consonant and a period (.) to mark the syllable break /C./.

With the exclusion of the palatal stops and the aspirated alveolar stop, only voiceless oral stops, the nasal /m/ and fricative /s/ can occur in this position. The eight possible initial consonants in presyllables are /p, p<sup>h</sup>, t, k, k<sup>h</sup>, ʔ, m, s/. Examples of these are shown in Table 30, below.

**Table 30. Presyllable onsets**

Stop			
624	p	/p.ja <sup>2</sup> /	“bag”
517	t	/t.pra <sup>2</sup> /	“to steal”
42	k	/k.ta: <sup>1</sup> /	“back”
1456	p <sup>h</sup>	/p <sup>h</sup> .jɛt <sup>2</sup> /	“squeeze”
1106	k <sup>h</sup>	/k <sup>h</sup> .jak <sup>2</sup> /	“frog”
1107	ʔ	/ʔa <sup>1</sup> ro:k <sup>1</sup> /	“toad”
Nasal			
1386	m	/m.kɾt <sup>2</sup> /	“piece of wood”
Fricative			
1322	s	/s.mɿŋi <sup>3</sup> /	“star”

#### 4.5 Sesquisyllabicity in Muak Sa-aak

Section 2.1.1 outlined four types of sesquisyllabic languages, as described by David Thomas (1992). These categories are given again here.

Type (i): In this type, the presyllable is “only a predictable open transition between consonants. Phonemically it is a monosyllable” (1992: 206).

Type (ii): This type, “a slightly stronger sesquisyllabic form, has a contrast between the presence (CəC-) and the absence (CC-) of a vocalic contrast in certain environments” (1992: 207).

Type (iii): In this type, “the vocalic element has a contrast between two or three phonemes” (1992: 208).

Type (iv): In this type, “the vocalic element may have nearly full vowel contrasts in a weakly stressed minor syllable” (1992: 209).

Muak Sa-aak fits best into the first category, closest to being a monosyllabic language, where the presyllable serves essentially to place an open transition

between consonant combinations that are not allowed by the syllable structure. The structure for sesquisyllables is C.C(C)V(C)<sup>T</sup>. In comparison, the structure for main syllables can be summarized as C(C)V(C)<sup>T</sup>.

Permitted consonant cluster combinations in Muak Sa-aak are those of voiceless stops with the approximants /r/ or /w/. These sequences are not found in Muak Sa-aak as presyllable initial + main syllable initial. Examples (110) to (114) are presyllables which insert a vowel (marked here by a period) between consonant sequences that are prohibited by Muak Sa-aak phonotactic rules.

(110)	13	/k.c <sup>h</sup> o: <sup>1</sup> /	“ear”
(111)	42	/k.ta: <sup>1</sup> /	“back”
(112)	847	/s.ruaŋ <sup>3</sup> /	“path, road”
(113)	909	/p.krit <sup>2</sup> p.kra:c <sup>1</sup> /	“ghost”
(114)	1095	/p.sɤŋ <sup>3</sup> /	“snake”

The combinations p\_r\_, p<sup>h</sup>\_r\_, k\_r\_, k<sup>h</sup>\_r\_, do not occur in the data as combinations of presyllable initial plus main syllable initial consonants, but they do occur as consonant clusters (see Section 3.1.2). This is also consistent with Muak Sa-aak fitting into Thomas’s first category of sesquisyllabic languages, the languages which are closest to being monosyllabic. The predictable vowel insertion is only found for the consonant combinations that do not occur as consonant clusters, as shown in Examples (115) to (127) below.

Alveolar stop followed by approximant

(115)	1024a	t_w_	/t.wa:j <sup>3</sup> /	“tiger”
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Stop followed by consonant cluster

(116)	908a	p_kr_	/p.krit <sup>2</sup> ma <sup>1</sup> muk <sup>2</sup> /	“evil spirit”
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(117)	31	t_pr_	/t.pra:ŋ <sup>3</sup> /	“shoulder”
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Fricative followed by a stop consonant

(118)	1555	s_p_	/s.pual <sup>3</sup> /	“white”
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Stop consonant followed by a fricative consonant

- (119) 921 p\_s\_ /p.sat<sup>2</sup>/ “curse” (n)  
 (120) 723 k\_s\_ /k.sə:<sup>1</sup>/ “chisel” (n)

Stop consonant followed by a nasal consonant

- (121) 1279 t\_ŋ\_ t.ŋaŋ<sup>3</sup> “iron”

Stop consonant followed by another stop consonant

- (122) 15 p\_t\_ /p.tɤŋ<sup>3</sup>/ “mouth”  
 (123) 1373 p\_c\_ /p.ca:<sup>1</sup>/ “tomorrow”  
 (124) 42 k\_t\_ /k.ta:<sup>1</sup>/ “back”  
 (125) 83 k\_t<sup>h</sup>\_ /k.t<sup>h</sup>uam<sup>3</sup>/ “liver”  
 (126) 665 k\_c<sup>h</sup>\_ /k.c<sup>h</sup>aŋ<sup>3</sup>/ “door”  
 (127) 79 k\_ʔ\_ /k.ʔa:ŋ<sup>3</sup> ta:j<sup>1</sup>/ “spine, backbone”

#### 4.6 Compounds

In the data elicited for the wordlist, there are many examples of terms, such as Examples (128) to (130), which are more than two syllables. For the most part, these are easily explained by either compounding or the use of a phrase, as each syllable has a meaning by itself.

- (128) 551 /mul<sup>3</sup> t<sup>h</sup>i:<sup>2</sup>/ “bracelet”  
 silver hand  
 (129) 7 /k.ʔual<sup>3</sup> k.t<sup>h</sup>et<sup>2</sup>/ “earthenware cooking pot”  
 pot earth  
 (130) 10 /c<sup>h</sup>ak<sup>2</sup> ŋa:j<sup>3</sup> laŋ<sup>3</sup>/ “pupil” (eye)  
 seed eye black

In Examples (131) to (133), the first syllable is probably not a presyllable, as the vowel quality is clearly [a:], and it has a more stress and length than is normal for a presyllable. In these words, moreover, one might suggest a theme of “location”.

(131)	1655a	/ʔa: <sup>1</sup> jen <sup>2</sup> /	“there (closest)”
(132)	1655c	/ʔa: <sup>1</sup> juaj <sup>2</sup> /	“there (farthest)”
(133)	1686	/ʔa: <sup>1</sup> mɻ <sup>2</sup> /	“where?”

The word is found in at least two more words in the data, Examples (134) and (135):

(134)	1429	/wɻl <sup>3</sup> ʔa: <sup>1</sup> /	“drop” (tr.)
(135)	1432	/bup <sup>2</sup> ʔa: <sup>1</sup> /	“knock down/ over”

In (134) and (135), the morpheme is found in a different position than it was in Examples (131) to (133).

There are only a few words in the data which are truly of more than one syllable, but which also appear to be single-morphemes, and not compound words. These are borrowed words from Tai Lue, as seen in the following Examples, (136) and (137).

(136)	324	/ʔun <sup>3</sup> tra:j <sup>3</sup> /	danger	Tai Lue:	/ʔun <sup>4</sup> ta laaj <sup>4</sup> / <sup>32</sup>
(137)	257	/pan <sup>1</sup> ja: <sup>3</sup> /	wisdom	Tai Lue:	/pan <sup>1</sup> jaa <sup>4</sup> /

#### 4.7 Summary

There are several possible ambiguous segments in Muak Sa-aak. Of these, syllable-final /j/ and /w/ are analyzed as consonants because they do follow vowels and because Muak Sa-aak does have other final consonants. Vowel sequences of /ia/ or /ua/ have been analyzed as diphthongs which pattern as long vowels. They occur following consonant clusters, including clusters containing the approximant /w/.

The presyllable in Muak Sa-aak has no contrast in the tone or the vowel. It serves essentially to place an open transition between consonants which are not permitted as consonant clusters. Therefore although the language is sesquisyllabic, it is actually very close to being monosyllabic. The word structure may be summarized as (C.)C(C)V(C)<sup>T</sup>. The most common syllable types are CVC<sup>T</sup>, C.CVC<sup>T</sup>, and CV<sup>T</sup>. The least common is C.CCV<sup>T</sup>.

<sup>32</sup> Hudak 1996