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CHAPTER 3

Phonology of Coastal Terengganu Malay

3.1 Introduction

This chapter presents the phonology of CTM. Its structure follows that of the previous chapter, starting with the presentation of the segment inventory in §3.2, followed by discussions on syllable structure and word structure in §3.3 and §3.4. Phonotactic constraints on permitted consonant clusters, consonant sequences and vowel sequences are examined in §3.5 to §3.7. The stress pattern is discussed in §3.8. Finally, §3.9 summarises the key points in this chapter.

Throughout this chapter, comparisons with KM will be drawn when relevant. Overall, the phonologies of these two varieties exhibit numerous resemblances, particularly in terms of the segment inventory, syllable shapes and word shapes. A notable distinction lies in the distributional constraints on vowels, and some differences can be observed with regard to permitted consonant clusters. These distinctions will be highlighted in this chapter.

3.2 Segment inventory

3.2.1 Consonant system

3.2.1.1 Consonant inventory

The consonant inventory of CTM is displayed in Table 3.1. The twenty native consonant phonemes are identical to those in KM: there are nine stops, four nasals, three fricatives, two liquids and two glides.

Table 3.1: Consonant inventory of CTM

		Labial	Dental	Alveolar	Palatal	Velar	Glottal
Stops	voiceless	p	t			k	ʔ
	voiced	b		d		g	
Nasals		m		n	ɲ	ŋ	
Fricatives	voiceless			s		x	h
	voiced			(z)			
Affricates	voiceless				c		
	voiced				j		
Liquids				l		ʎ	
Glides		w			y		

(c = IPA /ç/, j = IPA /ʝ/, y = IPA /j/)

The asymmetry in the places of articulation of the coronal stops /t/ and /d/ is also attested in CTM: the voiceless stop is realised as dental [t̪], whereas the voiced stop is realised as alveolar [d]. The phoneme /ʎ/ is also treated as a liquid (see §2.2.1.1).

The voiced alveolar fricative /z/, which has a foreign origin and marginal phonemic status, is included in the table. It is found in loanwords such as /zina/ ‘adultery’ < Arabic *zinā*’ and /zamaŋ/ ‘epoch’ < Arabic *zamān*, sometimes in variation with the voiced palatal affricate /j/, e.g., [zamaŋ]~[jamaŋ] ‘epoch’. The alveolar tap /ɾ/, which was taken as a borrowed phoneme in KM, is not present in CTM. A foreign rhotic sound is always adapted to become the velar liquid /ʎ/, as seen in /aʎənaʔ/ ‘rabbit’ < Arabic *arnab*, as well as English loanwords such as /stəʎeʔ/ ‘straight’ and /təʎa/ ‘to try’.

3.2.1.2 Contrasts between consonants

Table 3.2 presents minimal or near-minimal pairs contrasting similar consonants in CTM. A closest pair with contrasting segments is given when no minimal pairs can be found. Contrasts found in different positions in a word are differentiated. See more on consonant distributions in §3.4.3.1.

Table 3.2: Contrasts between consonants in CTM

Contrast	Pair	Gloss
<i>Word-initially</i>		
/p/ - /b/	/puloh/	'ten'
	/buloh/	'bamboo'
/b/ - /m/	/bukə/	'to open'
	/mukə/	'face'
/t/ - /d/	/taoŋ/	'year'
	/daoŋ/	'leaf'
/d/ - /n/	/dadə/	'chest'
	/nada/	'tone'
/c/ - /j/	/cuɣaŋ/	'steep'
	/juɣaŋ/	'canyon'
/j/ - /ɲ/	/jawə/	'Java'
	/ɲawə/	'soul'
/k/ - /g/	/kali/	'times'
	/gali/	'to dig'
/g/ - /ɣ/	/gayə/	'style'
	/ɣayə/	'Eid al-Fitr'
/m/ - /n/	/masiŋ/	'salty'
	/nasiʔ/	'rice'
/n/ - /s/	/napɔʔ/	'to see'
	/sapɔh/	'garbage'
/l/ - /n/	/lamə/	'long (time)'
	/namə/	'name'
/l/ - /ɣ/	/lata/	'floor'
	/ɣata/	'necklace'

Contrast	Pair	Gloss
<i>Word-medially</i>		
/p/ - /b/	/lɛpɔ/	'to throw'
	/lɛbɔ/	'wide'
/b/ - /m/	/cubə/	'to try'
	/cumə/	'only'
/t/ - /d/	/utaŋ/	'forest; debt'
	/udəŋ/	'shrimp'
/d/ - /n/	/kəda/	'shop'
	/kəna/	'to know'
/c/ - /j/	/kacaŋ/	'bean'
	/tajaŋ/	'sharp'
/j/ - /ɲ/	/səjaʔ/	'to toast'
	/səɲaʔ/	'quiet'
/k/ - /g/ - /ŋ/	/ikaʔ/	'to tie up'
	/igaʔ/	'to catch'
	/iŋaʔ/	'to think'
/g/ - /ɣ/ - /l/	/pəgaŋ/	'to hold'
	/pəɣaŋ/	'war'
	/pəlaŋ/	'mango'
/m/ - /n/ - /ŋ/	/tamaŋ/	'park'
	/tanaŋ/	'to plant'
	/taŋaŋ/	'hand'
/m/ - /ɲ/	/bumi/	'earth'
	/buɲi/	'sound'
/l/ - /n/	/pələh/	'sweat'
	/pənəh/	'full'
/s/ - /h/	/asaʔ/	'smoke'
	/ahaʔ/	'Sunday'
/y/ - /w/	/ayaŋ/	'chicken'
	/awaŋ/	'cloud'
<i>Word-finally</i>		
/ʔ/ - Ø	/kətəʔ/	'box'
	/kətə/	'dirty'
/ŋ/ - Ø	/kacaŋ/	'bean'
	/kaca/	'to disturb'

Contrast	Pair	Gloss
/h/ - Ø	/suboh/	'dawn'
	/subo/	'fertile'
/ʔ/ - /ŋ/	/idoʔ/	'to live'
	/idoŋ/	'nose'
/ʔ/ - /h/	/ataʔ/	'roof'
	/atah/	'top'
/ŋ/ - /h/	/jatoŋ/	'heart'
	/jatoh/	'to fall'

Geminates are also found in CTM, and just as in KM, they only occur word-initially. Minimal or near-minimal pairs contrasting an initial singleton and an initial geminate are presented in Table 3.3.

Table 3.3: Contrasts between singletons and geminates in CTM

Contrast	Pair	Gloss
/p/ - /pp/	/palə/	'nutmeg'
	/ppalə/	'head'
/b/ - /bb/	/bini/	'wife'
	/bbini/	'to marry (a wife)'
/t/ - /tt/	/tido/	'to sleep'
	/ttido/	'to fall asleep (unintentionally)'
/d/ - /dd/	/dayɔh/	'blood'
	/ddayɔh/	'to bleed'
/c/ - /cc/	/cayə/	'method'
	/ccayə/	'to talk'
/j/ - /jj/	/jajji/	'vow'
	/jjajji/	'to promise'
/k/ - /kk/	/kayɔŋ/	'sack'
	/kkayɔŋ/	'skink (k.o. lizard)'
/g/ - /gg/	/gaji/	'wage'
	/ggaji/	'saw (n.)'
/m/ - /mm/	/matə/	'eye'
	/mmatə/	'gem'

Contrast	Pair	Gloss
/n/ - /nn/	/nanonɔ̃/	'rainbow'
	/nnənɔ̃nɔ̃/	'to stare'
/ɲ/ - /ɲɲ/	/ɲawə/	'soul'
	/ɲɲawə/	'to breath'
/s/ - /ss/	/siyaŋ/	'daytime'
	/ssiyaŋ/	'to pity'
/l/ - /ll/	/laki/	'husband'
	/llaki/	'male'
/ɣ/ - /ɣɣ/	/ɣahaŋ/	'jaw'
	/ɣɣahaŋ/	'molar tooth'
/w/ - /ww/	/waʔpə/	'why'
	/wwapə/	'how many, how much'

Among the twenty native phonemic consonants in CTM, only three segments /ʔ, h, ɣ/ cannot appear in a geminated form. In addition to the fifteen segments that can be contrasted in singleton-geminate pairs as presented above, /x/ appears exclusively in the geminated form /xx/ in word-initial position, as in /xxusi/ 'chair' and /xxəkəh/ 'to bite'. /ŋ/ also typically occurs geminated, as in /ŋŋaku/ 'to confess' and /ŋŋajɔ̃/ 'to teach'. The duration of geminates /ŋŋ/ and /xx/ is comparable to that of other geminates, and historically they also originate from the assimilation of two segments in a cluster (/ŋŋ-/ < ⁺mŋ- and /xx-/ < ⁺ky-, see §7.5.2.3). Note that the geminate bilabial glide /ww/ is attested in CTM, but not in KM.

At the phonological level, geminates are analysed as consonant clusters with two identical segments, on account of the variation attested between a form with a geminate cluster and a form with a non-geminate cluster, e.g., /smilaŋ/~ /mmilaŋ/ 'nine', /tɔ̃gəlaŋ/~ /ggəlaŋ/ 'to sink' and /bɣəkah/~ /wwəkah/ 'to bundle'. Attested consonant clusters are discussed in more detail in §3.5.

3.2.1.3 Phonetic realisations of consonants

Two consonant phonemes, namely the glottal fricative /h/ and the velar fricative /x/, have variable phonetic realisations, which are summarised in Table 3.4 and explained below.

Table 3.4: Phonetic realisations of some consonant phonemes in CTM

Pho- neme	Realisa- tion	Environ- ment	Example	Gloss	
/h/	[ç]~[h]	i_#	/pitih/	[pitiç]~[pitih]	'money'
			/kudih/	[kudiç]~[kudih]	'scabies'
	[h]	elsewhere	/kabuh/	[kabuh]	'fog'
			/atah/	[atah]	'top'
/x/	[x]~[k]	#_	/xxusi/	[xxusi]~[kkusi]	'chair'
			/xxijə/	[xxijə]~[kkijə]	'work'

First, when following a high front vowel /i/, word-final /h/ is often realised as a palatal fricative [ç]. /pitih/ 'money' has a variable pronunciation of [pitiç] ~ [pitih], and /kudih/ 'scabies' is realised as [kudiç] ~ [kudih].

Second, a word-initial velar fricative /x/ is realised as [k] by some speakers. Since /x/ only occurs in the geminated form /xx/, the observable variation is between [xx-] and [kk-]. Examples include /xxusi/ [xxusi] ~ [kkusi] 'chair', /xxətə/ [xxətə] ~ [kkətə] 'car' and /xxəpəʔ/ [xxəpəʔ] ~ [kkəpəʔ] 'k.o. cracker'.

Other consonant phonemes do not show evident variation in their phonetic realisations.

3.2.2 Vowel system

3.2.2.1 Vowel inventory

The vowel inventory of CTM is presented in Table 3.5. There are thirteen phonemic vowels, comprising eight oral vowels and five nasal vowels. The oral vowels have two sets of mid vowels: mid-high /e, o/ and mid-low /ɛ, ɔ/. Compared to KM, CTM features an additional phonemic nasal vowel /ĩ/. The distinction between allophonic nasalised vowels and genuine nasal vowels, as previously explained for KM in §2.2.2.1, also holds true for CTM.

Table 3.5: Vowel inventory of CTM

	Front	Central	Back
High	i, ĩ		u, ũ
Mid-high	e		o
Mid-low	ɛ, ě	ə	ɔ, ɔ̃
Low		a, ǎ	

There are no phonemic diphthongs in CTM. Vowel sequences are disyllabic, as in examples like /na.iʔ/ ‘to climb’ and /ta.u/ ‘to know’. Attested vowel sequences in CTM are presented in §3.7. However, it’s important to note that diphthongs at the phonetic level can be found as possible realisations of the mid-high vowels /e, o/. For instance, /puteh/ ‘white’ has a phonetic realisation varying from [puteh] to [puteɪh], and /muloʔ/ can be realised as [muloʔ]~[muloʔ̃]. See more detail in §3.2.2.3.

3.2.2.2 Contrasts between vowels

Minimal or near-minimal pairs demonstrating the phonemic status of CTM vowels are given in Table 3.6 and Table 3.7. Contrasts found in penultimate syllables and final syllables are distinguished, as words in CTM have a canonical disyllabic structure with distributional constraints on certain vowels at the word level; see §3.4.3.2.

Table 3.6: Contrasts between oral vowels in CTM

Contrast	Pair	Gloss
<i>Penultimate syllables</i>		
/a/ - /i/ - /u/	/bataŋ/	‘stem’
	/bitaŋ/	‘star’
	/butaŋ/	‘button’
/a/ - /u/ - /ɛ/	/mayɔh/	‘angry’
	/muyɔh/	‘cheap’
	/meyɔh/	‘red’
/a/ - /ɔ/	/ayaʔ/	‘to hope’
	/ɔyaʔ/	‘vein’

Contrast	Pair	Gloss
/a/ - /ə/	/paɣaŋ/	'machete'
	/pəɣaŋ/	'war'
/i/ - /ɛ/	/bisə/	'poisonous'
	/bəsə/	'usual'
/i/ - /ɔ/	/lipaʔ/	'to fold'
	/lɔpaʔ/	'to jump'
/i/ - /ə/	/bilə/	'when'
	/bələ/	'to breed'
/u/ - /ɔ/	/budɔʔ/	'kid'
	/bɔdɔh/	'stupid'
/u/ - /ə/	/mutɔh/	'to vomit'
	/mətɔh/	'raw'
/ɛ/ - /ɔ/	/tɛmbɔʔ/	'to shoot'
	/tɔmbɔʔ/	'spear'
/ɛ/ - /ə/	/mɛnaŋ/	'toy, game'
	/mənaŋ/	'to win'
/ɔ/ - /ə/	/tɔpi/	'cap, hat'
	/təpi/	'edge'
<i>Final syllables</i>		
/a/ - /i/	/sikaʔ/	'comb'
	/sikiʔ/	'(a) little'
/a/ - /u/	/təba/	'thick'
	/təbu/	'sugarcane'
/a/ - /ɔ/	/panah/	'hot'
	/panɔh/	'bow'
/a/ - /ɛ/	/sənaŋ/	'easy'
	/səneŋ/	'Monday'
/a/ - /o/	/takaʔ/	'to catch'
	/takoʔ/	'afraid'
/a/ - /ə/	/lima/	'citrus'
	/limə/	'five'
/i/ - /u/ - /ɔ/	/ati/	'liver'
	/atu/	'ghost'
	/atɔ/	'to send'

Contrast	Pair	Gloss
/i/ - /e/	/gali/	'to dig'
	/gale/	'loose'
/i/ - /o/	/nipih/	'thin'
	/nipoh/	'sugar palm'
/i/ - /ə/	/mati/	'to die'
	/matə/	'eye'
/u/ - /e/ - /ɔ/	/pasu/	'flower pot'
	/pase/	'sand'
	/pasɔ/	'market'
/u/ - /o/	/alu/	'pestle'
	/alo/	'groove'
/u/ - /ə/	/kayu/	'wood'
	/kayə/	'rich'
/ɔ/ - /o/	/bakɔ/	'to burn'
	/bako/	'basket'
/ɔ/ - /ə/	/kɔtɔ/	'dirty'
	/kɔtə/	'city'
/ɛ/ - /e/	/ləmbɛʔ/	'mattress'
	/ləmbəʔ/	'soft'
/e/ - /o/	/buleh/	'can; to get'
	/buloh/	'bamboo'
/e/ - /ə/	/kate/	'bed'
	/katə/	'to say'
/o/ - /ə/	/jalo/	'streak'
	/jalə/	'fishnet'

Table 3.7 presents contrasts between oral and nasal vowels. No clear contrast between /ẽ/ and /ɛ/ has been found, as /ẽ/ only occurs in one item /mɛcẽʔ/ 'match' in the corpus. The phonemic status of /ẽ/ in /mɛcẽʔ/ 'match' is nevertheless supported by its occurrence independent of the nasal environment.

Table 3.7: Contrasts between oral and nasal vowels in CTM

Contrast	Pair	Gloss
/a/ - /ã/	/ləpah/	'after; then'
	/ləpãŋ/	'to slap'
/i/ - /ĩ/	/kəciŋ/	'to pee'
	/kəcĩʔ/	'small'
/u/ - /ũ/	/busuʔ/	'ant hill'
	/busũʔ/	'smelly'
/ɔ/ - /õ/	/esɔʔ/	'tomorrow'
	/kesõʔ/	'to scoot over'

3.2.2.3 Phonetic realisations of vowels

As mentioned earlier, the mid-high vowels /e, o/ in CTM may be realised as diphthongs [eĩ] and [oõ], but this tendency of diphthongisation is only observed in certain environments, conditioned by the presence and the (lack of) nasality of the syllable onset, as well as the presence and the quality of the coda. Also note that mid-high vowels only occur in final syllables (§3.4.3.2).

Diphthongisation of mid-high vowels is observed when the vowel is preceded by a non-nasal or zero onset and followed by a coda /ʔ/ or /h/. For example, /kuleʔ/ 'skin' is realised as [kuleʔ]~[kuleĩʔ], and /buloh/ 'bamboo' is realised as [buloh]~[buloõh]. When /e, o/ are preceded by a nasal onset, they are nasalised and do not show the tendency of diphthongisation, regardless of the coda. /bənəh/ 'seed' is consistently realised as [bəněh], and /pənoh/ 'full' as [pənõh]. In other environments, i.e., when /e, o/ are preceded by a non-nasal onset and followed by a coda /ŋ/ or Ø, they are realised as plain monophthongs. A summary of the phonetic realisations of mid-high vowels in CTM is provided in Table 3.8. For a similar tendency of the diphthongisation of high vowels in ITM, see §4.2.2.3.3.

Table 3.8: Phonetic realisations of mid-high vowels /e, o/ in CTM

Pho- neme	Realisa- tion	Environment	Example		Gloss
/e/	[e]~[ē]	C[-nasal], Ø__ʔ, h#	/kuleʔ/	[kuleʔ] ~[kulēʔ]	'skin'
			/puteh/	[puteh] ~[putēh]	'white'
			/buweh/	[buweh] ~[buwēh]	'foam'
	[ẽ]	C[+nasal]__	/bəneh/	[bənēh]	'seed'
	[e]	elsewhere	/səneŋ/	[sənēŋ]	'Monday'
			/bibe/	[bibe]	'lip'
/o/	[o]~[ō]	C[-nasal], Ø__ʔ, h#	/mɤəŋ/	[mɤəŋ]	'yesterday'
			/takoʔ/	[takoʔ] ~[takōʔ]	'be afraid'
			/buloh/	[buloh] ~[bulōh]	'bamboo'
	[õ]	C[+nasal]__	/ləoʔ/	[ləoʔ] ~[ləōʔ]	'sea'
			/pənoh/	[pənōh]	'full'
			/jəmo/	[jəmō]	'to dry'
	[o]	elsewhere	/dapo/	[dapo]	'kitchen'
			/kapoŋ/	[kapoŋ]	'village'

3.3 Syllable structure

Syllables in CTM have a template of (C)(C)V(C). Only a nucleus V is obligatory; any C is optional. A consonant cluster CC is allowed in onset position, whereas a coda, if present, is always simple. Possible syllable types in CTM are summarised in Table 3.9.

Table 3.9: Overview of syllable types in CTM

Onset	Nucleus	Coda
	V	
	V	C
C	V	
C	V	C
CC	V	
CC	V	C

Table 3.10 displays the distribution of single consonants at the syllable level in the native lexicon.

Table 3.10: Distribution of consonants in CTM at the syllable level

Position	p	b	t	d	c	j	k	g	ʔ	m	n	ɲ	ŋ	s	x	h	l	ɣ	w	y
onset	+	+	+	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+
coda	-	-	-	-	-	-	-	-	+	(+)	(+)	(+)	+	-	-	+	-	-	-	-

(+ : attested, - : not attested, (+) : attested but restricted)

All consonants except for the glottal stop /ʔ/ and the velar fricative /x/ can occur as onsets. /x/ only occurs in the geminated form /xx/ (in word-initial position). In coda position, only the nasals and the glottals /ʔ, h/ are permitted. When occurring in coda position, /m, n, ɲ/ always precede a corresponding homorganic voiced stop, with which they form word-medial consonant sequences /-m.b-, -n.d-, -ɲ.j-/.

Complex onsets CC can be either geminate clusters C_xC_x or non-geminate clusters C_xC_y . The attested combinations of segments in consonant clusters are presented in §3.5.

Table 3.11 summarises the distribution of oral vowels in CTM at the syllable level. The three basic vowels /a, i, u/ and the mid-low vowels /ɛ, ɔ/ have the broadest range of occurrences, as they are allowed in all types of syllables. The schwa /ə/ is not allowed in onsetless syllables V(C). The mid-high vowels /e, o/ do not occur in syllables with a complex onset, as they are only permitted in final syllables (see §3.4.3.2), whereas CCV(C) syllables only occur in non-final position.

Table 3.11: Distribution of oral vowels in CTM at the syllable level

Syllable type	a	i	u	ɛ	ɔ	e	o	ə
V	+	+	+	+	+	+	+	-
VC	+	+	+	+	+	+	+	-
CV	+	+	+	+	+	+	+	+
CVC	+	+	+	+	+	+	+	+
CCV	+	+	+	+	+	-	-	+
CCVC	+	+	+	+	+	-	-	+

(+ : attested, - : not attested)

Nasal vowels are often followed by a coda /ʔ/, as seen in examples like /kəciʔ/ ‘small’, /esɔʔ/ ‘to scoot over’ and /busũʔ/ ‘smelly’. However, there are a few counterexamples, such as /ĩ/ in /matə kaĩ/ ‘fish hook’, /ã/ in /ləpãŋ/ ‘to hit’ and /dɔʔã/ ‘to pray’ (< Arabic *du‘ā*, cf. SM *doa*), as well as /ɔ̃/ in /hɔ̃/ ‘AFF’.

3.4 Word structure

CTM words have a fairly rigid disyllabic shape with a (C)(C)V(C).(C)V(C) template. Some morphologically simple monosyllabic words are attested, and words with more than two syllables do exist but are rare, most of which can be identified as loanwords. Just as in KM, simple words and derivatives in CTM share similar word shapes with the same set of phonotactic constraints. To demonstrate this similarity, I will again examine their structures separately. Phoneme distributions at the word level are examined in §3.4.3.

3.4.1 Structure of simple words

Simple words in CTM can be monosyllabic, disyllabic or trisyllabic. Disyllabic words are by far the most common, and trisyllabic words are almost exclusively borrowed.

Table 3.12 presents possible syllable types in monosyllables, which follow a template of (C)(C)V(C). Onsetless syllables V or VC are only attested in interjections like /a/ and /eh/ (see §6.2.13). Monosyllables with a [×]CCV shape are not attested.

Table 3.12: Monosyllabic simple words in CTM

Syllable type	Example	Gloss
V	/a/	‘INTERJ’
VC	/eh/	‘INTERJ’
CV	/pɔ/	‘coconut’
CVC	/laʔ/	‘to wipe’
CCVC	/ppaʔ/	‘four’

The disyllabic template (C)(C)V(C).(C)V(C) applies to most simple words in CTM. Possible shapes of disyllabic words are presented in Table 3.13.

Table 3.13: Disyllabic simple words in CTM

Syllable type	Example	Gloss
V.V	/a.e/	‘water’
V.CV	/a.yi/	‘day’
V.CVC	/i.taŋ/	‘black’
VC.CV	/am.bə/	‘1SG (polite)’
VC.CVC	/aŋ.jiŋ/	‘dog’
CV.V	/da.i/	‘forehead’
CV.VC	/la.oʔ/	‘sea’
CV.CV	/gi.gi/	‘tooth’
CV.CVC	/pu.teh/	‘white’
CVC.CV	/man.di/	‘to bathe’
CVC.CVC	/tan.doʔ/	‘horn’
CCV.V	/pya.u/	‘canoe’
CCV.CV	/ppa.lə/	‘head’
CCV.CVC	/mmi.laŋ/	‘nine’
CCVC.CV	/blaŋ.jə/	‘expense; bride price’
CCVC.CVC	/ccam.bəh/	‘bean sprouts’

In combinations of two syllables, syllables with a complex onset only occur initially, and words with a \times V.VC or \times CCV.VC shape are not attested. Both geminate and non-geminate clusters can be found in initial position in disyll-

labic simple words. Consonant sequences of the type -C.C- can occur word-medially, and they are discussed in §3.6.

Examples of trisyllabic simple words are given in Table 3.14.

Table 3.14: Trisyllabic simple words in CTM

Syllable type	Example	Gloss	Origin
V.CV.CV	/u.ta.ɣə/	‘north’	< Sanskrit
V.CV.CVC	/a.ɣə.naʔ/	‘rabbit’	< Arabic
CV.CV.CV	/ba.si.ka/	‘bicycle’	< English
CV.CV.CVC	/sə.ŋə.leŋ/	‘deliberately’	
CVC.CV.CV	/təŋ.ga.ɣə/	‘southeast’	< Malayālam
CVC.CV.CVC	/ləm.pɔ.yaŋ/	‘ginger plant’	

A foreign origin can be identified for most of these words, as indicated in the table. /utayə/ ‘north’ and /ayənaʔ/ ‘rabbit’ are ultimately borrowed from Sanskrit and Arabic, presumably having entered CTM via SM (cf. SM *utara* and *arnab*). In addition to /utayə/ ‘north’, /təŋgayə/ ‘southeast’ is another borrowed term for cardinal directions, and it might have derived from Malayālam *ten* ‘south’ + *kara* ‘shore’ (Hoogervorst 2015: 77). While it is not surprising that both terms for ‘north’ and ‘southeast’ are ultimately borrowed (see Adelaar 1997: 58–61), /təŋgayə/ is likely also a direct borrowing from SM *təŋgara* (cf. KM /tɣayɔ/, which reflects regular sound patterns). The word for /ləmpɔyaŋ/ ‘ginger plant’ seems Malayic (cf. PM *lAmpuyaŋ ‘ginger plant’, Adelaar 1992: 58), but the unexpected /-m.p-/ sequence also points to a foreign origin (see §3.6).²⁰ The trisyllabic structure in a few other simple words, such as /səŋələŋ/ ‘deliberately’ and /gədəbuʔ/ ‘thump’ (an ideophone, the sound of something falling into water), remains unexplained.

3.4.2 Structure of derivatives

CTM shares the same inventory of affixes as KM (see §5.3.1), and similarly, most derivatives are disyllabic prefixed forms. Derivatives with more than two syllables are uncommon, most of which are arguably borrowed.

²⁰ Note that the word for ‘ginger (plant)’ in KM /haliyɔ/ is also borrowed. Also in ITM, the words for ‘ginger plant’ /ləmpuyaŋ/ and ‘ginger’ /haliyɛ/ may not be native, see Table 4.16 in §4.4.1.

Table 3.15 offers an overview of the syllable types found in disyllabic derivatives in CTM. As evident from the table, these derivatives all have an initial CC cluster. Importantly, all syllable types found in disyllabic derivatives can also be found in simple words, following the same maximal CCVC.CVC template.

Table 3.15: Disyllabic derivatives in CTM

Syllable type	Example	Morphological structure	Gloss
CCV.V	/bʏa.e/	<i>bʏ-ae</i>	(INTR-water) ‘watery’
CCV.VC	/ssa.iŋ/	<i>s-saiŋ</i>	(INTR-friend) ‘to befriend’
CCV.CV	/pʏa.co/	<i>pʏ-aco</i>	(CAUS-crushed) ‘to crush’
CCV.CVC	/ŋŋi.paŋ/	<i>NN_I-<s>ipaŋ</i>	(IPFV-clean.up) ‘cleaning up’
CCVC.CV	/ssan.dɔ/	<i>s-sandɔ</i>	(MID-lean) ‘to lean on’
CCVC.CVC	/ŋŋɛn.doŋ/	<i>NN_I-<k>endoŋ</i>	(IPFV-carry) ‘carrying’

Generally speaking, bases with an initial CC cluster cannot be prefixed, and trisyllabic prefixed form are limited to exceptions like /bə.tʏa.bo/ *bə-tyabo* (MID-scattered) ‘cluttered’ (see similar exceptions in KM in §2.4.2). Some other trisyllabic derivatives may be analysed as having a nominalising suffix *-aŋ* (corresponding to KM *-ɛ*), as in the following examples:

- (1) /u.ku.maŋ/ *ukum-aŋ* (penalise-NMLS) ‘penalty’
 /ma.ka.naŋ/ *makan-aŋ* (eat-NMLS) ‘food’
 /ba.la.saŋ/ *balas-aŋ* (reply-NMLS) ‘reply (n.)’
 /han.tɔ.ɣaŋ/ *hantɔɣ-aŋ* (send-NMLS) ‘bride price’

Similar to KM, the suffixing process in CTM does not operate at the synchronic level. Verbal bases cannot be systematically and productively suffixed with *-aŋ* to derive nouns. For instance, *balah* ‘to reply’ cannot be suffixed with *-aŋ* to form *balas-aŋ* (note the mismatch of *-h* and *-s*). The unexpected sound patterns in certain words, such as /h-/ in /hantɔɣaŋ/ ‘bride price’ (see §3.4.3.1), also indicate a foreign origin.

Similar generalisations can be made about derivatives with more than three syllables. There are only a few of them in my corpus, as listed in (2), all containing a speculative circumfix *pə- -aŋ*. This circumfix, which historically

formed nouns denoting abstract entities (a cognate of SM *pər- -an* and KM *pə- -ε*), is also not productive synchronically.

- (2) /pə.ja.la.naŋ/ *pə-jalan-aŋ* (NMLS-road-NMLS) ‘journey’
 /pə.ni.kə.haŋ/ *pə-nikəh-aŋ* (NMLS-marry-NMLS) ‘marriage’
 /pə.tə.lo.ŋaŋ/ *pə-təloŋ-aŋ* (NMLS-help-NMLS) ‘help’

Overall, native derivatives in CTM have a canonical disyllabic shape, and there is uniformity between the shapes of simple words and derivatives. CTM parallels KM in this regard, and the structural resemblance between the two types of words stems from the same historical explanation (see 7.5.2).

3.4.3 Phoneme distribution at the word level

Phoneme distributions at the word level in CTM are generalised based on the disyllabic template, with additional considerations of some monosyllabic words. The distributional patterns and constraints summarised in the following sections apply to both simple words and derivatives.

3.4.3.1 Distribution of consonants

The general distributional constraints on single consonants in CTM are similar to those in KM, as summarised in Table 3.16.

Table 3.16: Distribution of consonants in CTM at the word level

Position	p	b	t	d	c	j	k	g	ʔ	m	n	ɲ	s	x	h	l	ɣ	w	y	
initial	+	+	+	+	+	+	+	+	-	+	+	+	(+)	+	-	(+)	+	+	(+)	(+)
medial	+	+	+	+	+	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+
final	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	+	-	-	-	-

(+ : attested, - : not attested, (+) : attested but uncommon)

In word-initial position, the glottal stop /ʔ/ is not phonemic, and the velar fricative /x/ only appears in the geminated form /xx/. /h/ is generally not allowed word-initially; it occurs only in monosyllabic function words, e.g., /hɔ̃/ ‘AFF’ and /hɔ̃ʔ/ ‘REL’. Initial /ɲ, w, y/ are mostly found in shortened variations of some disyllabic words, e.g., /ɲaŋ/~dəŋaŋ/ ‘with’, /wəh/~buwəh/

‘fruit’, /waʔ/~ /buwaʔ/ ‘to do’ and /ya/ ~ /ɣiya/ ‘ringgit (currency unit)’. There are nevertheless some exceptions, such as /ɲaŋə/ ‘to open wide’, /waʔpə/ ‘why’ (which contains the shortened form /waʔ/ ‘to do’) and /yə/ ‘3’.

Word-medially, all segments are permitted except for /ʔ/ and /x/, but a word-medial /h/ is typically found between identical vowels, as in /bahaŋ/ ‘to hit’ and /pəhə/ ‘thigh’. There is nevertheless a trend in younger speakers’ speech to reintroduce word-medial [h] in other words that historically had *-h-, presumably under more recent influence of SM. For instance, /dai/ ‘forehead’ and /taiʔ/ ‘excrement’ are usually pronounced as [dai] and [taiʔ] by older speakers, but [dahi] and [tahiʔ] can be heard among younger speakers (cf. SM *dahi* and *tahi*).

Word-finally, only /ʔ, ŋ, h/ are permitted.

3.4.3.2 Distribution of vowels

The distribution of oral vowels at the word level is summarised in Table 3.17.

Table 3.17: Distribution of oral vowels in CTM at the word level

Position	a	i	u	ɛ	ɔ	e	o	ə
penultimate	+	+	+	+	+	-	-	+
final	+	+	+	+	+	+	+	+

(+ : attested, - : not attested)

As in KM, the mid-high vowels /e, o/ are not allowed in penultimate syllables. The schwa /ə/ does not occur word-initially since it is not present in syllables with a V(C) shape (§3.3), but it has a wider distribution in CTM as it is also allowed in final open syllables, as in /matə/ ‘eye’ and /limə/ ‘five’. The mid-low front vowel /ɛ/ has a limited occurrence in final syllables, always cooccurring with another mid-low vowel in penultimate syllables and showing vowel height harmony, as seen in words like /gɛgɛ/ ‘noisy’, /ləmbɛʔ/ ‘mattress’ and /mələʔ/ ‘good’.

Nasal vowels only appear in final syllables. Many CTM words with a nasal vowel also have cognates in KM that contain a nasal vowel, e.g., /kəciʔ/ ‘small’, /matə kaĩ/ ‘fish hook’, /ɛsɔʔ/ ‘to scoot over’ and /busũʔ/ ‘smelly’ (cf. KM /kəcẽʔ/, /matə kaẽ/, /ɛsɔʔ/ and /busũʔ/).

3.5 Consonant clusters

Table 3.18 presents the consonant clusters C_1C_2 attested in CTM, with C_1 indicated on the vertical line and C_2 on the horizontal line. Only clusters found in native words are considered here, and clusters in parentheses are rare.

Table 3.18: Attested consonant clusters in CTM

$C_1 \backslash C_2$	p	b	t	d	c	j	k	g	m	n	ɲ	ɳ	s	x	l	ʎ	w
p	pp	-	-	-	-	-	-	-	-	-	-	-	-	-	pl	pʎ	-
b	-	bb	-	-	-	-	-	-	-	-	-	-	-	-	bl	bʎ	-
t	-	tb	tt	-	-	-	-	tg	tm	tn	-	-	-	-	tl	tʎ	-
d	-	-	-	dd	-	-	-	-	-	-	-	-	-	-	(dl)	dʎ	-
c	-	-	-	-	cc	-	-	-	cm	-	-	-	-	-	cl	cʎ	-
j	-	-	-	-	-	jj	-	-	jm	-	-	-	-	-	jl	jʎ	-
k	-	kb	-	kd	-	-	kk	-	-	-	-	-	-	-	kl	-	-
g	-	-	-	-	-	-	-	gg	gm	-	-	-	-	-	gl	-	-
m	-	mb	-	-	-	-	-	-	mm	-	-	-	-	-	ml	-	-
n	-	-	-	-	-	-	-	-	-	nn	-	-	-	-	-	-	-
ɲ	-	-	-	-	-	-	-	-	-	-	ɲɲ	-	-	-	-	-	-
ɳ	-	-	-	-	-	-	-	-	-	-	-	ɳɳ	-	-	-	-	-
s	sp	sb	st	sd	sc	sj	sk	sg	sm	sn	-	-	ss	-	sl	sʎ	-
x	-	-	-	-	-	-	-	-	-	-	-	-	-	xx	-	-	-
l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ll	-	-
ʎ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ʎʎ	-
w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ww

(- : not attested, () : attested but uncommon)

All consonants except for the glottals /h, ʔ/ and the glide /y/ can occur in a consonant cluster. These clusters typically occur word-initially, except in examples like /bətʎabo/ ‘cluttered’ as previously noted. Five segments, namely /n, ɲ, ɳ, x, w/, only occur in a geminate cluster. Non-geminate clusters can be classified into five possible segment combinations: 1) obstruent + liquid; 2) obstruent + obstruent; 3) obstruent + nasal; 4) nasal + obstruent; and 5)

nasal + liquid. Examples for each type of clusters are given below.

First, all segments except for /h, ʔ, y/ can appear in a geminate cluster, as shown in (3).

(3)	Geminate clusters		
	/pp-/	/ppalə/	'head'
	/bb-/	/bbaləh/	'to fight'
	/tt-/	/ttaŋi/	'sun'
	/dd-/	/ddiŋi/	'to stand'
	/cc-/	/ccayə/	'to believe'
	/jj-/	/jjabaʔ/	'office'
	/kk-/	/kkatəʔ/	'frog'
	/gg-/	/gganə/	'how'
	/mm-/	/mmaŋeŋ/	'yesterday'
	/nn-/	/nnataŋ/	'animal'
	/ŋŋ-/	/ŋŋawə/	'to breathe'
	/ŋŋ-/	/ŋŋale/	'to flow'
	/ss-/	/ssəmə/	'all'
	/xx-/	/xxusi/	'chair'
	/ll-/	/lliŋə/	'ear'
	/ʎʎ-/	/ʎʎamə/	'butterfly'
	/ww-/	/wwapə/	'how many, how much'

Geminate clusters may be morphologically complex, as illustrated by the following examples: /ddiŋi/ *d-diŋi* (INTR-self) 'to stand' and /ŋŋawə/ *ŋ-ŋawə* (INTR-soul) 'to breathe'. For a comprehensive analysis of the morphological aspects of initial geminates, see §5.3.2. Geminate clusters are also attested in some monosyllabic words, as in /ppaʔ/ 'four', /nnaŋ/ 'six' and /mmah/ 'gold'.

Second, the most common type of non-geminate clusters has an obstruent followed by a liquid /l/ or /ʎ/, as shown in (4).

(4)	Obstruent + liquid		
	/pl-/	/plitə/	'lamp'
	/pʎ-/	/pʎau/	'canoe'
	/bl-/	/blakaŋ/	'back'
	/by-/	/byuwaŋ/	'bear'
	/tʎ-/	/tʎəbaŋ/	'to fly'
	/tl-/	/tlaŋgə/	'to crash (accidentally)'

/dl-/	/dlimə/	‘pomegranate’
/dɣ-/	/dɣakə/	‘insubordinate’
/cl-/	/clakə/	‘misfortune’
/cɣ-/	/cɣəmiŋ/	‘mirror’
/jl-/	/jluwəʔ/	‘to vomit’
/jɣ-/	/jɣəneh/	‘clear’
/kl-/	/kladi/	‘taro’
/gl-/	/gləgəʔ/	‘to boil’
/sl-/	/sluwə/	‘trousers’
/sɣ-/	/sɣatoh/	‘one hundred’

The stop and the liquid in such combinations typically have different places of articulation, with one notable exception being /dl-/ in /dlimə/ ‘pomegranate’. Clusters like [×]/kɣ-/ and [×]/gɣ-/ are not attested, which were historically assimilated to become /xx-/ and /γγ-/ respectively. Compare CTM /xxətə/ ‘car’ with SM *kərətə*, and CTM /γγahaŋ/ ‘molar tooth’ with SM *gəraham*. Note that /t/ is dental and /l/ is alveolar, but the adjacency of their places of articulation also often led to the assimilation of ⁺tl- > /ll-/, as in /llinə/ ‘ear’ and /llunjuʔ/ ‘index (finger)’ (cf. SM *təliŋa* and *təlunjuk*). /tl-/ clusters are nevertheless attested in derivatives like *t-ləŋgə* (NVOL-crash) ‘to crash (accidentally)’.

The third type of clusters has two obstruents, as in (5).

- (5) Obstruent + obstruent
- | | | |
|-------|-------------|----------------|
| /tb-/ | /tbaka/ | ‘tobacco’ |
| /tg-/ | /tgələŋ/ | ‘to sink’ |
| /kb-/ | /kbumi/ | ‘to bury’ |
| /kd-/ | /kdiyaŋ/ | ‘then, later’ |
| /sp-/ | /spuloh/ | ‘ten’ |
| /sb-/ | /sbələh/ | ‘eleven’ |
| /st-/ | /ubi stələ/ | ‘sweet potato’ |
| /sd-/ | /sdayə/ | ‘sibling’ |
| /sc-/ | /scawaŋ/ | ‘a cup’ |
| /sj-/ | /sjabe/ | ‘a pouch’ |
| /sk-/ | /skali/ | ‘most’ |
| /sg-/ | /sgələh/ | ‘a glass’ |

In this type of clusters, /s/ is the most frequently attested C₁, which is often a clitic s= meaning 'a; one; same', as in s=*puloh* (one-ten) 'ten', s=*bəlah* (one=teens) 'eleven', s=*cawaŋ* (one=cup) 'a cup', s=*jabe* (one=pouch) 'a pouch' and s=*gəlah* (one=glass) 'a glass'. In clusters with two stops, it is always the case that a voiceless stop precedes a voiced stop. As in KM, an epenthetic schwa may be heard between two stops, as in /tgəlaŋ/ 'to sink', which may be pronounced as [təgəlaŋ].

The fourth type of clusters, namely obstruent + nasal, is attested in the following examples:

- (6) Obstruent + nasal
- | | | |
|-------|----------|---------------|
| /tm-/ | /tmagə/ | 'copper' |
| /tn-/ | /tnagə/ | 'energy' |
| /cm-/ | /cmuɣu/ | 'jealous' |
| /jm-/ | /jmaləŋ/ | 'earth gnome' |
| /gm-/ | /gmalə/ | 'herder' |
| /sm-/ | /smilaŋ/ | 'nine' |
| /sn-/ | /snayə/ | 'list' |

The last two types of clusters are uncommon. The combination of a nasal followed by an obstruent is only found in /mb-/ , as in /mbuh/ 'to blow' and /mboŋ/ 'dew'. * /nd-/ or * /ŋg-/ is not attested (compare CTM /buɣoŋ kləkəŋ/ 'hornbill' with KM /ŋgɛ/). The combination of a nasal + a liquid is only found in /ml-/ , as in /mlayu/ 'Malay' and /mlati/ 'jasmin'.

Another type of clusters has an obstruent followed by a glide /w/ or /y/, as illustrated in (7).

- (7) Obstruent + glide
- | | | | | |
|-------|---------|-----------|----------------------------|---------------------|
| /tw-/ | /twala/ | 'towel' | < Portuguese <i>toalha</i> | cf. SM <i>tuala</i> |
| /cw-/ | /cwacə/ | 'climate' | < Sanskrit <i>svaccha</i> | cf. SM <i>cuaca</i> |
| /kw-/ | /kwali/ | 'wok' | < Tamil <i>kuwaŋai</i> | cf. SM <i>kuali</i> |
| /sw-/ | /swayə/ | 'voice' | < Sanskrit <i>svara</i> | cf. SM <i>suara</i> |
| /by-/ | /byasə/ | 'usual' | < Sanskrit <i>abhyāsa</i> | cf. SM <i>biasa</i> |

All these words can be identified as loanwords, as indicated above. More importantly, these words not only have a non-Malayic origin, but also do not follow the regular sound changes that most other Sanskrit or Portuguese loanwords have undergone. SM cognates of these words have *-u.a-* or *-i.a-*

sequences, and CTM cognates of words with similar shapes regularly reflect the contraction of ⁺-u.a- > /ɔ/ and ⁺-i.a- > /ɛ/, as in /pɔsə/ ‘fasting’, /bɔyə/ ‘crocodile’ and /bɛwɔʔ/ ‘monitor lizard’, cf. SM *puasa*, *buaya* and *biawak* (see §7.5.2.1).²¹ The deviated sound pattern reflected in the words listed in (7) therefore suggests more recent borrowing. For this reason, clusters of obstruent + glide are not included in Table 3.18.

Overall, the attested consonant clusters in CTM follow the SSP with few exceptions. The common types of non-geminate clusters, namely obstruent + liquid, voiceless stop + voiced stop and obstruent + nasal, comply with the SSP, and /s/ + stop clusters are also cross-linguistically common.

3.6 Consonant sequences

Consonant sequences most commonly consist of a nasal and a homorganic voiced stop, i.e., /-m.b-, -n.d-, -ŋ.j-, -ŋ.g-/ , as illustrated in Table 3.19. As in KM, sequences of a nasal + a voiceless stop are also not allowed in CTM.

Table 3.19: Homorganic nasal + voiced stop sequences in CTM

Sequence	Example	Gloss
/-m.b-/	/ɣam.boʔ/	‘hair’
	/ləm.bu/	‘cattle’
/-n.d-/	/tan.doʔ/	‘horn’
	/pɛn.dɛʔ/	‘short’
/-ŋ.j-/	/aŋ.jiŋ/	‘dog’
	/paŋ.jaŋ/	‘long’
/-ŋ.g-/	/tiŋ.gi/	‘tall’
	/puŋ.goŋ/	‘buttock’

Sequences of a glottal stop /ʔ/ followed by another segment are also attested, as shown in examples in Table 3.20.

²¹ Although /pɔsə/ ‘fasting’ is ultimately derived from Sanskrit *upavāsa*, it is considered native because it reflects regular sound changes.

Table 3.20: /-ʔ.C-/ sequences in CTM

Sequence	Example	Gloss	Origin
/-ʔ.p-/	/waʔ.pə/	‘why’	< <i>buwaʔ</i> ‘do’ + † <i>apa</i> ‘what’
/-ʔ.t-/	/mɔʔ.taŋ/	‘rambutan’	
/-ʔ.d-/	/taʔ.di/	‘just now’	
/-ʔ.c-/	/mɔʔ.ciʔ/	‘auntie’	< <i>mɔʔ</i> ‘mother’ + <i>ciʔ</i> ‘sister’
/-ʔ.k-/	/bɛʔ.ki/	‘to repair’	
/-ʔ.g-/	/kɛʔ.gi/	‘later’	
/-ʔ.m-/	/sɔʔ.mɔ/	‘always’	< <i>s=</i> ‘one; same’ + <i>ɔmɔ</i> ‘age’
/-ʔ.n-/	/maʔ.nə/	‘meaning’	< Arabic <i>maʿnā</i>

† indicates earlier forms which are no longer attested.

These sequences often appear in (historically) contracted forms or loan-words, as indicated in the table. /mɔʔtaŋ/ ‘rambutan’ and /bɛʔki/ ‘to repair’ are historically suffixed, which can be compared with KM /mɔʔtɛ/ and /bɛʔki/, SM *rambut-an* ‘hair-NMLS’ and *baik-i* ‘good-APPL’. /-ʔ.d-/ in /taʔdi/ ‘just now’ and /-ʔ.g-/ in /kɛʔgi/ ‘later’ are unexplained.

3.7 Vowel sequences

Vowel sequences attested in CTM are presented in Table 3.21.

Table 3.21: Vowel sequences in CTM

Sequence	Example	Gloss
/a.i/	/na.iʔ/	‘to climb’
/a.u/	/ba.u/	‘shoulder; smell’
/a.e/	/a.e/	‘water’
/a.o/	/ta.oŋ/	‘year’
/a.ĩ/	/matə ka.ĩ/	‘fish hook’

The first vowel in vowel sequences is always the low vowel /a/. Among the vowels permitted in penultimate syllables, the schwa and the mid-low vowels /ɛ, ɔ/ cannot be directly followed by another vowel in final

syllables. Potential vowel sequences with a high vowel as the first component, i.e., \times /-i.V-/ and \times /-u.V-/, are analysed as /-iyV-/ and /-uwV-/ with a phonemic intervocalic glide, as in examples like /piyə/ 'who', /tiyuʔ/ 'to blow', /duwə/ 'two' and /luwa/ 'outside'. This is evidenced by the alternation between /ya/~ /yia/ 'ringgit (currency unit)', /wəh/~ /buwəh/ 'fruit' and /waʔ/~ /buwaʔ/ 'to do', which preserves the glides /y/ and /w/ in word-initial position in the shortened forms. There is one vowel sequence with a nasal vowel, namely /a.ĩ/ in /matə kaĩ/ 'fish hook', a cognate of KM /matə kaẽ/.

3.8 Stress

Stress is not phonemic in CTM. The acoustic aspects of stress in CTM have not been extensively studied, and the following summaries on the stress placement should be taken as tendencies rather than rules.

Most disyllabic words in CTM have stress on the final syllable, regardless of whether the final syllable is open or closed. Some examples are given in (8).

(8)	/suŋa/	[su'ŋã]	'river'
	/mati/	[mã'ti]	'to die'
	/pase/	[pa'se]	'sand'
	/kətə/	[kə'tə]	'dirty'
	/taseʔ/	[ta'seʔ]	'lake'
	/gigiʔ/	[gi'giʔ]	'to bite'
	/bitaŋ/	[bi'taŋ]	'star'
	/dagiŋ/	[da'giŋ]	'meat'
	/mutəh/	[mũ'təh]	'to vomit'
	/bunoh/	[bu'nəh]	'to kill'

There are nevertheless some counterexamples to this general tendency, as demonstrated by the data in (9). The exact reason for the differences in stress placements is not clear, and it is also likely that stress in either syllable can be accepted by the speakers.

(9)	/ləbə/	['ləbə]	'wide'
	/duyi/	['duyi]	'thorn'
	/kilaʔ/	['kilaʔ]	'lightning'

/muloʔ/	[ˈmũloʔ]	‘month’
/taŋaŋ/	[ˈtaŋãŋ]	‘hand’
/tulaŋ/	[ˈtulaŋ]	‘bone’
/juɣuh/	[ˈjuɣuh]	‘good’
/baloh/	[ˈbaloh]	‘storage house (for paddy)’

Stress on the final syllable is particularly prominent in words with a penultimate schwa, such as /təba/ [təˈba] ‘thick’, /pəʔoʔ/ [pəˈʔoʔ] ‘belly’, /tənoŋ/ [təˈnõŋ] ‘to weave’ and /bəkõh/ [bəˈkõh] ‘to swell’. If the final syllable has a schwa, stress is usually placed on the penultimate syllable instead, as in (10).

(10)	/dadə/	[ˈdadə]	‘chest’
	/matə/	[ˈmãtə]	‘eye’
	/buŋə/	[ˈbuŋã]	‘flower’
	/bɔyə/	[ˈbɔyã]	‘crocodile’

A few CVCV words, such as /bələ/ ‘to breed’ and /ɣəgə/ ‘price’, have a schwa as the nucleus in both syllables. These words also have stress on the final syllable, i.e., [bəˈlə] and [ɣəˈgə].

Another noteworthy tendency in the stress placement is that words with initial geminates have stress on the initial syllable, even if the penultimate syllable has a schwa. This is shown by the following examples:

(11)	/ttaɣi/	[ˈttaɣi]	‘sun’
	/ppəɣaŋ/	[ˈppəɣaŋ]	‘to be in a war’
	/nnataŋ/	[ˈnnãtaŋ]	‘animal’
	/mmaɣeŋ/	[ˈmmãɣeŋ]	‘yesterday’
	/xxəkõh/	[ˈxxəkõh]	‘to bite’
	/ɣɣima/	[ˈɣɣimã]	‘tiger’

In comparison, words with initial non-geminate clusters do not always have initial stress. For instance, /blakaŋ/ ‘back’ is pronounced as [ˈblakaŋ] with initial stress, but /smilaŋ/ ‘nine’ and /tgəlaŋ/ ‘to sink’ often have stress on the final syllable, i.e., [smiˈlaŋ] and [tgəˈlaŋ].

On the whole, stress is not phonemic in CTM. It seems that CTM has a tendency to place stress on the final syllable in disyllabic words, but there is room for variation. When the final syllable has a schwa while the penultimate syllable has a full vowel, stress is often placed on the penultimate syllable. Words with initial geminates have stress on the first syllable.

3.9 Summary

This chapter has provided a description of the phonology of CTM, covering its segment inventory, syllable structure and word structure. Relevant comparisons with KM were made to highlight similarities and differences between the two varieties.

At the segment level, CTM has twenty phonemic consonants and thirteen phonemic vowels, including five nasal vowels /ã, ã, õ, õ, õ/. There are no phonemic diphthongs, but the mid-high vowels /o, e/ have a tendency to be diphthongised to [ẽ] and [õ] in certain environments.

At the syllable level, CTM syllables follow a template of (C)(C)V(C). All consonants except for /ʔ/ and /x/ can appear as a single onset, but only nasals and glottals /ʔ, h/ are allowed as a coda. Complex onsets CC can be either geminate clusters with two identical segments or non-geminate clusters with two different segments. All consonants excluding /ʔ, h, y/ can appear in a geminate cluster, and the combinations of segments in non-geminate clusters generally comply with the SSP. The velar fricative /x/ only appears as a geminate cluster /xx/. As for vowels, a schwa cannot occur in an onsetless syllable. Nasal vowels also have a limited distribution, and they are commonly followed by a glottal stop.

At the word level, CTM words have a canonical disyllabic structure with a (C)(C)V(C).(C)V(C) template, which is shared by both simple words and derivatives. Complex onsets typically occur word-initially, and consonant sequences can be formed word-medially, with the most common type being a nasal followed by a homorganic voiced stop. Two adjacent vowels form a vowel sequence, in which the first segment is always /a/. Distributional constraints on segments at the word level are fairly complex. Word-initially, a glottal stop is not phonemic, and the glottal fricative /h/ and the glides /w, y/ also have limited presence. As mentioned above, /x/ only occurs in the geminated form /xx/, and /ŋ/ also typically occurs as geminate /ŋŋ/ in word-initial position. Word-medially, /ʔ/ and /x/ are not allowed in inherited vocabulary. In word-final position, only /ʔ, ŋ, h/ are permitted. As far as vowels are concerned, the mid-high vowels /e, o/ are not allowed in penultimate position, and the mid-low front vowel /ɛ/ has a limited occurrence in final syllables, reflecting vowel height harmony. Nasal vowels are restricted to final syllables.

Stress is not phonemic in CTM. In general, there is a tendency to stress the final syllable in disyllabic words, but there are instances where stress placement varies. For instance, if the final syllable contains a schwa or the penultimate syllable has an initial geminate, stress falls on the penultimate syllable.

The phonology of CTM exhibits several striking similarities when compared to that of KM. Both varieties share the same consonant inventory and the basic templates for syllables and words. Moreover, the phonotactic constraints on the distribution of consonants, permissible consonant clusters and sequences, as well as vowel sequences, are largely analogous. For instance, in both varieties /ŋ, h, w, y/ do not commonly occur in word-initial position, and only three segments /ʔ, ŋ, h/ are permitted word-finally. Nevertheless, there are some noteworthy differences between the two varieties. In the consonant system, CTM has a geminate glide /ww/ which is not attested in KM. In the vowel system, while both varieties have a similar vowel inventory, different distributional constraints apply. For example, while a schwa is not allowed in KM in final syllables, it can appear word-finally in CTM.

