Gong phonological characteristics

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Abstract

This paper is a revised version of one part of my thesis entitled "Gong: an endangered language of Thailand", supported by the Ph.D. Royal Golden Jubibee Scholarship under the auspices of Thailand Research Fund. The research site is Kok Chiang village, Suphanburi province. This paper consists of four sections: introduction, Kok Chiang Gong phonology, variation of Gong language and conclusion. As for the descriptive phonological study of the Gong language, it reveals that there are 20 consonant phonemes: /p, pʰ, b, t, tʰ, d, c, cʰ, k, kʰ, g, ʔ, h, m, n, ɲ, ŋ, l, w, j/, 12 single vowel phonemes: /i, e, ɛ, ø, œ, ɨ, ə, ʌ, a, u, o, ɔ/, three diphthongs: /ia, ɨa, uɔ/ and four tonemes: mid, low, low-rising, high-falling.

1. Introduction

Gong is a language belonging to the Burmish-Lolo sub-branch, Tibeto-Burman branch of the Sino-Tibetan family. (see Figure 1 below). The word *Lawa* or *Lua* is a generic name for many minority groups in Thailand, including Gong. Gong is generally called *Lawa* by people in the area or *Lua* by government officials, but the people call themselves "Ugong" /ʔùgɔ̌ŋ/ and speak "Gong" /gɔ̌ŋ/. In 2004 there were around 500 Gong people, but only 50 of them are fluent speakers. They are found in one village in Uthaithani province, and two villages in Suphanburi province. Their villages are also surrounded by Thai-Lao villages. Even in their village the population is mixed with half of them being Gong and the other half Lao Khrang, and other groups such as central Thai, Lao Isan, southern Thai and Chinese.

From the various studies related to the Gong language and culture, the researchers have considered that the Gong language would certainly disappear very soon because of the relatively small number of Gong speakers, and their current attitudes towards their own language and ethnic group.
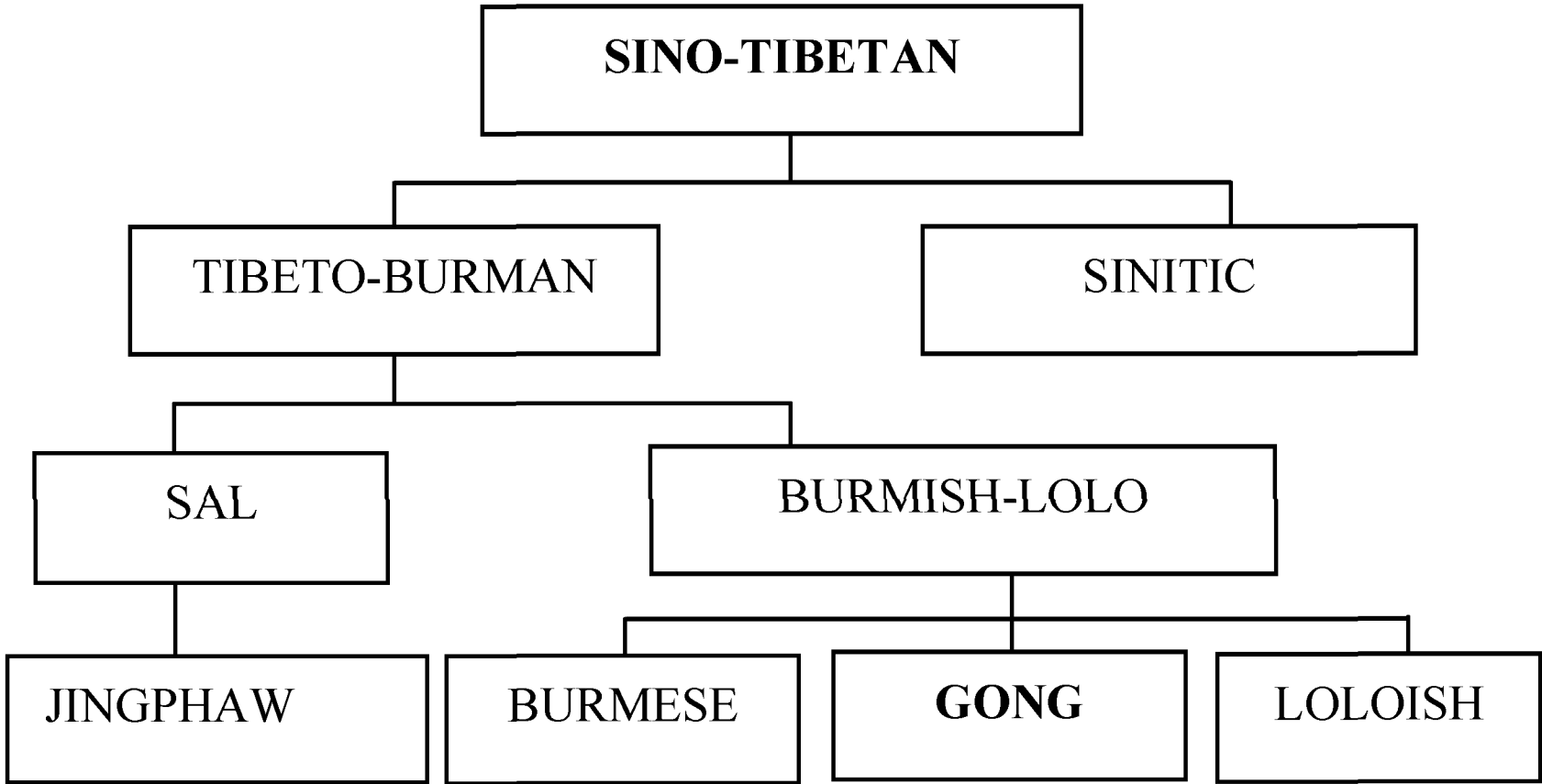
Figure 1. The relationship between Gong and other Burmish-Lolo (Bradley, 1975:176)

2.   Kok Chiang Gong phonology

The descriptive phonological study of the Gong language reveals 20 consonant phonemes as shown in Table 1.

Table 1.   Kok Chiang Gong consonant phonemes

Points of articulation		Bilabial	Alveolar	Palatal	Velar	Glottal
Manners of articulation						
Plosives	Voiceless Unaspirated	p	t	c	k	ʔ
	Voiceless Aspirated	pʰ	tʰ	cʰ	kʰ	
	Voiced	b	d		g	
Fricative	Voiceless					h
Nasals	Voiced	m	n	ɲ	ŋ	
Lateral	Voiced		l			
Approximants	Voiced	w		j		

The realization of all the consonant phonemes shown in Table 1, will be described in this section. The description will give the phonetic details of each consonant phoneme as realized from the speech of the informants. The consonant phonemes will be grouped according to their manners of articulation: plosives, fricative, nasals, lateral and approximants. Examples will be given for each consonant description.

Consonant phoneme description

1. Plosives

/p/   It is realized as [p] – a voiceless unaspirated bilabial plosive.
It occurs only in syllable initial position.
/pɛŋ/   ['pɛŋ:³³]   'younger sibling'
/p̠àtʰi/   [pa²¹ 'tʰi:³³]   'way'

/pʰ/   It is realized as [pʰ] – a voiceless aspirated bilabial plosive.
It occurs only in syllable initial position.
/pʰu/   ['pʰu:³³]   'pot'
/pʰu/   ['pʰu:²⁴¹]   'grandfather'
/pʰ̣ɨaʔ/   ['pʰ̣ɨɑ:ʔ²¹]   'flower'
/pʰe/   ['pʰɪ:³³]   'cart'

/b/   It is realized as [b] – a voiced bilabial plosive. It occurs only in
syllable initial position.
/bŏk/   ['bok⁻²⁴¹]   'kitchen mortar'
/bɨʔca/   [ˌbiʔ²¹ 'tɕa:³³]   'leaf'

/t/   It is realized as [t] – a voiceless unaspirated alveolar plosive.
It occurs only in syllable initial position.
/tɔ̌ŋ/   ['tɔŋ:²⁴¹]   'a basket for putting fish'

/tʰ/   It is realized as [tʰ] – a voiceless aspirated alveolar plosive. It occurs
only in syllable initial position.
/tʰɔ̌ŋ/   ['tʰɔŋ:²⁴¹]   'bamboo rat'

/d/   It is realized as [d] – a voiced alveolar plosive. It occurs only in
syllable initial position.
/dǐ/   ['di:²⁴¹]   'wind'
/dɨa/   ['dɨɑ:³³]   'tiger'

/c/   It is realized as [t͡ɕ] – a voiceless unaspirated alveo- palatal affricate.
It occurs only in syllable initial position.
/ci/   ['t͡ɕi:³³]   'barking deer'
/ĉiŋ cɛ/   [ˌt͡ɕiŋ²⁴¹ 't͡ɕɛ:³³]   'chili'

/cʰ/   It is realized as [t͡ɕʰ] – a voiceless aspirated alveo-palatal affricate. It
occurs only in syllable initial position and is used interchangeably.
/cʰi/   ['t͡ɕʰi:³³]   'grandmother'
/cʰŏʔ/   ['t͡ɕʰoʔ²³¹]   'wasp'

/k/   It is realized as [k] and [k⁻].
[k] – a voiceless unaspirated velar plosive. It occurs in syllable
initial position.
/koŋ/   ['koŋ:³³]   'basket'
/kàpʰɔ/   [ka²¹'pʰɔ:³³]   'head'

[k˺] – a voiceless unaspirated and unreleased velar plosive. It occurs in syllable final position.

| /wŭk/ | [ˈwuk˺²⁴¹] | 'rat' |
| /ɲŭk/ | [ˈɲuk˺²⁴¹] | 'monkey' |

/kʰ/   It is realized as [kʰ] - a voiceless aspirated velar plosive. It occurs only in syllable initial position.

| /kʰɨ/ | [ˈkʰʉː³³] | 'dog' |
| /kʰŏŋ/ | [ˈkʰoŋː²⁴¹] | 'peacock' |

/g/   It is realized as [g] – a voiced velar plosive. It occurs only in syllable initial position.

| /gɔŋ/ | [ˈgɔŋː³³] | 'horse' |
| /gaŋ/ | [ˈgaŋː³³] | 'mynah' |

/ʔ/   It is realized as [ʔ] – a voiceless glottal plosive. It occurs both in syllable initial and final positions.

/ʔi/	[ˈʔiː³¹]	'seven'
/ʔo/	[ˈʔoː³³]	'person'
/mɔ̆ʔ/	[ˈmɔʔ²³¹]	'horse-fly'

2. Fricative

/h/   It is realized as [h] – a voiceless glottal fricative. It occurs only in syllable initial position.

| /hàŋʔɔ̀/ | [ˈhaŋ²¹ŋɔː²¹] | 'to lean against' |
| /hĭŋ/ | [ˈhiŋː²⁵¹] | 'gold bars' |

3. Nasals

/m/   It is realized as [m] – a voiced bilabial nasal. It occurs only in syllable initial position.

| /mĭŋ/ | [ˈmɤŋː²⁵¹] | 'body hair' |
| /mŭ/ | [ˈmuː²⁵¹] | 'mushroom' |

/n/   It is realized as [n] – a voiced alveolar nasal. It occurs only in syllable initial position.

| /nǐ/ | [ˈniː²¹] | 'day, sun' |
| /nû/ | [ˈnuː⁴²] | 'breasts' |

/ɲ/   It is realized as [ɲ] – a voiced palatal nasal. It occurs only in syllable initial position.

| /ɲa/ | [ˈɲaː³³] | 'fish-hook' |
| /ɲi/ | [ˈɲiː³³] | 'wife' |

/ŋ/   It is realized as [ŋ] and [ŋː].
[ŋ] – a voiced velar nasal. It occurs in syllable initial position. Also, it occurs finally in any word positions of connected speech except the final one.

| /ŋɔ̆/ | [ˈŋɔː²⁴¹] | 'five' |

/nɔŋ   maŋ   cʰi   kʰe   mɔ̀/
[nɔŋ³³   maŋ³³   t͡ɕʰiː³³   kʰeː³³   mɔː²⁴]
you   rice   eat   already   Q.P.
"Have you eaten yet?"

[ŋː] – a voiced velar long nasal. It occurs in syllable final position.
/kʰŏŋ/   ['kʰoŋː²⁴¹]   'peacock'

4. Lateral

/l/   It is realized as [l] – a voiced alveolar lateral. It occurs in syllable
        initial position, and in the second position of the initial cluster.
        /lɔ̆ʔ/   ['lɔʔ²⁴¹]   'finger'
        /laʔɛ/   [laˈ ʔɛː³³]   'tongue'
        /kʰlɛ̆ʔ/   ['kʰlɛʔ²⁴¹]   'shell'
        /kɔŋkʰlĭ/   [ˌkɔŋ³³ 'kʰliː²⁴¹]   'crocodile'

5. Approximants

/w/   It is realized as [w] – a voiced labial-velar approximant. It occurs in
        syllable initial position, and in the second position of the initial
        cluster.
        /waŋ/   ['waŋː³³]   'bear'
        /wa/   ['waː³³]   'guar'
        /kwèŋ/   ['kwɛŋː²¹]   'to lash a rope'
        /kʰwêŋ/   ['kʰweŋː⁴²]   'to hook'

/j/   It is realized as [j] – a voiced palatal approximant. It occurs only in
        syllable initial position.
        /jĭŋ/   ['jɨŋː²⁵¹]   'house'
        /jîŋ/   ['jɨŋː⁴²]   'father'

Remarks:

1)   Apart from the phonemes listed and described above, the sound
[x] - a voiceless velar fricative has been found in only two words, and it occurs
only in syllable initial position.
        ['xaʔ²⁴]   'needle'
        ['xaŋː²⁴¹]   'wasp'

Vowels

There are twelve single vowel phonemes and three diphthongs in
Gong as follows:

Table 2.   Vowel phonemes

Tongue position / Tongue Height	Front		Central	Back
	Unrounded	**Rounded**	**Unrounded**	**Rounded**
Close	i		ɨ	u
Close-mid	e	ø	ə	o
Open-mid	ɛ	œ	ʌ	ɔ
Open				a
Diphthongs	ia, ɨa, uɔ			

As for vowel length, there are no contrasts between short and long vowels in Gong. Vowel length is predictable and so non-phonemic. That is, it is conditioned by the syllable structure. Vowel is pronounced relatively long in an open syllable and relatively short in a closed syllable.

Examples: /pʰi/   [ˈpʰiː ³³]   'four'
             /we/   [ˈwɪː ³³]   'rain'
             /pʰida/   [pʰiː ³³ ˈdaː ³³]   'rabbit'
             /kʰɔ̆ʔ/   [ˈkʰɔʔ ²³¹]   'bird'

However, in a closed smooth syllable (a closed syllable ending with velar nasal /ŋ/), the vowels except /e/ may be pronounced either long or short.

Examples: /ʔoŋ/   [ˈʔoŋ ³³]   ~ [ˈʔoːŋ ³³]   'three'
             /jɨŋ/   [ˈjɨŋ ²⁵¹] ~ [ˈjɨːŋ ²⁵¹]   'house'
             /tʰɔ̆ŋ/   [ˈtʰɔŋ ²⁴¹] ~ [ˈtʰɔːŋ ²⁴¹]   'bamboo rat'
             /jøŋ/   [ˈjøŋ ³¹]   ~ [ˈjøːŋ ³¹]   'shirt'

Vowel phoneme description

The following vowel description is divided into two sections: the single vowels and the diphthongs.

Single vowels

/i/   It is realized as [i], [ɪ], [y].
      [i] – a close front unrounded vowel. It occurs only in open syllables and in closed syllables with final /-ʔ/. It is pronounced long in open syllables and short in closed syllables. Moreover, in closed smooth syllables, it may be pronounced either long or short:
             /pʰi/   [ˈpʰiː ³³]   'four'
             /wi/   [ˈwiː ³³]   'saliva'
             /cʰɨʔkalu/   [ˌtɕʰiʔ ²⁴¹ ka ³³ ˈluː ³³]   'bulbul'

      [ɪ] – a lower close front unrounded vowel. It occurs only in closed syllables with final /-k/ and /-ŋ/:
             /kɛ̆k/   [kɪk˥ ²⁴]   'spirit'
             /wɨ̆ŋ/   [wɪŋː ²⁴]   'rattan'

[y] – a close front rounded vowel. It occurs in one closed syllable with the final /ʔ/:

/kʰʷĩʔ/	[ˈkʰyʔ²⁴]	'to bite'

/e/   It is realized as [e], [ɪ].

[e] – a close-mid front unrounded vowel which occurs only in closed syllables:

/kʰĕʔ/	[ˈkʰeʔ²⁴]	'razor'
/tadĕk/	[ta³³ ˈdek²⁴]	'together'
/kêŋ/	[ˈkeŋː²⁵¹]	'self'

[ɪ] – a higher close-mid front unrounded vowel which occurs only in open syllables:

/ce/	[ˈt͡ɕɪː³³]	'spleen'
/we/	[ˈwɪː²¹]	'question word'
/cʰe/	[ˈt͡ɕʰɪː³¹]	'child'
/pʰe/	[ˈpʰɪː³¹]	'bamboo'

/ø/   It is realized as [ø] – a close-mid front rounded vowel which occurs in open syllables:

/cʰø/	[ˈt͡ɕʰøː³¹]	'water lizard'
/bø/	[ˈbøː³¹]	'cradle'
/du dø/	[duː³³ˈdøː³¹]	'vertical line'

/ɛ/   It is realized as [ɛ] – an open-mid front unrounded vowel which is pronounced long in open syllables and short in closed syllables:

/ʔɛ/	[ˈʔɛː³³]	'fruit'
/dɛŋ/	[ˈdɛŋː²¹]	'drink'
/jĕʔ/	[ˈjɛʔ²⁵¹]	'gun'
/gĕʔ/	[ˈgɛʔ²⁵¹]	'pheasant'

/œ/   It is realized as [œ] – an open-mid front rounded vowel which occurs in closed syllables with final /-ʔ/ and /-ŋ/ and is pronounced short only:

/hœ̆ʔ/	[ˈhœʔ²⁴¹]	'to love'
/jœ̆ʔ/	[ˈjœʔ²¹]	'to nod'
/dœŋ/	[ˈdœŋː³³]	'to fall down'

/ɨ/   It is realized as [ɨ] and [ʉ].

[ɨ] – a close central unrounded vowel which occurs only in closed syllables with final /-k/ and /-ŋ/:

/jɨk/	[ˈjɨk̚²⁵¹]	'sleep'
/nɨŋ/	[ˈnɨŋː³³]	'two'

[ʉ] – a close central rounded vowel which occurs in open syllables beginning with /kʰ-/ and /ʔ-/ and it also occurs in closed syllables beginning with /pʰ-/ and /kʰ-/:

/kʰɨ/	['kʰʉː ³³]	'dog'
/ʔɨ/	['ʔʉː ³³]	'blood'
/pʰʲɨk/	['pʰʉk˥ ²¹]	'to burn'
/pʰɨŋ/	['pʰʉːŋ ³³]	'snake'
/kʰʲɨʔ/	['kʰʉʔ ²¹]	'to bite'

/ə/ It is realized as [ə] – a close-mid central unrounded vowel which is pronounced short in open and closed syllables:

/dədo/	[də ³³ 'doː ³³]	'bald'
/ʔə̆k/	['ʔək˥ ²⁴]	'wood'

/ʌ/ It is realized as [ʌ] – an open-mid central unrounded vowel which is pronounced short in closed syllables:

/makʌ̆ŋ/	[ma ³³ 'kʌŋː ²⁴]	'crazy'
/dʌ̆k/	['dʌk˥ ²⁴]	'cheat'

/a/ It is realized as [a] and [ɑ].

[a] – an open central unrounded vowel which is pronounced long in open syllables and short in closed syllables:

/pʰa/	['pʰaː ³³]	'male (of fowl)'
/ŋa/	['ŋaː ³³]	'I'
/kaŋ/	['kaŋː ³³]	'clf. of tamarind fruit'
/cʰăk/	['t͡ɕʰak˥ ²¹]	'to tattoo'

[ɑ] – an open back unrounded vowel which is pronounced long in an open syllable found in only one word, and it also occurs as the second member of diphthongs /ia/ [iɑ] and /ɨa/ [ɨɑ]:

/mŭlaba/	['muː ²⁵¹ la ³³ bɑː ³¹]	'lightning'
/kʰĩa/	['kʰliɑː ²¹]	'delicious'
/dɨa/	['dɨɑː ²¹]	'tiger'

/u/ It is realized as [u] and [ʊ].

[u] – a high back rounded vowel which is pronounced long in open syllables only:

/nŭ/	['nuː ²⁵¹]	'breasts'
/tʰu/	['tʰuː ³³]	'swamp'

[ʊ] – a lower high back rounded vowel which occurs in open syllables and is pronounced long. Also, it occurs in closed syllables ending with /-k/ when it is pronounced short:

/mu/	['mʊː ³³]	'mushroom'
/kʰŭk/	['kʰʊk˥ ²⁵¹]	'to burn'

/o/ It is realized as [o] and [ʊ].

[o] – a close-mid back rounded vowel which is close to Cardinal Vowel 7. It occurs in open syllables and is pronounced long, and it also occurs in closed syllables ending with /-ŋ/ when it is pronounced short:

/ʔo/	['ʔoː ³³]	'human being'
/koŋ/	['koŋː ³³]	'basket'

[ʊ] – a higher close-mid back rounded vowel which occurs only in closed syllables ending with /-ʔ/ when it is pronounced short:

/pʰŏʔ/   [ˈpʰʊʔ²⁴]   'pig'
/kʰŏʔ/   [ˈkʰʊʔ²⁴]   'coconut'

/ɔ/   It is realized as [ɔ] – an open-mid back rounded vowel which is pronounced long in open syllables and short in closed syllables:

/ŋɔ/   [ˈŋɔː³³]   'five'
/mŏʔ/   [ˈmɔʔ²³¹]   'horse-fly'

Diphthongs

Diphthongs in Gong are rising diphthongs; that is, the second element of the diphthong receives the maximum prominence.

/ia/   It is realized as [iɑː] – a diphthong gliding from a close front unrounded short vowel to an open back unrounded long vowel:

/cʰia/   [ˈt͡ɕʰiɑː³³]   'to give'
/ciaŋ/   [ˈt͡ɕiɑːŋ²³¹]   'bowl'

/ɨa/   It is realized as [ɨɑː] – a diphthong gliding from a close central unrounded short vowel to an open back unrounded long vowel which occurs in open and closed syllables:

/dɨa/   [ˈdɨɑː³³]   'moon'
/dɨa/   [ˈdɨɑː²¹]   'tiger'
/kʰɨaŋ/   [ˈkʰɨɑːŋ²¹]   'swasp'

/uɔ/   It is realized as [uɔ] – a diphthong gliding from a high back rounded vowel to an open-mid rounded vowel and occurs only in closed syllables:

/kʰuduɔŋ/   [kʰuˈduɔ̠ŋ³³]   'hat'
/pʰuduɔŋ/   [pʰuˈduɔ̠ŋ³³]   'forest'

Remarks: In Gong verbs ending with /u/, and so this diphthong /uɔ/ is the result of blending /u/ and the verb suffix, that is, /u/ + /-ʔɔ/ becomes /uɔ/.

/lu   +   ʔɔ/   →   /lùɔ/   'to play'
play   verb suffix

/cʰu   +   ʔɔ/   →   /cʰuɔ/   'to eat'
eat   verb suffix

Tone

Kok Chiang Gong has a tonal system comprising four contrastive tones: two level tones and two contour tones. Phonemically, all tones are presented by using tone markers except mid tone. The four tones are as follows:

Tone 1. / ` / Low [21]
Tone 2. / - / Mid [31], [33]
Tone 3. / ˇ / Low-rising [24], [231, 241, 251]
Tone 4 / ˆ / High-falling [42]

Tone description

The symbols used to demonstrate the pitch pattern are adapted from Y.R. Chao's tone letters.

Tone 1: low tone / ˋ /. The pitch pattern of this tone starts at low pitch, stays at that level for some time and slightly falls down [21]. It can occur in open and closed syllables.

Examples: /bà/   [baː^{21}]   'to hit'

Tone 2: mid tone. The pitch pattern of this tone starts at mid pitch, stays at that level for some time and slightly falls down at the end [31] or [33]. It can occur in open and closed syllables.

Examples: /ba/   ['baː^{33}]   'frog'
              /gɔŋ/   ['gɔŋː^{33}]   'horse'

Tone 3: low-rising tone / ˇ /. It is realized as [24], [231], [241], and [251].

[24]- The pitch pattern of this tone starts just below mid-low pitch then rises to just above mid-high pitch. It can occur in checked syllables.

Examples: /ʔə̌k/   ['ʔək˥ ^{24}]   'wood'
              /kěk/   ['kek˥ ^{24}]   'soul'
              /wǔk/   ['wuk˥ ^{24}]   'rat'
              /hɔ̌ʔ/   ['hɔʔ^{24}]   'bird'

[241]- The pitch pattern of this tone starts just below mid-low pitch then rises to just above high pitch and falls down at the end. It can occur in open and smooth syllables.

Examples: /jě/   ['jeː^{241}]   'field'
              /gɔ̌ŋ/   ['gɔŋː^{241}]   'Gong'
              /jɨ̌ŋ/   ['jɨŋː^{241}]   'house'

Tone 4: high-falling tone / ˆ /. The pitch pattern of this tone starts at high pitch level then falls down to mid-low pitch [42]. It can occur in smooth syllables.

Examples: /jɨ̂ŋ/   ['jɨŋː^{42}]   'father'
              /pʰatʰêŋ/   [ˌpʰa^{33}'tʰeŋː^{42}]   'shoes'

Tone sandhi or tone perturbation

The term "tone sandhi' or "tone perturbation" used here refers to the regular change of tone which is caused by the neighboring tone. The study of tone sandhi in Gong is restricted here to the tone sandhi in environments of more than one syllable and compound words.

Low-rising tone is changed to high tone when it occurs before low tone.

[ʔək^{24}]   +   [t͡ɕʰɨŋ^{21}]   →   [ʔək^{44}]   +   [t͡ɕʰɨŋ^{21}]
'wood'   'tree'   'tree'

Mid tone in second syllable may be changed to low tone when it occurs before high-falling or mid tone.

[ɲa²¹˙ʔaː³³]   +   [wuː⁴²]   →   [ɲa²¹˙ʔaː²¹ wuː⁴²]
'fish'   'bone'   'fish bone'

[tɕʰi²¹ tɕʰiː³³]   +   [pɛːŋ³³]   →   [tɕʰi²¹ tɕʰiː²¹ pɛːŋ³³]
'woman'   'younger sibling'   'younger sister'

Low tone in the first syllable may be changed to mid tone when it occurs before the word with low-rising tone in compound word.

[pʰuː²¹dɔŋː³³]   +   [pʰoʔ²⁴¹]   →   [pʰuː³³dɔŋː³³ pʰoʔ²¹]
'forest'   'pig'   'wild boar'

[pʰuː²¹dɔŋː³³]   +   [woʔ²⁴¹]   →   [pʰuː³³dɔŋː³³ woʔ²¹]
'forest'   'hen'   'wild fowl'

3.   Variation of Gong language

3.1 Sociolinguistic variation

The Gong people of different age groups do not speak in the same way. The variation of the Gong language was studied using a wordlist of 281 basic vocabulary items: the Southeast Asia wordlist, which was adapted and revised by SIL and ILCRD, Mahidol University. Twenty informants were selected and divided into two age groups: the first group was aged over 50, the second group was between 26 to 50 years old. The criteria for selecting the informants were as follows:

1. They are of Gong descent.
2. They all understand both Gong and Thai.
3. They have resided in the village for at least 20 years.
4. They have complete speech organs and good hearing ability.

Economic status and gender of the informants were not taken into consideration as criteria for selection. The age and education factors were taken into account in this investigation because they affect language use. There are also personal varieties showing differing degrees of Lao Khrang influence. The speakers in the middle generation (26-50 years) still use the conservative, while the pronunciation of the younger generation (under 26) has been assimilated to the phonological structure of Lao or Thai. From the study, all Gong adults are bilingual, there is no monolingual speaker in any Gong village whereas the children speak only Lao Khrang and Thai. An analysis of the variation of Gong language is provided below.

3.1.1 Consonant variation of Gong native words

3.1.1.1 Initial consonant variation

The initial consonants in native Gong words used by the younger generation are different from those of the older group, as shown below.

/pʰ-/ → [f-]

The variant of the initial consonant phoneme /pʰ-/ is [f-]. The aspirated bilabial plosive /pʰ-/ in the speech of the elderly people sometimes corresponds to a labio-dental fricative [f-] for the younger group. The examples are as follows:

English gloss	Older speaker (>50)	Younger speakers (26-50)
'flower'	/pʰɨaʔ/[ˈpʰɨaʔ²⁴¹]	[ˈfaʔ²⁴]
'cart'	/pʰe/ [ˈpʰeː³³]	[ˈfeː³³]

/cʰ-/ → [s-]

The variant of the initial consonant phoneme /cʰ/ is [s-]. The variation of this phoneme is more noticeable in the younger group. It is observed that even some of the elderly speakers tend to use [s-] instead of /cʰ-/.

English gloss	Older speaker (>50)	Younger speakers (26-50)
'speak'	/cʰo ~ so/ [ʨʰoː³³ ~ ˈsoː³³]	[ˈsoː³³]
'son'	/cʰe ~ se/ [ʨʰeː³³ ~ ˈseː³³]	[ˈseː³³]
'cloth'	/cʰu ~ su/ [ʨʰuː³³ ~ ˈsuː³³]	[ˈsuː³³]

/h-/ → [kʰ-]

The variant of initial consonant phoneme /h-/ is [kʰ-]. The voiceless glottal fricative /h-/ of the older speakers sometimes becomes the voiceless aspirated velar plosive [kʰ-] for the younger group. The examples are as follows:

English gloss	Older speaker (>50)	Younger speakers (26-50)
'bird'	/hɔ̌ʔ/ [ˈhɔʔ²⁴¹]	[ˈkʰɔʔ²⁴¹]
'with'	/he/ [ˈheː³³]	[ˈkʰeː³³]

/g-/ → [w-]

The younger speakers tend to replace a voiced velar plosive /g-/ with a voiced labial-velar approximant [w-], since it takes more effort to pronounce this sound. However, the older speakers tend to keep this sound because it is a Gong native sound.

English gloss	Older speaker (>50)	Younger speakers (26-50)
'high'	/digɔ̀ŋ/ [ˌdi³³ ˈgɔŋː²¹]	[ˌdi³³ˈwɔŋː²¹]

3.1.1.2   Final consonant variation

The Thai-Lao final consonants such as /-t/ and /-j/ have influenced the Gong final consonant system, as shown below.

/-ʔ/ → [-t]

When the Gong speak Thai-Lao words, a voiceless unaspirated alveolar plosive /-t/ was replaced by a voiceless glottal plosive /-ʔ/ by the older group whereas the younger group used /-t/ as found in Thai-Lao languages.

English gloss	Older speaker (>50)	Younger speakers (26-50)
'temple'	/wăʔ/ [ˈwaʔ^{241}]	[ˈwat^{241}]
'baht'	/băʔ/ [baʔ^{241}]	[ˈbaːt^{21}]

/-ø/ → [-j]

There are only three final consonants in native Gong, /-k, -ʔ, -ŋ/ used by the older group. However, now more final consonants are found occuring in the Gong language, such as [-m, -n, -j, -t], especially in the younger group.

English gloss	Older speaker (>50)	Younger speakers (26-50)
'to get'	/pʰɔ/ [ˈpʰɔː^{33}]	[ˈpʰoj^{33}]
'to go'	/ka/ [ˈkaː^{33}]	[ˈkaj^{33}]

In loanwords from Thai, as to their phonological characteristics, the older group tends to adjust the final consonant:

English gloss	Older speaker (>50)	Younger speakers (26-50)
'money'	/ŋĭŋ/ [ˈŋɨŋː^{241}]	[ˈŋuŋ^{241}]
'dessert'	/ˌkʰanĭŋ/[kʰa^{33}ˈnɨŋː^{241}]	[ˌkʰa^{33}ˈnuŋ^{24}]

3.1.2 Vowel variation

The vowel system of Gong is composed of twelve monophthongs and three diphthongs. Vowel length is not phonemically significant. From this investigation, it was noticeable that variation of the vowels was most frequently found in the younger group.

The variant of the diphthong /ɨa/ is [a]. Monophthongization of this diphthong is carried out by the younger group, whereas the older group still maintains the diphthong.

English gloss	Older speaker (>50)	Younger speakers (26-50)
'flower'	/pʰɨaʔ/ [pʰɨaːʔ^{21}]	[ˈfáʔ^{241}]
'to do'	/kʰɨaŋ/ [kʰɨaːŋː^{33}]	[ˈkʰaŋ^{33}]
'beautiful'	/dɨàŋ/ [dɨaːŋː^{33}]	[ˈdàŋ^{21}]

3.1.3 Syllable structure variation

The younger group tends to omit the first syllable of polysyllabic words.

English gloss	Older speaker (>50)	Younger speakers (26-50)
'firefly'	/tʰùtʰuŋmajĕk/ [tʰu^{33}ˌtʰuŋ^{33}ˌma^{33}ˈjek^{33}]	[tʰuŋ^{33}ˌma^{33}ˈjek$^{¬241}$]
'knife'	/namĭŋ/ [naˈmĭŋː]	[ˈmɨŋ^{241}]

3.2 Dialectal variation

The variation is found in the two main dialects now spoken, Kok Chiang dialect and Khok Khwaj dialect. Kok Chiang phonology is based on my own research (2006), while Khok Khwaj phonology is based on Pusit (1986).

3.2.1 Consonant variation

There are 20 consonant phonemes in both dialects: /p, t, c, k, ʔ, pʰ, tʰ, cʰ, kʰ, b, d, g, h, m, n, ɲ, ŋ, l, w, j/. Even though the number of consonant phonemes in both dialects is the same, different details among these consonants are found.

- Variation between aspirated and unaspirated initial consonants

The aspirated consonants in the Kok Chiang dialect correspond to unaspirated consonants in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'four'	/pʰi/	/pi/
'snake, pus'	/pʰɨŋ/	/pɨŋ/
'water'	/tʰi/	/ti/
'egg'	/kʰ ù/	/ku/

- Variation between /kʰ-/ and /h-/

The voiceless aspirated velar plosive /kʰ-/ in the Kok Chiang dialect corresponds to the voiceless glottal fricative /h/ in the Khok Khwaj dialect. The examples are as follows:

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'banana'	/kʰɔ̌ʔ/ (ʔɛ)	/hɔʔ/ (ʔɛ)
'eight'	/kʰɛ́ʔ/	/hɛ́ʔ/

- Variation between /d-/ and /l-/

The Gong speakers in Kok Chiang pronounce /d/, while those in Khok Khwaj pronounce /l/. Variation between /l/ and /d/ in syllable initial position so observed in the Kok Chiang dialect as spoken by the older generation.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'wind'	/di ~ li/	/li/
'tiger'	/dɨa ~ lɨa	/lá/
'forest'	/pʰùdɔ̌ŋ ~ pʰùlɔ̌ŋ/	/pʰɨlɔŋ/
'worm'	/dóʔ ~ lóʔ/	/lúʔ/

- Variation between /l-/ and /w-/

/l-/ occurs in the Kok Chiang dialect, and corresponds to /w-/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'cigarette'	/bali/	/bɔ́ʔ wí/

- Variation between /n-/ and /d-/

/n-/ occurs in the Kok Chiang dialect and corresponds to /d-/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'little'	/ʔanĕʔ/	/dέʔ/

- Variation between /m-/ and /ml-/

/m-/ occurs in the Kok Chiang dialect and corresponds to the cluster /ml-/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'husband'	/muŋ/	/mloŋ/
'kidney'	/mamik/	/mlêk/

3.2.2 Vowel variation

Besides the variation of consonants, variation of vowel phonemes also occurs. Phonetically, the vowels of the two dialects are slightly different. There are no rounded vowels in the Khok Khwaj dialect. But in the Kok Chiang dialect rounding is an obvious characteristic of five vowels: /ø, œ/, /ɨ/ [ɨ], [ʉ]. As for other vowels, the lower allophones of close and close-mid vowels occur before final consonants /k, ŋ, ʔ/ and overlap with the higher allophone of the next lower vowel in open syllable: that is, [ɪ] is the allophone of /i/ before /k, ŋ, ʔ/ and the allophone of /e/ in an open syllable. Unlike those in the Kok Chiang dialect, a close-mid front unrounded vowel /ι/ and a close-mid back rounded vowel /ʋ/ were interpreted as phonemes. Diphthongs are quite different between the two dialects. In the Kok Chiang dialect, the diphthongs used by the younger generation are nearly identical to those of Thai.

Kok Chiang vowel phonemes (*kc*)

i		ɨ [ɨ],[ʉ]	u
[i],[ɪ]			[u],[ʋ]
e	ø	ə	o
[e],[ɪ]			[o],[ʋ]
ɛ	œ	ʌ	ɔ
		a	

Diphthongs: ia, ɨa, uɔ

Khok Khwaj vowel phonemes (*kk*)

i	ɯ	u
ι		ʋ
e	ə	o
ɛ	a	ɔ

Diphthongs: ia, iɛ, ɛi

- Variation between /ɨ/ and /ɯ, ə/

/ɨ/ [ʉ] occurs in the Kok Chiang dialect and correspondents to /ɯ, ə/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'blood'	/ʔɨ/	/ʔɯ/
'release'	/mɨ̆ŋ/	/mɯ̀ŋʔɔ̌/
'body hair'	/mɨŋ/	/mɯ́ŋ/
'dog'	/kʰɨ/	/kʰɯ́/
'to lead'	/ʔɨŋ/	/ʔə/

- Variation between /e/ and /i/

/e/ occurs in the Kok Chiang dialect and corresponds to /i/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'duck'	/bàtʰè/	/batĭ/
'bee'	/kɔŋcʰe/	/cʰi/
'sickle'	/cʰi wɛ̆ʔ/	/cʰʲiwíʔ/
'to stand'	/jɛ̆ʔ/	/jíʔ ʔɔ̌/

- Variation between /u, ɛ/ and /ɛi/

Both /u/ and /ɛ/ occur in the Kok Chiang dialect and correspond to the diphthong /ɛi/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'iron'	/ʔɛ̀ŋ/	/ʔɛi/
'excrement'	/ʔɛŋ/	/ʔɛi/
'Thai'	/ʔɛ̆ŋ/	/ʔɛi/
'nose'	/nɨ̆tʰɛ̀ŋ/	/nɨ̆tʰɛi/
'younger sister'	/pɛ̀ŋ/	/pɛ̀i/
'winged bean'	/hɨ̆ŋcʰɛ̀ŋ ʔɛ/	/hiŋcʰɛ̆i ʔɛ/

- Variation between /o/ and /ʊ/

/o/ occurs in the Kok Chiang dialect and corresponds to /ʊ/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'chameleon'	/cʰoŋ/	/cʰʊŋ/
'hen'	/wŏʔ/	/wʊ́ʔ/
'three'	/ʔoŋ/	/ʔʊ́ŋ/
'older brother/sister'	/jóʔ/	/jʊ́ʔ/
'pig'	/pʰóʔ/	/pʊ́ʔ/

- Variation between /o/ and /u/

/o/ occurs in the Kok Chiang dialect and corresponds to /u/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'hornet'	/cʰŏʔ/	/cʰúʔ/

- Variation between /ɛ/ and /iɛ, ɛi/

/ɛ/ used in Kok Chiang corresponds to the diphthong /iɛ/ and /ɛi/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'peasant'	/gɛ́ʔ/	/píɛʔ/
'younger sister'	/pɛŋ/	/pɛ́i/

- Variation between /ø, œ/ and /ə/

Either /ø/ or /œ/ used in the Kok Chiang dialect corresponds to /ə/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'sound'	/tʰœŋ/	/tʰəŋ/
'bark'	/gœ̀ʔ/	/kə̀ʔ/
'roll'	/dœŋ/	/dəŋ/
'and'	/bə̀ʔsø/	/bə̀cʰə/
'cradle'	/bø/	/bə/

- Variation between /ɨa/ and /e/

The diphthong /ɨa/ used in the Kok Chiang dialect corresponds to /e/ in the Khok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'sour'	/cɨ̌a/	/ceʔɔ/

3.2.3 Tonal variation

The two dialects have different numbers of tonal phonemes. There are four tones in the Kok Chiang dialect, low level, mid level, low-rising and high-falling tones, and five tones in the Khok Khwaj dialect as in the Thai tonal system, mid level, low level, high level, high-falling and low-rising. The examples of tones in the two dialects are shown below.

- Variation between mid level and high level tones

The mid level tone in the Kok Chiang dialect corresponds to the high level tone in the Kok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'younger sister'	/pɛŋ/	péi/
'male sex organ'	/ni/	/ní/
'urine'	/ji/	/jí/
'palm'	/lɔ̌ʔ pʰi/	/lɔ̌ʔ pí/

- Variation between low-rising and high level tones

The low-rising tone in the Kok Chiang dialect corresponds to the high level tone in the Kok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'navel'	/cɔ̌ʔ/	/cɔ́ʔ/
'bamboo shoot'	/pʰⁱik̄ʰŏŋ/	/picʰɔk̄ɔ́ŋ/

- Variation between high-falling and high level tones

The high-falling tone in the Kok Chiang dialect corresponds to the high level tone in the Kok Khwaj dialect.

English gloss	Kok Chiang dialect	Khok Khwaj dialect
'buttock'	/nikʰâ/	/làkʰá/
'door'	/pʰôŋ/	/póŋ/

4.   Conclusion

4.1   Future developments in phonetic variation

As for the descriptive phonological study of the Gong language, it reveals that there are 20 consonant phonemes: /p, pʰ, b, t, tʰ, d, c, cʰ, k, kʰ, g, ʔ, h, m, n, ɲ, ŋ, l, w, j/, 12 single vowel phonemes: /i, e, ɛ, ø, œ, ɨ, ə, ʌ, a, u, o, ɔ/, three diphthongs: /ia, ɨa, uɔ/ and four tonemes: mid, low, low-rising, high-falling. As for phonetic variation of Gong language among the two age groups, it was discovered that the older generation tends to maintain their mother tongue more than the younger generation. Some initial consonants used by the older generation have been replaced by different consonants in the speaker of the younger generation, such as /pʰ-/ → [f-] (at present [f] is a allophone of /pʰ-/ but it may be in the new inventory of this language). In addition two other changes are noted, namely, /cʰ-/ → [s-], and /h-/ → [kʰ-]. With respect to the variation of final consonants, more final consonants have been found, such as [-m, -n, -j, -t] in the speech of the younger group. As for the variation of vowels, the younger group uses /a/, whereas the older group still maintains the diphthong /ɨa/.

Regarding the variation between Gong dialects, the results show that at the phonemic level the consonant systems of Kok Chiang and Khok Khwaj Gong are similar. That is, there are 20 consonant phonemes: /p, t, c, k, ʔ, pʰ, tʰ, cʰ, kʰ, b, d, g, h, m, n, ɲ, ŋ, l, w, j/. The single vowel and diphthong phonemes of both dialects are slightly different. There are twelve vowel phonemes in Kok Chiang dialect: /i, e, ɛ, ø, œ, ɨ, ə, ʌ, a, u, o, ɔ/ and three diphthongs /ia, ɨa, uɔ/. But there are 11 vowel phonemes in Khok Khwaj dialect: /i, ɪ, e, ɛ, ɯ, ə, a, u, ʊ, o, ɔ/, and also three diphthongs: /ia, iɛ, ɛi/. As for tonemes, a different number of them is noted in each dialect; four in Kok Chiang dialect: low level, mid level, rising and falling, but five tonemes in Khok Khwaj dialect which is the same as in the Thai tonal system: mid level, low level, high level, low-rising and high-falling.

4.2 Comparison of present study's findings with those of Bradley (1989)

This phonological investigation of Gong at Kok Chiang Village reveals that it is quite different from what Bradley (1989) found. In this investigation, /cʰ-/ is chosen for /s-/ due to the symmetry of aspiration. Regarding vowels, Bradley defines [ø] and [œ] as two allophones. However, this investigation reveals that the two have become two distinct phonemes because minimal pairs can be found to support the claim. From a comparative study of the dialect in two villages, it is discovered that the half close and mid front rounded vowels at Khok Khwaj village have become distinctive phonemes, whereas Bradley claims they are only allophones.

4.3 Developing a writing system for an endangered language

Developing a writing system for Gong cannot be done without an accurate description of its phonological system, as written language can fasten a concrete cultural identity and act as a very effective means for communication. Moreover, written language can help prevent or retard the demise of endangered languages; it may also help preserve minority languages from endangerment by recording existing language for future generations and it can slow down the changes and even the death of languages as is occurring rapidly around the globe at present. Thus, written language can and will preserve and revitalize an endangered language to a certain extent. In a future publication I will have more to say about the Gong writing system.

REFERENCES

Bradley, D. 1975. "Laho dialect and proto-Loloish." Ph.D. dissertation, University of London.

Bradley, D. 1978. "Identity, dialect and sound change in mBisu and Ugong." *Working Papers in Linguistics,* 4:37-46. University of Melbourne.

Bradley, D. 1981. "Majority-minority linguistic interfaces in Thailand." *Working Papers in Linguistics,* 7:79-86. University of Melbourne.

Bradley, D. 1983. "Identity: the persistence of minority groups." In J. Mckinnon and W. Bhruksasri, eds., *Highlanders of Thailand,* 46-55. Kuala Lumpur: Oxford University.

Bradley, D. 1985. "Traditional minorities and language education in Thailand." In Bradley, ed., *Language Policy, Language Planning and Sociolinguistics in South-East Asia.* Papers in *South-East Asian Linguistics No. 9.* Canberra: Pacific Linguistics A-67:87-102.

Bradley, D. 1989. "Dying to be Thai: Ugong in western Thailand." *La Trobe Working Papers in Linguistics* 2:19-28.

Bradley, D. 1996. "Phonological convergence in a minority language: Ugong in Thailand." In E. Schiller, ed., *Southeast Asia as a Linguistic Area.* Chicago: Linguistics Society press.

Bradley, D. 2000. "Language attitudes: The key factors in language maintenance." In Bradley & Bradley, eds., *Language Maintenance for Endangered Languages: An Active Approach,* Curson Press. (pp.86-93)

Crystal, D. 2000. *Language Death.* Cambridege: Cambridge University Press.

Dorian, N. (ed.). (1989). *Investigating Obsolescence: Studies in Language Contraction and Death.* Cambridge: Cambridge University Press.

Kerr, A.F.G. 1927. "Two Lawa vocabularies." *Journal of the Siam Society* 21(1):53-63.

Krauss, M. 1992. "The world's languages in crisis." *Language* 42:4-10.

Laver, J. 1994. *Principles of Phonetics.* Cambridge: Cambridge University Press.

Mayuree Puapunsuddee. 1993. "Verb in Ugong." M.A. thesis, Institute of Language and Culture for Rural Development, Mahidol University.

Mayuree Thawornpat. 2006. "Gong: An Endangered Language of Thailand." Ph.D. dissertation, Institute of Language and Culture for Rural Development, Mahidol University.

Nitasakorn Shiwaruangrote. 2000. "A Phonological study of Yangon Burmese." M.A. thesis, Institute of Language and Culture for Rural Development, Mahidol University.

Pike, K. L. 1976. *Phonemics: A Technique for Reducing Languages to Writing.* Ann Arbor: University of Michigan.

Pusit Rujjanavet. 1986. "The Phonology of Ugong in Uthaithani Province." M.A. thesis, Faculty of Graduate Studies, Mahidol University.