

# Phonological variation and change in the Khmu dialects of northern Thailand<sup>1</sup>

SUWILAI Premsrirat  
Mahidol University

Although in Thailand Khmu is just a small ethnic minority, a remnant of a much bigger group in Laos, Khmu dialects are scattered along the Thai-Lao border in Nan and Chiengrai provinces and provide an ideal subject for the study of phonological variation and the so-called “register-tone development process.” Synchronic variation can often indicate diachronic change. Cross-dialectal phonetic variation has important implications for Khmu historical phonology.

The Khmu in Chiengrai emigrated from Laos across the Mae Khong river to Thailand about 40-50 years ago; the Khmu in Nan have lived in their present and nearby locations for a long time. Some of them may have moved down from old villages further north. Some knew that their ancestors came from the Luangprabang area in Laos. There are about 10 Khmu villages in Chiengrai with a population of about 3,000 speakers, whereas in Nan there are about 20 villages with about 6,000 speakers. The synchronic structures of various Khmu dialects differ from one another phonologically, lexically, and syntactically. Speakers of one dialect do not have much contact with speakers of other dialects, which they call /tmó:j/, but they do have contact with the Khmu of the same dialect, which they call /kúnj tá:j kúnj hé:m/ ‘sister villages’. On the other hand, they have a lot of contact with local Tai speakers living in the same area who are mainly Northern Thai and Tai Lue.

This paper analyzes phonological variation in five Khmu dialects. These dialects are spoken in the following villages:

1. Huey Yen village, Chiengkong district, and Huey Ian village, King Wiengkaen district, Chiengrai province = Dial (1)<sup>2</sup>
2. Nam Pan, Huey Moy villages, King Songkhwai district, Nan province = Dial(2a)<sup>3</sup> and Ban Maj Chajdan village, King Songkhwai district, Nan province = Dial(2b). These two dialects are in fact the same dialect, but while the Dial(2a) may have several word structures for one word, Dial(2b) has only one consistent word structure.

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<sup>2</sup>The data for this dialect is based on the author’s *Thai-Khmu-English Dictionary*, 1993.

<sup>3</sup>The data for this dialect is based mainly on Preedaporn Srisakorn’s *The Sound System of Khmu at Nampan in Nan*, 1984.

3. Nam Sot and Phu Kham villages, Thung Chang district, Nan province = Dial(3)  
 4. Pa Phae village, Wieng Sa district, Nan province = Dial(4)  
 5. Huey Puk and Huey Hai villages, Muang district, Nan province = Dial(5)

The phonological structure of these Khmu dialects is discussed here in terms of word and syllable structure, and segmental and suprasegmental phonemes. The data used for discussion here was mainly obtained or rechecked from the field work done in February 1994. The informants for each dialect are over 35 years of age.

## 1. Word and syllable structures

The Khmu syllable structure comprises one or more consonants and a vowel and may be of two types, unstressed presyllable and stressed main syllable. The main syllable canon is 'C(C)V(C).

A phonological word in Khmu may have one, two, or three syllables. A word has only one strong stress, which is always on the last syllable. The phonological word structures in Khmu are:

Monosyllabic word 'C(C)V(C):	[tʰrá:k]	'buffalo',
	[ra:]	'to wash',
	[pɔh]	'dust'
Disyllabic word C(C)V(C) 'C(C)V(C):	[kim'pɔŋ]	'head',
	[lawɑŋ]	'sky',
	[m'raŋ]	'horse',
	[ŋ'kur]	'storm'
Trisyllabic word C(C)V, C(C)V(C)'C(C)VC:	[trə,lap'tá:p]	'butterfly',
	[cə,lɛn'tɛŋ]	'dragonfly'

In general, monosyllabic and disyllabic words are common, and trisyllabic words are rare. The presyllable in most of the disyllabic words is generally believed to be a fossil of affixation, a Mon-Khmer characteristic. As shown in the variation of word structures in Khmu dialects below, the unstressed presyllable is sometimes deleted either partially or entirely.

### 1.1 Variation of word structures in different Khmu dialects

Word structures may vary in different Khmu dialects as shown in the following table. In Dial (2b) words are monosyllabic, whereas in the other dialects they are either monosyllabic or disyllabic.

Dial(1)	Dial(2)	Dial(3)	Dial(4)	Meaning
	(a)	(b)		
cmkɪn	cmkɪn	kin	smkɪn	'female'
	mkɪn			
hʔiər	hʔiər	ʔiər	ʔiəj	'chicken'
khmuʔ	khmuʔ	muʔ	khmuʔ	'Khmu people'
			kamhmuʔ	

ptəʔ	ptəʔ	təʔ	ktəʔ	ptəʔ	‘smoke’
smʔir	mʔir	ʔir	ʔil	hʔir	‘to smell’
tmrəʔ	mrəʔ	rəʔ	tmphlaʔ/ mpaʔ	tmbraʔ	‘charcoal stove’
chʔaŋ	chʔaŋ	ʔaŋ	sʔâŋ	cʔaŋ	‘bone’
cmpiəŋ	mpiəŋ	piəŋ	mpiəŋ	cmpiəŋ	‘straw’
hʔeʔ	hʔeʔ	ʔeʔ	ʔéʔ	hʔeʔ	‘firewood’
kmaʔ	kbaʔ	maʔ	kmáʔ	kmaʔ	‘rain’
kmlə:t	mlə:t	lə:t	mpə:t	kmlə:t	‘to swallow’
kmɲəŋ	mɲəŋ	ɲəŋ	smjaŋ/ kmjaŋ	ɲəŋ	‘to listen’
kntiŋ	ntiŋ	tiŋ	ktiŋ	tiŋ	‘to fall down’
kntuər	ntuər	tuər	ntûəl/j	kntuəl	‘neck’
pnir	pdir	nir	pnil/j	pnir	‘wing’
pnsim	nsim	sim	psim	psim	‘to plant’
ŋkəʔ	ŋkəʔ	kəʔ	ŋkoʔ	ŋkoʔ	‘husked rice’
scaŋ	scaŋ	caŋ	kacâŋ/ kachâŋ	sacaŋ	‘elephant’
tmʔas	mʔas	ʔas	tmbeh	tmʔes	‘to sneeze’
tmkəʔ	tmkəʔ	kəʔ	mphláʔ/ mpáʔ	mbraʔ	‘wife’

It is obvious that Dial(1) has the fuller form of disyllabic words, whereas Dial (2) has variations. Most words in Dial(2a) have disyllabic structure, though in many cases the initial consonant of the presyllable is lost and the presyllable becomes a syllabic nasal, whereas Dial(2b) drops most of the presyllable, thus producing monosyllabic words. Dial(3) and Dial(4) also show variation in the word structure, though not as obvious and consistent as Dial(2).

### 1.2 Variation of word structure within Dialect (2a)

Looking at the word structure within a dialect, we see variation is similar to that found between different dialects. The main differences are found in the loss of the presyllable (including the nasal syllable), the simplification of the consonant cluster, some difference in vowels, and differences in pitch level. Dial(2a) provides a good illustration.

#### 1.2.1 Loss of presyllable

In Dial(2a) some of the presyllables which are not stressed have variant forms, which show various stages of syllabicity: full syllable, half syllable, deletion of the whole syllable, or keeping only the main syllable.

1 (2 syllables)	~	2 (1 1/2 syllable)	~	3 (1 syllable)	Meaning
prliə	~	rliə	~	liə	‘fire’
cmkin	~	mkin	~	kin	‘woman, girl’
crŋaj	~	rŋaj	~	ŋaj	‘to have a cold’
prthuh	~	rthuh	~	thuh	‘carelessly’
prci:	~	rci:	~	ci:	‘to remember’
prnə:j	~	rnə:j	~	nə:j	‘fan’

tmkɔʔ	~	mkɔʔ	~	kɔʔ	‘wife’
kamraŋ	~	mraŋ	~	raŋ	‘horse’
hmteʔ	~	mteʔ	~	teʔ	‘to howl’
rmheʔ	~	rheʔ/mheʔ	~	heʔ	‘sinew, vessel’
m̄kɔʔ	~	ŋkɔʔ	~	kɔʔ	‘milled rice’

Speakers of different age groups do not pronounce the words in the same way. The speakers over 30 tend to use the fuller form of disyllabic words as in columns 1 and 2 above, whereas people younger than 30 tend to use monosyllabic words dropping the presyllable as in column 3.

### 1.2.2 Loss of syllabic nasal

mpur	~	pur	‘skin’
nchim	~	chim	‘soft’
ŋkhi:n	~	khi:n	‘yesterday’
pleʔ mpi:r	~	pleʔ pi:r	‘pumpkin’
ntheʔ	~	theʔ	‘below’
mɲɛŋ	~	ɲɛŋ	‘to listen, believe’
nthɛh	~	thɛh	‘bowl’
nsim	~	sim	‘to plant’
mkɪn	~	kin	‘woman’
ntaŋ	~	taŋ	‘brain’
mraŋ	~	raŋ	‘horse’
nsal	~	sal	‘galanga (a kind of spice)’
nlah	~	lah	‘to be broken’
ŋkɔ:t	~	kɔ:t	‘to cough’
mphɔʔ	~	phɔʔ	‘ox’
mpon	~	pon	‘head’
mrɔʔ	~	rɔʔ	‘male’

### 1.2.3 Change in consonant clusters

Consonant clusters /tr-, thr-, cr-, chr-, sr-/ change to /kr-, khr-/ and any nasal presyllable is lost.

tra:k	-->	kra:k	‘buffalo’
trəh	-->	khrəh	‘to pull out’
crip	-->	krip	‘to close the lid’
chruʔ	-->	khruʔ	‘deep’
sreʔ	-->	khreʔ	‘sand’
sraʔ	-->	khraʔ	‘a kind of edible plant’
sroʔ	-->	khroʔ	‘taro’
sruət	-->	khruət	‘morning’
nthri:k	-->	khri:k	‘a kind of peel eaten with betel’
nthru:p	-->	khru:p	‘to turn upside down’
nthriŋ	-->	khriŋ	‘horn’
nthri:	-->	khri:	‘to demolish, collapse’
nthrə:j	-->	khrə:j	‘wind’
nthriəs	-->	khriəs	‘to comb’
knthru:ŋ/	-->	khru:ŋ/	‘back, roof’
nthru:ŋ			

### 1.2.4 Change of vowel from ə to a in presyllable

pənpɪk	-->	panpɪ:k	'to make the water muddy'
pənsɛh	-->	panseh	'to cause to fall'
pəntrɪm	-->	pantrɪm	'to cause to be smooth'
pənkɰɑː	-->	pankɰɑː	'to cause to be straight'
pənlɑːc	-->	panlɑːc	'to loose'
pənlɑːh	-->	panlɑːh	'to cause to be broken'
pənpak	-->	panpak	'to cause to be broken'

### 1.2.5 Change of pitch level from high to low

rəkét	-->	rəkèt	'to think'
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## 2. Segmental phonemes

### 2.1 Consonants

#### 2.1.1 Initial consonants

The general initial consonant system may be charted as follows.

		Bilabial	Alveolar	Palatal	Velar	Glottal
Stops	vl. unasp.	p	t	c	k	ʔ
	vl. asp.	ph	th	ch	kh	
	vd.	b*	d*	ʃ*	g*	
Fricatives			s			h
Nasals	vd.	m	n	ɲ	ŋ	
	vl. (preasp.)	hm*	hn*	hɲ*	hŋ*	
Lateral	vd.		l			
	vl. (preasp.)		hl*			
Trill/Flap	vd.		r*			
	vl. (preasp.)		hr*			
Approximants	vd.	w		j		
	vl. (preasp.)	hw*		hj*		

The \* marks initial consonants that do not occur in all dialects.

While the consonant inventory of most Khmu dialects is basically similar, there are also important differences. Some dialects have the series of voiced initial stops contrasting with voiceless stops, some have voiceless continuants contrasting with voiced continuants, which are more common. In the following examples Dial(4) provides examples with voiced initial stops, whereas Dial(3) and Dial(4) provide examples with voiceless continuants.

It should be noted here that in the voiced stop series, the *b* and *d* in Dial(1) are clearly implosive, Dial(2) and (3) have normal voiced stop, and Dial(4) is a kind of prenasalized stop. An instrumental study on certain consonants may be needed.

Examples given below present variation in initial consonant of different dialects.

a) Variation in the initial stops with voiceless aspirated, voiceless unaspirated and voiced stops in contrast.

Dial(1)	Dial(2)	Dial(3)	Dial(4)	Meaning
pri?	phri?	kɔŋ pli?/pi?	bri?	'forest'
pax	phax	pha:l/j	baɾ/l	'two'
kaŋ	khəŋ	kaŋ	gaŋ	'house'
kuŋ	khəŋ	kùŋ	guŋ	'to see'
pu:c	phu:c	pu:c/t	bu:c	'rice wine'
pa:	pha:	pa:	ba:	'you female'
ki:	khi:	ki:	gi:	'here'
kɪt	khit	kɪt	git	'to chop'
klaŋ	khlaŋ	klàŋ	glaŋ	'stone'
kle?	khle?	klè?/kè?	gle?	'husband'
klə?	khlə?	klà?/kà?	glə?	'hair'
ktah	kthah	ktah	kdah	'forehead'
plu?	phlu?	plù?/pù?	blu?	'thigh'
pləŋ	pləŋ	plòŋ/pòŋ	bləŋ	'rattan'
pok	phok	pòk	bok	'to cut a tree'
poh	phoh	poh	boh	'ash'
prɪəl	phrɪəl	phiəl/j	biər	'to be alive, living'
prɪəŋ	phrɪəŋ	prɪəŋ/piəŋ	briəŋ	'other people'
pu?	phu?	pù?	bu?	'breast feeding'
puŋ	phuŋ	pùŋ	buŋ	'mud'
tən	thən	ten	den	'to sit'
tɪn	thɪn	tìn	din	'to stand'

b) Variations in voiced and voiceless continuants. Not only *r ~ hr ~ l ~ hl ~ h*, but also *w ~ hw*, *N ~ hN*, and *m ~ hm ~ sm* are in variation in different dialects, and in some cases they are also used in free variation in the same dialect, especially in Dial(3) and Dial(4).

Dial(1)	Dial(2)	Dial(3)	Dial(4)	Meaning
la?	la?	hlá?	hla?	'leaf'
loŋ	loŋ	hlónŋ	hloŋ	'to forget'
riəŋ	riəŋ	hlíəŋ	hriəŋ	'gut, intestine'
ro:j	ro:j	ró:j/hó:j	hro:j	'ghost, spirit'
raŋ	raŋ	hláŋ	hraŋ	'teeth'
re?	re?	hré?/hlé?/hé?	hre?	'field'
wək	wək	wák	hwək	'earthworm'
wa?	wa?	wá?	hwa?	'monkey'
ntək	ntək/ta:k	nták	hntək	'tongue'
ŋap	ŋap	há:p	hŋap	'to yawn'
nam	nam	nám	hnam	'big'
mɛ?	mɛ?	me?	hme?	'new'
smpɔ:r	mpɔ:r/pɔ:r	-	hmpɔ:r	'tamarind'
			hrja?/hja?	'cloth bag'
khmu?	khmu?/mu?	khmú?	kmhmu?	'Khmu people'

c) Variation in the use of consonant clusters:

Dial(1)	Dial(2) (a)	Dial(2) (b)	Dial(3)	Dial(4)	Meaning
tra:k kraŋ	thra:k khraŋ	kra:k khraŋ	thrá:k/thá:k khraŋ/khlay/ khaŋ	thra:k graŋ	'buffalo' 'strong'
cntraŋ cɽiəs cru? kle? klə?	ntraŋ chriəs chrɿ?/trɿ? khle? khlə?	khraŋ khiəs khrɿ?/khu? khle? khlə?	nthraŋ/nthàŋ nthriəs chrù? klè?/kè? klə?/kə?	ntraŋ nciəs ɽru? gle? glə?	'post' 'to comb' 'deep' 'husband' 'to see'

d) Variation in the initial consonant of presyllable:

Dial(1)	Dial(2)	Dial(3)	Dial(4)	Meaning	
chʔaŋ cmkin cmrɔ? cntah	cʔaŋ mkin mrɔ? cntah	ʔaŋ kin rɔ? tah	sʔaŋ smkín smphrò? sntáh/sntáh	cʔaŋ cmkin cmrɔ? cntah	'bone' 'female' 'male' 'shrimp'

e) Variation in other initial consonants:

Dial(1)	Dial(2)	Dial(3)	Dial(4)	Meaning
ʔiək hʔiər nɛ? cat ɽiəŋ hʔiɽ hʔiə	ʔiək hʔiər/ʔiər nɛ? cat chiəŋ hʔiɽ/ʔiɽ hʔiə/ʔiə	jiək ʔiəj ɽɛ?/jɛ? ját/cát - ʔiɽ/khʔi:ɽ jiə/ʔiə	ʔiək ʔiəj/jiəl ɽɛ? cát jiəŋ hʔiɽ hʔiə	'to drink' 'chicken' 'small' 'sour' 'foot' 'good smell' 'sweet'

2.1.2 Final Consonants

The general final consonant system may be charted as follows.

	Labial	Alveolar	Palatal	Velar	Glottal
Stop	p	t	c*	k	ʔ
Fricative		s*			h
Nasal	m	n	ɽ*	ŋ	
Trill/Flap		r*			
Lateral		l			
Semivowel	w			j	

The \* marks final consonants which do not appear in all dialects.

Among these four Khmu dialects the following final consonant correspondences have been found:

		Dial(1, 2, 4)	Dial(3)		
		-r	-l, -j		
		-l	-j		
		-ɲ	-n, (-ɲ)		
		-c	-t		
		-s	-h		
Dial(1)	Dial(2)	Dial(3)	Dial(4)	Meaning	
maɾ	maɾ	mâ:j	maɾ	'salt'	
mɤɾ	mɤɾ	mal/maj	mar	'snake'	
kntuəɾ	ntuəɾ	ntûəl/ntûəj	kntuəl	'neck'	
cɯɾ	chɯɾ	cù:l/cù:j	cux	'to go down'	
kɪɾ	kɪɾ	kǐj	kɪɾ	'thunder'	
kɔɾ	khɔɾ	kol/koj	gor	'to scratch with finger nail'	
mpiəɾ	mpiəɾ/piəɾ	mpîəl/mpîəj	mpiəɾ	'flat bamboo tray'	
pɤɾ	phɤɾ	pəl/pəj	baɾ	'two'	
pliəɾ	pliəɾ	pîəl/pîəj	mpliəɾ/pliəɾ	'hail'	
pnɪɾ	pdir/nɪɾ	pnîl/pnîj	pnɪɾ	'wing'	
tɪɾ	tɪɾ	tîl/tîj	tɪɾ	'to fly'	
huəl	huəl	húəl/húəj	huəl	'bear'	
kuəl	khuəl	kûəl/kuəj	kuəl	'rice mortar'	
pɤɲ	phɤɲ	pɤɲ/paɲ	baɲ	'to get drunk'	
piɲ	piɲ	piɲ/piɲ	piɲ	'to shoot a gun'	
plec	plec	plét	plec	'to clean inner part'	
tmʔas	mʔas/ʔas	tmbéh	tmʔɛs	'to sneeze'	

### 2.1.3 Age-conditioned variants

In Nam Sot, Thung Chang district, Nan province, (Dial3) there is a clear difference in pronunciation between people over 30 years old and those under 30.

#### 1) Initial consonants

a) The simplification of consonant clusters: *pl-*, *phl-*, *thl-*, *kl-*, and *khl-* become *p-*, *ph-*, *th-*, *k-*, *kh-* respectively, as in the following example:

Over 30	Under 30	Meaning
pléʔ/péʔ	pléʔ/péʔ	'fruit'
mplə:t	mpə:t	'to swallow'
pléc/péc	pét	'to clean the internal organs of animal'
plîət	pîət	'to cut short (the wood)'
pla:	pla:/pa:	'to cook by mincing raw meat'
pleh	peh	'flat taste'
phlíʔ	phíʔ	'peppery hot'
kɔɲ phliʔ	kɔɲ phiʔ	'forest'
phliɲ	phiɲ	'drum'



phli:ŋ	phi:ŋ	'drum'
thlâ:k	thâ:k	'buffalo'
nthlaŋ	nthaŋ	'post'
nthlòh	nthòh	'to be boiled'
nthliŋ/nthiŋ	nthiŋ	'horn'
kləʔ	kəʔ	'hair'
klà:ŋ/kà:ŋ	klà:ŋ/kà:ŋ	'stone'
klép/kép	kép/kép	'shoulder'
klèʔ	klèʔ/kèʔ	'husband'
klíh	kíh	'to do wrong'

b) The loss of the lateral articulation leaving only the glottal fricative: *hl ~ h*

Over 30	Under 30	Meaning
hlà:ŋ	hlà:ŋ/hà:ŋ	'tooth'
hlîəŋ/hîəŋ	hîəŋ	'intestine'
hli:	hi:	'to pull'
hla:	ha:	'to wash'
hlə́h/hə́h	hə́h	'to get up'
hléʔ	héʔ	'field, farm'

c) Other correspondences: *ʔ ~ j, c ~ s, ch ~ th ~ s, k ~ kh, and ɲ ~ j*

Over 30	Under 30	Meaning
ʔiək	j̄iək	'to drink'
caliəŋ/cal̄iəŋ	caliəŋ/saliəŋ	'roofing grass'
can̄im	can̄im/san̄im	'medicine'
chimk̄in	thimk̄in/simk̄in	'female'
calɛʔ/salɛʔ	salɛʔ	'to run'
chiəŋ	siəŋ	'pig'
kamjaŋ/kamjaŋ	khamjaŋ	'to listen'

2) Final Consonants

The variation between final *-l* and *-j*, occur in words in Dial 3 which have a final *-r* in other dialects.

Dial(1)	Dial(3)		Meaning
	Over 30	Under 30	
m̄ar	mal	maj	'snake'
h̄iər	ʔiəl	ʔiəj	'chicken'
p̄nir	pən̄il	pən̄ij	'wing'
mp̄ur	mp̄ul	mp̄uj	'skin'
k̄ntuər	nt̄uəl	nt̄uəj	'neck'
kh̄u:l	kh̄u:l	kh̄u:j	'hair'
kt̄əl	kət̄əl	kət̄ej	'stomach'
mp̄iər	mp̄iəl	mp̄iəj	'bamboo tray'
kuəl	k̄uəl	k̄uəl/k̄uəj	'rice mortar'
ɲ̄ar	ɲ̄əl	ɲ̄əj	'way'

p̄a:r	p̄a:l	p̄a:j	'two'
k̄o:r	k̄o:l	k̄o:j	'to scratch'
kwa:l	kwa:l	kwa:j	'to bark'
hu:r	hu:l	hu:j	'to blow'
t̄i:r	t̄i:l	t̄i:j	'to fly'
c̄u:r	c̄u:l	c̄u:j	'to go down'
hi:l	hi:l	hi:j	'to vomit'
hu:r	hu:l	hu:j	'rotten'
h̄e:l	h̄e:l	h̄e:j	'to cut grass'
ha:l	ha:l	ha:j	'to peel with knife'
ŋa:r	ŋa:l	ŋa:j	'cool'

It should be noted that for many people *-r*, *-l* and *-j* seem to be in free variation. They may prefer one sound, but they are ready to change to the other two sounds, if they are speaking to people who use those sounds. Final *-r* occurs in Dial(3), but only in the speech of older people who use it in free variation with *-l*.

For other final consonants, final *-ŋ* has also been found corresponding to *-n* or *-ŋ*.

samêŋ	samên	'star'
pîŋ/pîŋ	pîŋ	'to shoot'
kûŋ	kûn	'to see'
kêŋ	kên	'to stab'

## 2.2 Vowels

The Khmu vowel system is rather simple. Most dialects have a nine vowel system in which length is contrastive, and there are three diphthongs. Only some dialects have the long central back vowel  $\Lambda$ :

	Front		Unrounded Central		Back	Rounded Back	
High	i	i:	ɨ	ɨ:		u	u:
Mid	e	e:	ə	ə:		o	o:
Low	ɛ	ɛ:	a	a:	* $\Lambda$ :	ɔ	ɔ:
	iə		ɨə			uə	

## 3. Suprasegmental phonemes

Suprasegmental phonemes in Khmu are rather complex. Both within dialects and between dialects of Khmu they are very complex.

Using register, based on Henderson (1952), as a framework in which to explain Khmu suprasegmental features, we can arrive at the solution.

Register (also called register complex) refers to the linguistic phenomenon that several suprasegmental features tend to work together as a complex group, rather than as individual features. In Mon-Khmer languages these clustering features tend to include voice quality, pitch, voicing of the initial consonant, vowel height,

and vowel gliding. The voice quality ranges from breathy to clear (modal) to creaky. The pitch ranges from high to mid to low. The voicing refers to voiced and voiceless initial consonants. The vowel height refers to close or open vowels. The vowel gliding refers to onglide, plain, and offglide. The tension refers to tenseness and laxness. The register complex affects the whole syllable not just the vowel. Normally, one or two features of the register complex will become more prominent in one language.

The four Khmu dialects discussed plus Dial(5) provide examples for discussion here. they contain most of the suprasegmental features just mentioned. However, different features have been exploited by different dialects. The voicing contrast is exploited by Dial(4), while voice quality is exploited by Dial(1) and (2), and in Dial(2) some initial stops are aspirated. Dial(3) and Dial(5) contrast high and low pitches.

Dial(1)	Dial(2a,b)	Dial(3)	Dial(4)	Dial(5)	Meaning
caŋ	chaŋ	càŋ	jaŋ	càŋ	'to weigh'
caŋ	caŋ	cáŋ	caŋ	cáŋ	'to be astringent'
kuŋ	khuŋ	kùŋ	guŋ	kùŋ	'to see'
kuŋ	kuŋ	kúŋ	kuŋ	kúŋ	'elder male relative'
ŋə?	ŋə?	ŋò?	ŋə?	ŋò?	'to fear'
ŋə?	ŋə?	ŋó?	hŋə?/hə?	ŋó?	'paddy rice'
puc	phuc	pù:c/pù:t	buc	pù:c	'rice wine'
puc	puc	pú:c/pút	puc	pú:c	'to take off'
cam	cham	càm	jam	càm	'to soak in water'
cam	cam	cám	cam	cám	'a kind of trap'
klaŋ	khlaŋ	klàŋ	glaŋ	klàŋ	'stone, pebble'
klaŋ	klaŋ	kláŋ	klaŋ	kláŋ	'eagle'
la?	la?	-	la?	là?	'to go for pleasure'
la?	la?	hlá?	hla?	lá?	'leaf'
pa:t	pha:t	pà:t	ba:t	pà:t	'to sharpen wood'
pa:t	pa:t	pá:t	pa:t	pá:t	'to slice (meat)'
pa:k	pha:k	pà:k	ba:k	pà:k	'to ride'
pa:k	pa:k	pá:k	pa:k	pá:k	'to break'
pləŋ	phləŋ	plòŋ/pòŋ	bləŋ	plòŋ	'rattan'
pləŋ	phləŋ	plóŋ/póŋ	pləŋ	plóŋ	'calf of leg'
pək	phək	pòk	bok	pòk	'to cut a tree'
pək	pək	pók	pok	pók	'to take a bite'
pə?	phə?	pò?	bə?	pò?	'to carry a baby with piece of cloth'
po?	pho?	-	po?	pó?	'to sweep'
puŋ	phuŋ	pùŋ	buŋ	pùŋ	'mud'
puŋ	puŋ	púŋ	puŋ	púŋ	'to blow (instrument)'
pu:m	phu:m	pù:m	bu:m	pù:m	'to chew'
pu:m	pu:m	pú:m	pu:m	pú:m	'to fart'
raŋ	raŋ	laŋ	raŋ	ràŋ	'flower'
raŋ	raŋ	hláŋ/haŋ	hraŋ	ráŋ	'tooth'
taŋ	thaŋ	saŋ?	daŋ	tàŋ	'to run'
taŋ	taŋ	-	taŋ	táŋ	'rattan band for carrying basket'
wək	wək	wà:k	wək	wà:k	'earthworm'
wək	wək	-	hwək	wá:k	'to be chipped'
wat	wat	wà:t	wat	wà:t	'to pierce'
wat	wat	wát	hwat	wát	'to throw'

Dial(5) has been added here to show another dialect of Khmu which is very close to Dial(1), but in Dial(5) pitch is contrastive, while in Dial(1) voice quality is contrastive. The difference between Dial(1) and Dial(5) is quite obvious from auditory impression, as well as from the speakers' intuition.

The variation of suprasegmental features in different Khmu dialects indicates an aspect of the historical development of Khmu phonology. Huffman's hypothesis of stages of register complex in 15 Mon-Khmer languages (1976) can be partly applied in explaining the stages of phonological change or the register-tone development process in Khmu.

Dial(4), with voicing contrast in the initial consonant, shows the early stage of the development. The voiced and voiceless initial consonants with no vowel difference show this dialect is a conservative type of dialect.

Dial(1) and Dial(2), with voice quality contrast, indicate that the initial consonant has lost the voicing and the whole syllable is associated with the register complex, especially laxness and tenseness. It is noticeable that the laxness or breathiness is stronger in words with initial stops. Initial stops in Dial(2) are also associated with aspiration as well as the laxness.

Dial(3) and Dial(5), with pitch contrast, show that the initial consonants have lost the voicing contrast. Acoustic studies have found that voiced consonants are associated with low pitch, whereas voiceless consonants are associated with high pitch, and in Khmu this is the normal interdialectal correspondence. Dial(5) has obviously two contrastive tones, whereas Dial(3) has two contrastive tones with the tendency to develop a four tone system. Dial(5) is similar to Dial(1) in terms of syllable structure, choice of lexicon, and final consonants, etc. However, for the suprasegmental feature it has developed a contrastive tone system, whereas Dial(1) has developed a contrastive register system.

As a result, some dialects of Khmu, such as Dial(3) and Dial(5), have become tone languages. The presyllable is reduced in one way or another, phonation is less prominent or even disappears; but the pitch differences can be heard clearly. These are high and low tones with a tendency to develop a four tone system in Dial(3). Other dialects are at different stages of the process. Dial(1) has developed a tense-lax register system in the same way as Dial(2a, b), except that the latter has added aspiration to the initial stop of the lax/breathy register syllable. Dial(4) is the most conservative by retaining the voicing contrast. It is a non-tonal non-register language.

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Institute of Language and Culture  
for Rural Development  
Mahidol University at Salaya  
Nakhon Pathom, Thailand  
lcspm@mahidol.ac.th