TOWARD CONTRASTIVE ANALYSES BETWEEN THAI AND HILL TRIBE LANGUAGES: SOME PHONETIC DATA

Herbert C. Purnell, Jr.

INTRODUCTION[1]

Over the past several years an increasing amount of attention has been focused on minority languages and their problems by scholars and Thai government agencies. The Department of Public Welfare, especially through its Hill Tribes Division and the Tribal Research Centre in Chiangmai, has been conducting and sponsoring research among the minority peoples of northern Thailand (Suwan). This research has been primarily in fields such as anthropology, economics, agriculture, and public health, but there has also been a growing interest in the field of linguistics. The Border Patrol Police have established schools in a number of tribal villages in the northern border provinces. These schools are staffed with Thai teachers who are brought together periodically for lectures and workshops. One of the primary tasks of these teachers is to instruct tribal children in the Thai language, both in its spoken and written forms, the Thai language being actively used as one of the means through which the minority peoples hopefully will be drawn into the Thai nation, identifying with it and participating in its security and development. The Department of Educational Techniques of the Ministry of Education recently conducted a two-week seminar in Chiangmai for the purpose of producing a series of textbooks for teaching Thai to Karens.

Increasing numbers of scholars have been turning their attention to minority languages in Thailand. In addition to their academic interest in particular linguistic problems, some scholars have expressed their views on pedagogical problems connected with teaching Thai to minority peoples and minority languages to Thais (Dellinger, Hinton, Roop, all 1967; Smalley 1965b).

A third group has been actively engaged in learning and analyzing many of the minority languages of Thailand for almost two decades. Missionaries and scholars with former or present ties to missionary groups have lived with minority groups, learned their languages, and produced various types of published and unpublished language materials. Among these are phonological analyses, practical orthographies in both Thai and roman scripts, grammatical sketches, dictionaries, language lessons, and literacy primers and readers in the minority languages.[2]

---

1) A somewhat different version of this paper was read at the Thai Phonetics Conference under a different title.

2) Dictionaries, for example, have been produced for Akha (Lewis 1968). White Meo (Heimbach 1969), and Mien Yao (Lombard and Purnell 1968).

One area of the study of minority languages which has been neglected in the past is that of detailed contrastive analyses of Thai and the various hill tribe languages. This neglect is particularly noticeable with the present emphasis on teaching Thai to the hill tribes. Thai and western scholars alike have long been aware that English cannot be taught to Thais using the same methods and materials suitable for teaching it to those who speak English as a native language. For this reason, a great deal of time, effort, and material resources has been expended to produce thorough contrastive analyses of Thai and English and, on the basis of such studies, develop and experiment with teaching materials which would suit Thai students of English. Very little, however, has been done in the field of contrastive studies of minority languages and Thai. But without such studies and materials developed from them how can minority people be adequately taught the national language of the country to which they belong ? Furthermore, some Thais are, or will be called upon to be, "cultural middlemen", that is, interpreters of Thai customs, laws, policies, and programs to the hill tribes on the one hand, and interpreters of minority customs, aspirations, needs, and problems to government agencies or academic and social institutions on the other. How can these Thais adequately learn minority languages ?

This paper attempts to make a contribution to the beginning of serious contrastive study of Thai and hill tribe languages in several ways : (1) by showing something of the range of phonetic inventory and phonemic differences between Thai and selected hill tribe languages, (2) by drawing to the attention of persons interested in this field some of the basic research on phonetic and grammatical problems which is already available, and (3) by pointing out a few areas in which systematic investigation and coordinated activity is needed. No attempt has been made to actually contrast Thai and the minority languages. It is quite obvious, though, that speakers of languages which lack initial consonant clusters, final consonants, vowel length, or tones are likely to have problems in these areas when they attempt to learn Thai. Speakers of such languages will have many other problems with Thai as well, however, problems which are much more subtle than those just mentioned and thus harder to deal with. What is needed at this time is much more than a superficial awareness of some of the obvious problem areas. The need is for detailed studies of the phonetic and phonemic systems of both Thai and specific hill tribe languages.

LANGUAGE DESCRIPTIONS

Of the many different languages found in Thailand, nine are described briefly in this paper : Standard Thai and eight minority languages, all but one of which (Kuy) are from northern Thailand. Lawa, Mal, and Kuy are Mon-Khmer languages. The Tibet-Burman branch of the Sino-Tibetan family is represented by Akha, Lisu, and perhaps Karen. White Meo and Mien Yao represent the two branches of the Miao-Yao group.

Some general information on locations, number of speakers, and sources used are given.[3] No attempt, however, has been made to provide complete phonological descriptions of the languages.

1. **Thai** (Standard Thai)[4]

Standard Thai is the prestige dialect of Thailand, the language used in the educational process and communications media. Sources: *Abramson*, (1962), Hass, (1964), Noss (1962).

a. Phonological Summary

(1) Consonants

(a) *Initials*

p	t	c	k	ʔ
ph	th	ch	kh	
b	d			
f	s			h
m	n		ŋ	
	l			
w	r	y		

(b) *Clusters*

pr	tr	kr
phr	thr	khr
pl		kl
phl		khl
		kw
		khw

(c) *Finals*

p	t		k	ʔ
m	n		ŋ	
w		y		

(2) Vowels

i	ɨ	u
e	ə	o
ɛ	a	ɔ
ia	ɨa	ua

Features: Length with monophthongs

(3) Tones

1. Mid
2. Low
3. High
4. Falling
5. Rising

---

3) With the exception of that on Yao, the material on the various minority languages presented here has been taken from prepublication manuscripts prepared for inclusion in a forthcoming book by William A. Smalley. It should be noted that further revisions of the various analyses may be made by the respective authors before final publication. Moreover, some descriptive and interpretive changes have been made here for the sake of clarity and convenience of comparison in this paper. Responsibility for these changes is mine alone.

4) Alternate names are given in parentheses.

5) The primary source for this paper is underlined.

b. **Comment**

Thai lacks initial spirants and voiced stops in the palatal and velar positions, though [š] occasionally occurs as an allophone of /ch/ and [j] as an allophone of /y/. There is also no palatal nasal.

In initial clusters, the first member is a voiceless stop: labial, dental, or velar.[6] Possible second members are /r l w/, /r/ occurring after any first member, /l/ after labials or velars, and /w/ after only velars. Clusters with /w/ thus have a very limited distribution. There are no clusters with /y/ as the second member.

Unaspirated stops, nasals, and semivowels occur in final position.[7] Final stops are slightly voiced in some environments.

All monophthongs occur both long and short. There are three diphthongs: /ia ɨa ua/. After nasals and /ʔ h/, long and short /a/ are slightly nasalized.

Tone /1/ tends to fall slightly in pitch before pause. Tone /3/ has a rise-fall contour and is accompanied by glottal constriction. With some speakers, tone /4/ also has some constriction, though not so pronounced as with tone /3/. Syllables ending with stops occur with tones /2 3 4/; long vowels with tone /3/ and short vowels with tone /4/ occur infrequently, however.

2. **Lawa** (Lua?)

Lawa is a Mon-Khmer language spoken primarily in Chiangmai and Maehongson Provinces, although it is also found in Petchabun and Kanchanaburi. There are perhaps 20,000 Lawa in Thailand, many of them in the process of being completely assimilated to Thai culture. The dialect presented here is spoken in Amphur Maesariang, Maehongson. Source: *Schlatter (1965)*.

a. **Phonological Summary**

(1) **Consonants**

(a) *Initials*

p	t	c	k	ʔ				
ph	th	ch	kh					
b	d	j	g					
f	s			h				
m	n	ñ	ŋ					
mh	nh		ŋh					
	l							
	lh							
w	r	y		ʔb	ʔd			
	rh	yh		ʔm	ʔn	ʔñ	ʔŋ	
					ʔl	ʔy		

(b) *Clusters*

pl		kl
phl		khl
bl		gl
phr		khr
br		gr
		kw
		khw

6) Clusters occurring in modern loans, especially from English, have been disregarded, e.g., /frii/ "free" and /braaw/ "brown".

7) Finals occurring in modern loans have not been included, e.g., /chéef/ "Chev, Chevrolet".

(c) *Finals*

p	t	c	k	ʔ
				h
m	n	ñ	ŋ	

(2) **Vowels**

i	ɨ	u		iu	eu	ɛu		əu	au			
e	ə	o			ei				ai	ui	oi	ɔi
ɛ	a	ɔ								uɛ		
				iə			ɨə			uə		
								əɨ	aɨ			

(3) **Tones:** None

b. **Comment**

Lawa has a full set of voiced stops, including /j g/, which are phonetically prenasalized, the nasal element articulated at the same position as the stop: [mb nd ñj ŋg]. In addition, all resonants but /ñ w/ occur both as aspirates and nonaspirates.

In initial clusters, /r/ and /l/ occur after labial or velar stops. There is no /pr kr/, however. /w/ occurs after only /k kh/. Lawa clustering patterns are thus similar to those of Thai. Lawa also has clusters with initial /ʔ/, the second member of which may be a voiced nonaspirate.

The palatal nasal and unaspirated stop occur finally as well as initially in Lawa, as does also /h/. Semivowels, however, do not occur in final position.

Vowel length is nonphonemic in Lawa. A distinctive feature of the vowel system is the large number of diphthongs. There are a number of cooccurrence restrictions between diphthongs and final consonants, especially palatals and laryngeals /c ñ ʔ h/. With but few exceptions, the vowel of nonfinal syllables in polysyllabic words is /ə/.

There are no phonemically contrastive tones in Lawa.

3. Mal (T'in, Phai)

Mal is a Mon-Khmer language closely related to Lawa and Khmuʔ. The Mal population of Thailand and Laos has been estimated as 17,000 to 41,000 the largest concentration being found in Nan Province. The dialect described here is spoken in Amphurs Pua and Thung Chang, Nan. Sources: *Bare, Filbeck* (1965).

a. **Phonological Summary**

(1) **Consonants**

(a) *Initials*

p	t	c	k	ʔ
ph	th	ch	kh	h
b	d			
m	n	ñ	ŋ	
mh	nh	ñh		
w	l	y		
wh	lh	yh		

(b) *Clusters*

np	nt	nc	nk
nph	nth	nch	nkh
pl			kl
phl			khl
npl			nkl
py			ky
phy			khy
npy			nky
	tw	cw	kw
phw	thw	chw	khw

(c) *Finals*

p	t	c	k	ʔ
m	n	ñ	ŋ	
w	l	y	ɣ	
wh		yh		h

(2) **Vowels**

i	ɨ	u		ie	
e	ə	o		ia	ɨa ua
ɛ	a	ɔ			

Features: Length with monophthongs

(3) **Tones**

1. Level 2. Rising

b. **Comment**

In the present analysis, Mal has no spirants, although /ch/ has two main allophones: an aspirated affricate [tšh] and a spirant [s]. There are no palatal or velar voiced stops.

There are two types of consonant clusters in Mal, those with /n/ as the first member and those with an oral resonant /w l y/ as the second member. Any voiceless stop except /ʔ/ may be preceded by /n/ which assimilates to the point of articulation of the following stop; /np/, for example, is [mp], /nkh/ [ŋkh], etc. /nc/ has two allophones: [ñc] and [ntsy].

The resonants /l/ and /y/ may occur after labial or velar stops, except those which are aspirated with prenasalization or voiced. /w/, on the other hand, occurs after all voiceless stops except /p/. /chw/ is phonetically [sw].

/ɣ/ occurs only in final position. It is relatively frictionless, rather like the back unrounded vowel ɨ, but functions as a consonant. Final stops (except /ʔ/), nasals, and /l/ are phonetically preceded by a voiced stop at the same point of articulation: [bp dt jc gk bm dn jñ gŋ dl]. The homorganic stop is not present before a nasal when the preceding vowel is nasalized. Final stops may have a slightly aspirated release before pause.

Vowels are either long or short in Mal, although vowel length appears to carry a lighter functional load than in Thai. That is, there are few minimal contrasts between long and short vowels. There are four diphthongs. The transition between a vowel and the palatal finals /c ñ/ is phonetically marked by a high front glide [y], /phəñ/ [phəyjñ] "to shoot". Vowels are nasalized following initial nasals. In addition, the low vowels /ɛ a ɔ/ are also nasalized after /ʔ/ and /i/ is nasalized after /h/. Long vowels do not occur either before final /ʔ/ or, with the exception of /ɛɛ/, before final /h/.

Mal has a minimal tone system consisting of two basic tones plus a few extrasystemic pitches with several lexical items borrowed from Myang (Northern Thai). Filbeck treated the level tone as "the various intonational patterns" in native Mal and the rising tone as "an innovation used to assimilate loanwords from other languages". There is no restriction on the types of finals which may occur with the two tones. Thus, final stops may occur on either of the two tones.

A few Myang words, primarily numbers, appear to have been borrowed from the Nan dialect of Myang as units, including the Nan tone. As a result, these numbers are pronounced with pitches which do not fit with either of the "regular" tones.

4. **Kuy** (Suay)

Kuy is a Mon-Khmer minority language spoken in Laos, Cambodia, and Thailand. In Thailand, some 150,000 speakers live in Buriram, Surin, and Srisaket Provinces. The Surin dialect is described here. Source: *Johnston* (1965).

a. **Phonological Summary**

(1) **Consonants**

(a) *Initials*

p	t	c	k	ʔ
ph	th	ch	kh	
b	d	j		
f	s			h
m	n	ñ	ŋ	
mh	nh	ñh	ŋh	
	r			
w	l	y		
wh	lh	yh		

(b) *Clusters*

np	nt	nc	nk
nph	nth	nch	nkh
nb	nd	nj	
	ns		
	nn		
pr	tr		kr
br			
npr	ntr		nkr
nphr			
mr			

(c) *Finals*

p	t	c	k	ʔ
m	n	ñ	ŋ	
	r			
w	l	y		h

pl kl
phl khl
bl
npl nkl
nphl
nbl
ml nl
mhl
ŋw
ŋʔ

(2) **Vowels**

i	ɨ	u
e	ə	o
ɛ	ʌ	ɔ
a		ɑ

ia → ← ua

Features : Length
Register : High (faucalized)
Low (breathy)

(3) **Tones:** None

b. **Comment**

/f/ is found only in loanwords. All nasals are phonetically preglottalized in two environments: (1) initial consonants in clusters and (2) preceding breathy vowels. In such environments, /n/ is [ʔn], /ntr/ is [ʔntr], etc. All consonants occur preceding non-breathy vowels. No aspirates occur before breathy vowels. Before breathy vowels, however, voiceless unaspirated stops have a slight amount of nonphonemic aspiration. /r/ and /l/ are kept distinct only by some speakers. Most speakers use only /l/ in all positions.

All stops as well as /s/ and /n/ may be preceded by /n/ which assimilates to the point of articulation of the following consonant. The oral resonants /r l/ occur as second members in a number of clusters, primarily labial and velar. /w/ occurs after only /ŋ/. The cluster /ŋʔ/ has also been recorded.

The inventory of final consonants in Kuy is similar to that of Mal. In final position, /l/ is slightly retroflexed [ɭ].

Instead of the three vowel heights found in Thai and many other languages described here, Kuy has four. Thai /ə/ is pronounced somewhere between Kuy /ə/ and /ʌ/, Thai /ɔ/ between Kuy /ɔ/ and /ɑ/.

There are two distinct qualities of Kuy vowels. These qualities are described in terms of "registers". Smalley (1964) has defined register as "a prosodic feature of vowel quality associated with tone or the development of tone in many [Southeast Asian] languages". In Kuy, the two registers are called "high register" and "low register".

Although syllables on the low register tend to have a lower pitch than those on the high register, the predominant contrasting features are qualitative: vowels on the low register are breathy, produced with an open pharyngeal cavity, whereas those on the high register are faucalized or strained, produced with a tighter and narrower pharyngeal cavity.

Vowel length is phonemic. When long, all eleven vowels contrast on both high and low registers. When short, however, the contrast between the two middle vowel heights in neutralised. This neutralization is complete on the low register. On the high register only the back vowels retain four contrasting heights:

Low Register			*High Register*		
i	ɨ	u	i	ɨ	u
ɛ	ʌ	ɔ			o
a		ɑ	ɛ	ʌ	ɔ
			a		ɑ

Long vowels may occur in open syllables or before any final consonant, including /ʔ/. Short vowels do not occur word finally in an open syllable, occurring only with final consonants.

The transition between vowels and final palatal consonants is phonetically marked by a high front glide [y] as in Mal: /pañ/ [payñ] "to shoot".

The two diphthongs occur on both registers with parallel allophones. /ia/ has a fronted allophone [ie] before palatal finals /c ñ y/, a backed allophone [io] before /w/, and [ia] elsewhere. Similarly, /ua/ is fronted to [ue] before palatal finals and [ua] elsewhere.

Although tone is not phonemically distinctive, low register is associated with lower tone by Kuy speakers.

5. **Akha** (Ekaw)

Akha is in the Lolo group of the Tibeto-Burman languages. The total population of Akha speakers is roughly 500,000, most of whom live in Burma. Some 10,000 Akha, speaking what may be loosely termed the "southern dialect", are found in Thailand. The dialect spoken in Amphurs Maechan and Maesai, Chiangrai Province is described here. Sources: *Smalley* (1964b), *Wyss* (1969).

a. **Phonological Summary**

(1) **Consonants**

(a) *Initials*

p	t	k	ʔ
b	d	g	
	s	x	
	y	ɣ	
m	n	ŋ	
	l		

(b) *Clusters*

py	ty
by	dy
my	ny

(c) *Finals*: None

(2) **Vowels**

Unrounded	*Rounded*	*Unrounded*	*Rounded*
i	ü	ï	u
e	ö	ë	o
ɛ			ɔ

a

ai au

Features: Nasalization /-n/, with /ï a ɔ/
Register: High (faucalized)
Low (breathy)

(3) **Tones**

1. High 2. Mid 3. Low

b. **Comment**

There are no phonemic aspirates in Akha. Phonetically, however, voiceless stops and spirants are aspirated before low register (breathy) vowels (see below). Voiced phonemes are fortis before low register vowels. Voiceless consonants are unaspirated and voiced consonants lenis before high register (faucalized) vowels. /s/ and /y/ have a wide range of allophones, fronted before unrounded vowels and backed before rounded vowels. /s/ has an alveolar allophone before high vowels and an alveopalatal allophone before low vowels. /x/ is [x] before mid and low vowels on the high register but does not occur before high vowels on the high register. With low register vowels, /x/ is [h] before high vowels and [h] or [xh] before mid and low vowels.

In the present analysis, the only initial clusters are labial and alveolar stops and nasals followed by /y/. The labial clusters sometimes occur as [pl bl ml]. Clusters with alveolas stopr are affricated and have a wide range of allophones, from tip released before unrounded vowels to blade released before rounded vowels, and from alveolar articulation before high vowels to alveopalatal before low vowels.

There are no final consonants.

Three vowels occur nasalized. Although nasalization is symbolized as final /n/, it is treated here not as a final consonant but as a feature of the three vowels /ï a ɔ/. With the exception of a very few words with /ïn/, all words with nasalized vowels occur on the low register. /ɔn/ is [ɔ̃] and has a very high frequency. /ïn/ is a syllabic labial nasal [m]. /an/ is [am] and has come into the language through recent borrowings.

The most important feature in Akha, affecting consonants and tones as well as vowels, is register. On the low register vowels are breathy. Breathiness is most pronounced with lower vowel height and low tone, decreasing with higher vowels and higher tones. In addition, breathiness is stronger with back vowels than with front vowels. On the high register vowels are faucalized. The vowel system tends to be more compressed phonetically (i.e.,) high vowels are lower and low vowels are higher) on the high register than on the low. Before a pause, high register syllables are always closed by a nonphonemic glottal stop.

The two diphthongs are the result of recent borrowings and occur in less than two dozen words, all on the low register.

Akha tones have shorter and slightly higher pitches with high register. High tone rises slightly and low tone falls. In sequences of all high tones or all low tones, nonfinal syllables are slightly lower or higher respectively.

6. **Lisu** (Lissaw)

Lisu is also in the Lolo group of languages and is related to Akha. Some 12,000 to 15,000 Lisu, out of a total population of 500,000, live in Thailand. The dialect described here is that spoken in Chiangmai and Chiangrai Provinces and in the adjacent areas of the Shan States. Source: *Hope* (1970).

a. **Phonological Summary**

(1) **Consonants**

(a) *Initials*

p	t	ts	k	ʔ
ph	th	tsh	kh	
b	d	dz	g	
f	s		x	h
v	z		ɣ	
m	n		ŋ	
(w)	l	(y)		

(b) *Clusters*

pw	tw	tsw	kw	
phw	thw	tshw	khw	
bw	dw	dzw	gw	
fw	sw		xw	hw
vw	zw			
mw	nw		ŋw	
	lw			

(c) *Finals*

	n			
w		y		

py	ty	
phy	thy	
by	dy	
	sy	hy
	zy	
my	ny	
	ly	

(2) **Vowels**

i	ɨ	u
e	ə	
ɛ	a	ɔ

Features: Register: High (clear)
Low (laryngealized)

(3) **Tones**

1. High 2. Mid 3. Low

b. **Comment**

Although Lisu syllables occur on two registers, similar to the registers of Kuy and Akha, there are no restrictions on the occurrence of aspirated initials as there are in those two languages. /ts tsh dz/ are tip alveolar affricates. /m n ŋ/ also occur as syllabic nasals, carrying a tone.

/w y/ occur only as second members of consonant clusters and in final position. /w/ occcurs in clusters with every initial except /ɣ/ and /y/, producing several phonetic effects, among these affrication of the preceding consonant or rounding of the following vowel. Clusters with /y/ may be analyzed in several ways. Without going into this problem, one of the possible solutions has been adopted here. That is, /y/ occurs after labial stops and nasal, all alveolars, and /h/.

There are three final consonants in Lisu : /n/ alternating with nasalization of the preceding vowel, /w/, and /y/. Before pause, all syllables are closed with a nonphonemic glottal stop.

Low register vowels are characterized by laryngealization ("creaky voice"); high register vowels are clear. Front vowels are backed slightly on low register. In syllables with high tone, vowels are lower on the low register.

/i/ and /ɨ/ have several allophones each, depending on the type of initial consonant(s). One allophone of each is very high and almost spirantal in quality. /i/ and /e/ contrast fully only after labials. After alveolars and clusters with /y/ there is only partial contrast, depending on the particular initial. /ɛ/ and /a/ do not contrast after /y/. /u/ has allophones ranging from high [u] to mid [o]. All vowels but /ə/ occur after /y/. After /w/, /ə/ and /ɔ/ do not occur.

All tones are level with syllables on the high register. With syllables on the low register, on the other hand, tone /1/ is mid to high rising, /2/ mid-high level, and /3/ mid-low to low falling.

7. **Pho Karen** (Pwo, Phlong, Kariang Khao)

Although its precise genetic relationship has not yet been determined, Karen is often considerad to be a Tibeto-Burman language. There are some 35,000 speakers of Pho Karen in Thailand, primarily in the north but also extending into Kanburi Province. Many more Pho Karens are found in Burma. The dialect used here is that spoken on the plains in Amphur Hod, Chiangmai. Source : *Cooke*, *Hudspith*, and *Morris* (1965).

a. **Phonological Summary**

(1) **Consonants**

(a) *Initials*

p	t	c	k	ʔ
ph	th	ch	kh	
b	d			
f	s	š	x	h
m	n	ñ	ŋ	
w	l	y	ɣ	

(b) *Clusters*

pl	tl	kl
phl		khl
bl		
ml		
py		ky
phy		khy

(c) *Finals*

				by				
n		ʔ		my	ly			
				pw	tw	cw	kw	ʔw
				phw	thw	chw	khw	
				bw	dw			
					sw		xw	hw
				mw	nw			
					lw	yw		

(2) **Vowels**

i	ɨ	u	ai	aɨ	au
e	ə	o			
ɛ	a	ɔ			

(3) **Tones**

1. Mid 2. Low 3. Falling 4. High

b. **Comment**

/c ch/ are affricated [tš tšh]. /b d/ are implosive [ˈb' ˈd]. /f/ and /w/ are labiodental glided to labial [fw vw]. /s/ varies from a fronted alveolar spirant [s̪] to an interdental one [θ]. /y/ has considerable friction in initial position. /x/ has a retroflexed release [xr]. The phonemes /f h ñ ŋ/ are rare and, with the exception of /ñ/, can probably be analyzed as having come from Myang.

In clusters, /l/ and /y/ occur primarily after labials and velars, /w/ after all consonants excepts /f š ñ ŋ ɣ/.

Final /n/ is actually nasalization of the preceding vowel, phonetically somewhat like [ŋ]. Vowels preceding the two finals have distinctive allophones (see below).

Vowel length is nonphonemic in Karen. /o/ is glided [oʊ̯]. Except for /ɛ/ and the three diphthongs, all vowels occur before final /n/. In addition to their nasal articulation in such a position, the vowels are characterized by a terminal nonsyllabic raising of the tongue to the highest level of the same position (i.e., front vowels are glided to [i̯], central vowels to [ɨ̯], and back vowels to [ʊ̯]).

The high vowels /i ɨ u/ do not occur before glottal stop; all other vowels and diphthongs, however, do. In fact, /aɨ/ occurs only before /ʔ/. /e/ is a glide [ei̯] before /ʔ/, parallel to /o/ [oʊ̯]. The front and back diphthongs /ai au/ have fronted and backed allophones respectively before /ʔ/: [a̟i̯ a̠ʊ̯].

Syllables ending in glottal stop occur only with tones /1/ and /3/ and are phonetically mid rising and mid falling, respectively. Two types of intonation, both associated with emphasis, affect the lexical tones. With "raised" intonation all tones are pronounced extra high and level. All tones are pronounced with a low to high rising pitch when occurring with "rising" intonation.

8. **White Meo** (Miao, Hmong)

There are probably more than 20,000 speakers of White Meo in Thailand. The total number of Meo speaking various dialects of the language is perhaps 3,000,000, most of whom are found in China. The dialect presented here is that of Xieng Khouang Province, Laos, virtually identical with that spoken in Petchabun and Pitsanuloke Provinces in Thailand. Sources: *Downer* (1967), *Heimbach*, (1969), *Smalley 1965 a.*

a. **Phonological Summary**

(1) **Consonants**

(a) *Initials*

p	t	ts	r	tš	c	k	q	ʔ
ph	th	tsh	rh	tšh	ch	kh	qh	
f	s		š		x			h
v			ž		y			
m	n	l			ñ	(ŋ)		
mh	nh	lh			ñh			

(b) *Clusters*

np	nt	nts	nr	ntš	nc	nk	nq
nph	nth	ntsh	nrh	ntšh	nch	nkh	nqh
pl	npl						
phl	nphl						
ml							
mhl							
		ʔt					
		ʔth					

(c) *Finals*: None

(2) **Vowels**

i	ü	u	ia		ua
e	a	o	ai	aü	au

Feature: Nasalization (/ã õ/)

(3) **Tones**

1. High
2. Falling
3. Rising
4. Mid
5. Mid-low
6. Mid-low breathy
7. Low glottalized

b. **Comment**

Consonants occur only initially. /ts/ and /tš/ are affricates in the dental and palatal positions, respectively. /r/ is a tip alveolar retroflex [ṭ], and /q/ a back velar or uvular stop [k̟]. /x/ is phonetically [sy]. The phoneme /ŋ/ is rare, and it is doubtful that it is really part of the Meo system. It is possible that a reanalysis of Meo consonants could treat some of them as clusters and thus reduce the rather large phonemic inventory.

Clusters with /l/ as second member occur with labial stop and nasals. All stops, single or in clusters with /l/, may be preceded by /n/ which assimilates to the point of articulation of the stop. Unaspirated prenasalized stops are voiced; aspirates, on the other hand, are voiceless. For example, /nr/ is [n̥d̥], /nc/ is [ñj], /nphl/ is [mphl], etc. The dental stops /t th/ may occur after /ʔ/. As with prenasalization, /ʔt/ becomes voiced [ʔd] whereas /ʔth/ remains voiceless [ʔth].

The vowel /ü/ is slightly rounded. /e/ is glided [ei̯]. /o/ is low back [ɔ]. The nasal quality with /ã/ and /õ/ is phonetically similar to [ŋ]. /i/ occurs both as [i] and, following /s/, /š/, and affricates, [i̯]. Smalley mentions two other nasalized vowels, but they appear to be marginal to the system.

Aspirates and voiceless spirants do not occur with tone /6/. Aspirated nasal or prenasalized consonants often do not occur with tones /2/ and /7/. Tones /1 4 5 7/ are often terminated by a slight fall.

There are numerous patterns of tone change in White Meo. While these have not been analyzed completely, they appear to involve at least two major types of tone change: intonational and syntactic. There are, however, many exceptions to the general patterns. The patterns and lists of exceptions can be found in Heimbach. Downer (1967) has analyzed some of the patterns.

9. **Mien Yao** (Highland Yao, Iu Mien)

Yao is distantly related to Meo. There are some 15,000 speakers of Mien (one of the main branches of Yao) in Thailand. The total population of Yao (all branches) is perhaps 1,000,000. Mien is the only branch of Yao found in Thailand. Sources: *Callaway*, (1965), *Downer* (1961), *Lombard* and *Purnell*, (1968), *Purnell* (1965).

a. **Phonogical Summary**

(1) **Consonants**

(a) *Initials*

p	t	ts	c	k	ʔ
ph	th	tsh	ch	kh	
b	d	dz	j	g	
f	s				h
m	n		ñ	ŋ	
mh	nh		ñh	ŋh	
w	l		y		
wh	lh		yh		

(b) *Clusters*

pw	tw	tsw	cw	kw
phw		tshw	chw	khw
bw		dzw	jw	gw
fw	sw			
mw			ñw	ŋw
mhw			ñhw	
	lw		yw	
	lhw		yhw	
py	ty	tsy		
phy	thy	tshy		
by	dy	dzy		
fy	sy			
my	ny			
mhy				
	ly			
	lhy			

(c) *Finals*

p	t		k	ʔ
m	n		ŋ	
w		y		

(2) **Vowels**

i		u	iu	ui
e	(ə)	o	ia	ua
ɛ	a	ɔ	Features:	Length with /a/

(3) **Tones**

1. High	3. Mid	5. Rising
2. Falling	4. Mid-low	6. Low

b. **Comment**

/ts tsh dz/ are blade alveolar affricates. In some dialects of Mien the palatal series /c ch j ñ ñh/ becomes clusters of velars with /y/: /ky khy gy ŋy ŋhy/. /m n ŋ/ also occur as syllabic nasals.

Extensive clustering occurs with /y/ and /w/ as second members.

In final position /p t k/ are phonetically [mˀ nˀ ŋˀ].

Vowel length is phonemically contrastive only with /a/. The mid central vowel /ə/ is only marginally phonemic, occurring in only a few Chinese loanwords. The few instances of /ə/ in a contrastive environment all involve final /n/: /ən/ vs. /en/. Words with /ə/ borrowed from Thai or Myang have /e/ in Mien: Thai /ʔamphəə/ "Amphur" becomes Mien /ʔamphée/ and Myang /kə̀ŋ/ "half" becomes Mien /kěŋ/. /e/ and /o/ are unglided. /a/ has a wide range of allophones, depending upon the contiguous consonants. All vowels except high vowels and /ɔ/ occur before final /w/. All except high vowels occur before /y/.

The diphthongs /ia ua/ occur before pause or glottal stop. /iu/ and /ui/ occur only before pause.

Tones /1/ and /4/ have a similar rise-fall contour. Tone /4/ is accompanied by slight breathiness, tone /6/ by slight glottalization. Syllables with stop finals typically occur with tones /1/ and /6/, but there are also a few words which end in /ʔ/ and occur with tones /2/ and /3/. With final stops, tone /1/ is high level.

Voiced resonant initials (nasals, lateral, and semivowels) are preceded by a nonphonemic glottal stop when they occur in syllables with tones /1 3 5/. With most speakers, however, this preglottalization occurs only when the preceding syllable has tone /2/ and both syllables are nuclear constituents of the same syntactic construction: /ŋôŋ ñɔ̌/ [ŋôŋ ʔñɔ] "udder"

There are two types of tone change in Mien, intonational and syntactic. There are at least six intonational patterns which affect the lexical tones. These have been described and charted in Purnell (1965). Although the syntactically conditioned tone changes have not yet been fully analyzed, a few brief statements can be made. First, tone /1/ with syllables having a final stop changes to tone /6/. All tones with syllables not having stop finals change to tone /2/. Second, tone change of a syntactic type occurs most often with nonfinal nuclear constituents of noun phrases, numeral phrases, and kinship terminology, although reduplicated verbal adjectives are also affected. There are several other patterns and various exceptions but the general outlines are clear.

CONCLUSION

The sources referred to in describing the above languages are only a small part of the constantly growing amount of research materials on minority languages which could be used in contrastive analyses. Contrastive studies of Thai and several western languages are already available. It should now be possible to have closer cooperation and sharing of information among administrators, educators, researchers, and missionaries. Each has an important contribution to make to the overall program. It would certainly be advantageous (in terms of time, effort, money, and the national interest) for each group to communicate with the others and become more aware of what the others are doing. It would be regrettable if there were an unnecessary amount of overlap and duplication of studies as a result of lack of communication, particularly when there are many areas which have hardly been touched.

One research project in the general field of contrastive analysis of Thai and hill tribe or other minority languages which could profitably be undertaken by interested groups might be a clearinghouse for information relating to Thai and these other languages. Such a clearinghouse might be located in Bangkok with a regional center in the north. Although there already are some agencies working to gather and process information about hill tribes, no one center is specifically concerned with the field of contrastive analysis and related teaching materials. Some of the services rendered by a clearinghouse might be the collection of all materials on the minority languages which could be useful in contrastive studies with Thai, the production of a comprehensive bibliography of these materials to assist scholars engaged in research or the production of teaching materials, and the production of a newsletter to inform those interested in the field of recent developmonts in the areas of language analysis, language learning, literacy, materials production, etc., which are of particular relevance to the Thai situation.

Another project might be to make Thai linguists and students interested in linguistics aware of the opportunities for both field research and applied linguistics in the area of contrastive analysis. At the present time, however, most Thai linguists are engaged either in teaching English to Thais or in teaching Thai to foreigners. There are thus very few Thai scholars and educators with linguistic training who are working on the various problems of minority languages, especially in the area of syntactic and semantic analysis. In some areas, such as the use of grammatical and emotive particles, Thai is quite similar to some of the minority languages. Thai linguists could make an important contribution both in the analysis of such particle systems and also in the production of overall teaching materials for minority people to learn Thai and for Thais to learn minority languages. In this regard, the possibilities of teaching Thai through specially produced radio programs or by using cassettephones placed in minority villages should be investigated.

Furthermore, as part of their training program, Thai teachers in minority shools should be given instruction in the phonetics of Thai and minority languages, language structure, and the principles of language teaching with special emphasis on the contrastive

method. If these teachers are to have successful programs in the Thai language, they must be aware of the phonetic, syntactic, and semantic differences between Thai and the particular minority language with which they are working. They must also be able to diagnose problems which the students have with Thai and provide the necessary drills and explanation to help the students over these difficult places. What is needed ultimately, of course, is a series of language courses for teaching Thai to the minority peoples, each with a detailed teacher's handbook. Until such time as these courses have been produced, however, the teachers should be given special training. The Border Patrol Police, for example, have been conducting training sessions for their teachers, but are aware of the need for much more in-depth instruction in language teaching.

To sum up, to teach Thai to minority peoples and minority languages to Thais in the most effective way it is necessary to undertake contrastive analyses of Thai and the minority languages. There seems to be a growing realization of the need for a comprehensive language program based on such studies and the teaching materials prepared from them. With an increasing amount of basic research material on minority languages becoming available, the opportunity is now present for all interested groups to cooperate in order to make such a language program a reality.