Phonetic variation of final trill and final palatals in

Khmer dialects of Thailand[1]

SUWILAI Premsrirat
Mahidol University

Outside Cambodia Khmer is spoken by a large population in Thailand and Vietnam. In Thailand it is found mainly in the lower part of Northeast Thailand and the connected area in the East bordering Cambodia. The Khmer spoken in Thailand has been treated by such linguists as Jenner (1974), Smalley (1964, 1976), Thomas (1989) and several other linguists in Thailand as a separate dialect of Khmer. The term Northern Khmer (NK) initiated by Smalley corresponds to the NK word *Khmɛr lɤ̀ʔ* 'upper Khmer' and has been used to refer to the Khmer people and language in Thailand especially in the Northeast where it is predominantly spoken. However, other linguists, such as Bauer (1989), have claimed that it is not a dialect in the strict technical sense. Even though Thomas (1989) has shown convincingly that NK can be considered a distinct language from a sociolinguistic viewpoint, a study of the variation of Khmer spoken in different places is still needed for more understanding of this language so that historical and applied studies can be successfully carried out.

This paper presents a survey of the phonetic variation of three final consonants (final trill, final nasal palatal, and final stop palatal) in various Khmer dialects of Thailand. The variation of each final consonant is shown in a chart, and the distribution of each consonant variant in various NK communities is shown on a map.

1. The distribution of Khmer speakers in Thailand

The survey of the areas inhabited by the Khmer speakers is part of a larger ethnolinguistic map project of Thailand undertaken by the author and others. The information on the locations and number of Khmer speakers has been provided by people working in the area, such as the village headmen, heads of sub-districts (kamnan), teachers, health personnel, and community development workers through answering a questionnaire designed for collecting data at the village level.

According to the present stage of the research project (which is not yet finished) Khmer speakers are found in at least 12 provinces in East and Northeast Thailand. The number of speakers is not less than 1.3 million. The number of Khmer speakers in various provinces in Thailand is presented in Table 1.

Table 1. Geographical distribution and population numbers of Khmer speakers in eastern and northeastern Thailand

Provinces	Districts	NK Speakers
1. Ubonrachathani	Namyen	23,455
	Buntharik	934
	Najaluey	355
	Others	437
2. Srisaket	Kantharalak	60,501
	Khukhan	118,676
	Khunhan	49,464
	Phraibang	17,106
	Prangku	12,705
	Sriratana	15,427
	Hueythaptan	9,310
	Others	1,293
3. Surin	Buachet	15,683
	Sangkha	52,897
	Kapchoeng	53,786
	Prasat	118,643
	Lamduan	19,992
	Muang	152,526
	Srikhoraphum	39,959
	Comphra	22,348
	Thatum	32,523
	Chumphonburi	7,050
	Others	3,120
4. Buriram	Bankruat	15,649
	Lahansai	31,422
	Pakham	536
	Nangrong	19,593
	Nongki	225
	Phlapphlachai	32,000
	Prakhonchai	85,945
	Nonghong	2,428
	Lamplaimat	5,174
	Muang	81,559
	Krasang	78,403
	Khumuang	7,498
	Satuk	37,095
	Phutthaisong	1,532
	Hueyrat	26,307
	Others	238

Table 1. Continued

5. Nakhornrachasima	Sengsang	2,036
	Hueythaleng	1,080
	Nongbunnak	644
	Others	73
6. Sakaew	Taphraya	15,818
	Aranyaprathet	994
	Wangnamyen	818
	Others	1,321
7. Pracinburi	Srimahaphot	1,503
	Muang	277
	Others	669
8. Mahasarakham	Phayakkhaphumphisai	2,365
	Yangsrisurat	1,487
9. Roi-et	Kasetwisai	3,719
	Suwannaphum	3,149
	Phonsai	161
	Others	66
10. Chachoengsaw	Rachasan	1,051
	Thatakiap	2,248
	Bangkhla	1,826
	Plengyaw	1,942
	Others	1,659
11. Canthaburi	Pongnamron	5,651
	Muang	1,178
	Others	1,123
12. Trat	Lam-ngop	1,375
	Muang	656
	Bo-rai	883
	Klongyai	738
13. Other provinces		1,542
	Total	1,311,837

The distribution of Khmer speakers in 12 provinces in East and Northeast Thailand is also shown graphically in Map 1.
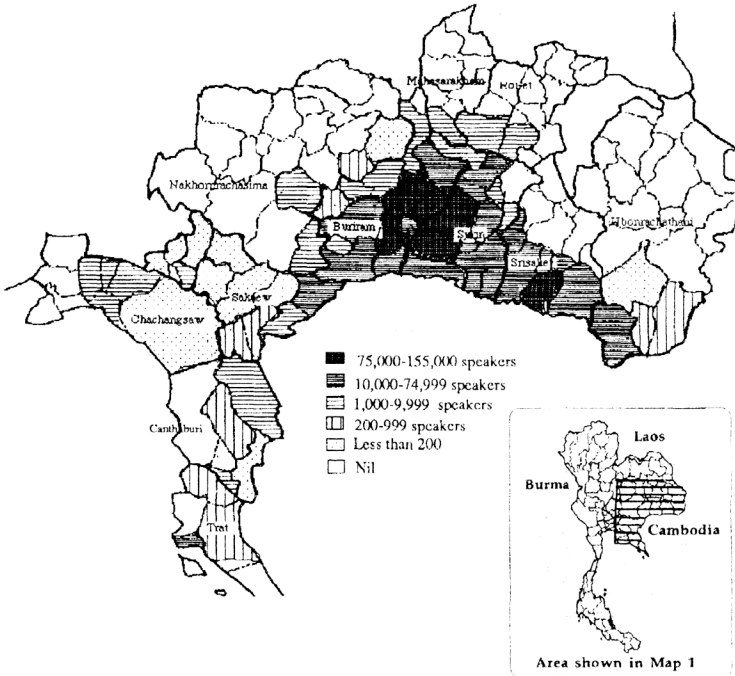
Map 1. Number of Northern Khmer speakers in various districts of 12
provinces in the Northeast and East of Thailand in 1994.

Five degrees of shading in Map 1 indicate the number of Khmer speakers
in various districts in Thailand (the darker the shading, the higher the number of
speakers). It can be seen here that NK is spoken in a large area. The solid core area
of NK speakers includes the provinces of Surin, Buriram, and a part of Srisaket
in Northeast Thailand. The NK communities extend to the east to some districts
of Ubon, to the north to some districts of Mahasarakham, Roi-et, etc., and to the
west to some districts of Nakhornrachasima and Sakaew. They are also found in
Canthaburi, Trat down the east coast, and in Chachoengsaw which is near
Bangkok.

This map presents a picture similar to the survey of NK areas done in 1964
and published in 1988 by Smalley. However, the present survey shows the
extension of the NK communities to the west of the core areas that were not
included in the 1964 map. These areas include some districts in Sakaew and
Pracinburi provinces next to Buriram and the areas in the east coast of Thailand
(Canthaburi and Trat), and the area further inland near Bangkok, such as
Chachoengsaw where there are a number of NK communities.

2. Characteristics of Khmer final consonants

The final consonant is an outstanding characteristic of Mon-Khmer languages. Among the Khmer consonant inventory (based on Surin Khmer) which consists of 17 consonants, all can occur as initial consonants whereas 14 consonants can occur as final consonants as indicated by the bold characters in Table 2 below.

Table 2. Consonant inventory in Khmer

	Bilabial	Aveolar	Palatal	Velar	Glottal
Stops (vl)	**p**	**t**	**c**	**k**	**ʔ**
(vd)	b	d			●
Fricatives		**s**			**h**
Nasals	**m**	**n**	**ɲ**	**ŋ**	
Lateral		**l**			
Trill		**r**			
Semi-vowels	**w**		**j**		

Among these final consonants, final trill, final nasal palatal and final stop palatal show interesting variation, namely /r ~ ø/, /ɲ ~ ŋ/ and /c ~ k ~ ʔ/. The patterns of variation in these final consonants vary with the places. The purpose of this paper is to describe dialectal variation and geographical distribution of these final consonants in 37 locations in Thailand.

3. Research methodology

3.1 *Wordlist*

A list of 90 lexical items which took Surin Khmer as the base was used for investigation (see appendix). However, only 55 words have been chosen for discussion here. Since the vowels have been observed to play a role in the variation of final consonants, the wordlist of 55 items was organized as follows:

1. Lexical Set 1:

- 15 words with final -r: 10 are words with long vowels or diphthongs
                                 and 5 are words with short vowels.

2. Lexical Set 2:

- 12 words with final -ɲ: 8 are words with front vowels and 4 are words
                                 with non-front vowels

- 4 words with final -ŋ: all are words with non-front vowels

3. Lexical Set 3:

- 12 words with final -c: 8 are words with front vowels and 4 are words
                                 with non-front vowels

- 12 words with final -k   all are words with non-front vowels
  or -ʔ:

List of 55 Words used for discussion

The 55 words used for discussion here are presented by using Surin Khmer
pronunciation as the base or as a representative of NK. The modern Khmer
orthography and standard Cambodian Khmer pronunciation are also given here
for comparative purposes in section 5.

Lexical Set 1: final -r

Gloss	•	Surin Khmer	Standard Khmer[2]	Khmer Orthograhy
1.	'two'	piːr	piː / pil	ពីរ
2.	'fertilizer'	ciːr	ciː	ជីរ
3.	'Khmer'	khəmɛːr	kmae	ខ្មែរ
4.	'to walk'	dʌːr	daə	ដើរ
5.	'work'	kaːr	kaː	ការ
6.	'slow, long time'	juːr	yuː	យូរ
7.	'to flow'	hoːr	hoː	ហូរ
8.	'door'	thəwiər	tviə	ទ្វារ
9.	'roping plant'	wiər	voal / voa	វល្លិ
10.	'to stand'	chuər	chɔː	ឈរ

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[2] Standard Cambodian Khmer phonetic spelling given here follows the Khmer Dictionary
compiled by Headley et al. 1977.

11.	'peppery hot'	hʌr	haə/həl	ហិរ
12.	'rat'	kənɔr	kandao / kandol	កណ្ដុរ
13.	'jackfruit'	khənɔr	knao/knol	ខ្នុរ
14.	'to take out of the ear'	təbar	tbaː	ថ្បារ
15.	'to saw'	ʔar	ʔaː	អារ

Lexical Set 2: finals -ɲ, -ŋ

Gloss	Surin Khmer	Standard Khmer	Khmer Orthograhy
1. 'to buy'	tiɲ	tiɲ	ទិញ
2. 'bullfrog'	hiɲ	hiːŋ	ហឹង
3. 'rain'	phlɯɲ	pliəŋ	ភ្លៀង
4. 'to know'	deɲ	dəŋ	ដឹង
5. 'long'	weːɲ	vɛːŋ	វែង
6. 'children'	kameɲ	kmeɛŋ	ក្មេង
7. 'to chase'	dɛɲ	dəɲ	ដេញ
8. 'kite'	khlɛːɲ	klaeŋ	ខ្លែង
9. 'to see'	khəːɲ	khəɲ	ឃើញ
10. 'a kind of edible plant'	ʔaŋkaɲ	ʔaŋkaɲ	អន្កាញ់
11. 'to love'	salaɲ	sralaɲ	ស្រឡាញ់
12. 'to invite'	ʔiɲcɔːɲ	ʔaɲcəɲ	អញ្ជើញ
13. 'to spread sideways'	kaːŋ	kaːŋ	កាង
14. 'coconut'	doːŋ	doːŋ	ដូង
15. 'hole'	ruːŋ	ruːŋ	រូង
16. 'elder sibling'	bɔːŋ	baːŋ	បង

Lexical Set 3: finals -c, -k, -ʔ

Gloss	Surin Khmer	Standard Khmer	Khmer Orthograhy
1. 'to dig'	ciːc	ciːk	ជីក
2. 'armpit'	kluːc	kliək	ក្លៀក
3. 'sky'	muːc	meːk	មេឃ
4. 'ear'	trɔcuːc	traciək	ត្រចៀក
5. 'banana'	ceːc	ceɛk	ចេក
6. 'eyes'	phənɛːc	pnɛːk	ភ្នែក
7. 'same, similar'	dɛc, doːc	doːc	ដូច

8.	'bean'	snɛːc	sandaek	សណ្ដែក
9.	'to fear'	khlaːc	klaːc	ខ្លាច
10.	'spirit, ghost'	khəmɔːc	kmaoc	ខ្មោច
11.	'small'	tuːc	toːc/tuːc	តូច
12.	'lemon'	kroːc	kroːc	ក្រូច
13.	'water'	tɨk	tɨk	ទឹក
14.	'morning'	prɨk	prɨk	ព្រឹក
15.	'to drink'	phʌʔ	phək/phak	ផឹក
16.	'boat'	tuːk	tuːk	ទូក
17.	'pig'	cruːk	cruːk	ជ្រូក
18.	'high land'	kuːk	koːk	គោក
19.	'lotus'	choːk	chuːk	ឈូក
20.	'to pound'	bɔʔ	bok	បុក
21.	'coconut shell'	təlɔːk	tralaok	ត្រឡោក
22.	'village'	srɔʔ	srok	ស្រុក
23.	'nail'	krəcɔːk	kracaːk	ក្រចក
24.	'to fall'	thəliəʔ	tleək	ធ្លាក់

3.2 Research sites

The data were collected from 37 amphoes (districts) of 10 provinces in the East and Northeast of Thailand which are densely inhabited by populations of Khmer speakers. The writer's purpose was to collect information from as many places as possible so that the variation and distribution of the final consonants being investigated could be revealed.

3.3 Informants

It should be emphasized that this dialect study is a geographical survey and *not* a sociolinguistic survey; therefore such social variables as age, sex, status, education were not strictly taken into consideration in the selection of informants. However, at least two to three people from each amphoe were selected. They include both men and women over 30 years of age; they use Khmer in their daily lives and have lived in the area since they were born. The informants were asked to pronounce each word in the wordlist.

4. The survey

The survey was conducted mainly in 1992 with rechecking in 1993-1994. The results are presented in the charts and maps on pages 10-12.

4.1 *Final trill*

The results of the survey as shown in Chart 1a and Chart 1b reveal that in most Khmer varieties spoken in Thailand the final trill /-r/ is pronounced. However, in some locations it is dropped (ø), especially when it occurs in words with long vowels or diphthongs (words nos. 1 - 10 in Chart 1a). Out of 37 locations, 21 have final /-r/, eight locations do not, and eight are mixed areas. In the mixed area some words are pronounced with final /-r/ and some are not (ø). In some areas final /-r/ in some words has been changed to /-l/, /-n/, or /-j/ (but there are only a few). The following examples illustrate the final /-r/ variants in words with long vowels and diphthongs.

-r		-ø		-n/-l/-j	
piːr	~	piː	~	piːn	'two'
chuər	~	choː	~	chol/chon	'to stand'
ciːr	~	ciː	~	ciːj/ciːn	'fertilizer'

Words with short vowels (words nos. 11 - 15 in Chart 1b) are generally pronounced with final /-r/. However, in some words and in some locations /-l/, /-n/, or /-t/ can occur as variants of /-r/. Only in a few words in some locations is /-r/ not pronounced (ø). The following examples illustrate final /-r/ variants in words with short vowels.

-r		-l/-t		-n/-ø	
hʌr	~	hʌl	~	hʌn	'peppery hot'
ʔar	~	ʔat	~	ʔa	'to saw'.

Since the occurrence of final /-r/ after long vowels and diphthongs shows variation among the Khmer dialects spoken in different places, the distribution of the final /-r/ variants is shown on Map 2.

The geographical distribution of final /-r/ variants is indicated on Map 2 as follows: the dark shaded pattern 1 indicates locations where all example words are pronounced with final /-r/ (or only one word is not so pronounced). Dark shaded pattern 2 indicates locations where most examples (except 2-3 words) are pronounced with final /-r/. These dark shaded areas occur in the central and eastern part of the core area of NK speakers which includes many districts in Surin, Srisaket, Ubon, Mahasarakham, Roi-et, and also a few districts in Buriram and Chachoengsaw in the west. The non-final /-r/ areas are represented by parallel line pattern 1 and parallel line pattern 2; these areas are mainly in Buriram and Sakaew (formerly a part of Pracinburi). The mixed areas are indicated by hatched pattern 5; these are in the districts between the final /-r/ areas and non final /-r/ areas. They include some southern districts of Surin bordering with Buriram and Cambodia and a district in Nakhornrachasima (Sengsang) which borders with final /-r/ and non final /-r/ areas of Buriram.

The distribution of final /-r/ in words with short vowels (nos. 11 - 15) is not represented in the map because it occurs in all locations. Variation only occurs in a few words in some locations as shown in Chart 1b.

Words / Locations	1	2	3	4	5	6	7	8	9	10
1. Namyen (Ubon.)	r	r	r	r	r	r	r	r	-	r
2. Kantharalak (Sri.)	r/ø	r	r	r	-	r	r	r	r	r
3. Khunhan (Sri.)	r	r	r	r	-	r	r	r	r	r
4. Khukhan (Sri.)	r	r	r	r	r	r	r	r	r	r
5. Phraibang (Sri.)	r/n	r/n	r/n	r/n	r/n	r/n	r/n	r/n	r/n	r/n
6. Buachet (Surin)	r	r	r	r	r	r	r	r	r	r
7. Sangkha (Surin)	r/ø	r	r	r	r	r	r	r	r	r
8. Kapchoeng (Surin)	ø	r/ø	r/ø	r/ø	r/ø	r/ø	r/ø	ø	r/ø	ø
9. Prasat (Surin)	r/ø	r/ø	r/ø	r	r/ø	r/ø	r	r/ø	r	r
10. Larnduan (Surin)	r	r	r	r	r	r	r	r	r	r
11. Muang Surin (Surin)	r	r	r	r	r	r	r	r	r	r
12. Srikhoraphum (Surin)	r	r	r	r	r	r	r	r	r	r
13. Comphra (Surin)	r	r	r	r	r	r	r	r	r	r
14. Thatum (Surin)	r	r	r	r	r	r	r	r	r	r
15. Chumphonburi (Buri.)	r	r	r	r	r	r	r	r	r	r
16. Bankruat (Buri.)	ø	ø	ø	ø	ø	ø	ø	ø	ø	ø
17. Lahansai (Buri.)	ø	ø	ø	ø	ø	ø	ø	ø	ø	ø
18. Pakham (Buri.)	ø	ø	ø	ø	ø	ø	ø	ø	ø	r/ø
19. Nangrong (Buri.)	r	r	r	r	r	r	r	r	r	r
20. Nongki (Buri.)	r	r	r	r	r	r	r	r	r	r
21. Phlapphlachai (Buri.)	r	r	ø	r	ø	ø	r	ø	r	r
22. Prakhonchai (Buri.)	ø	ø	ø	ø	ø	ø	ø	ø	ø	ø
23. Nonghong (Buri.)	ø	ø	ø	ø	ø	ø	ø	ø	ø	ø
24. Lamplaimat (Buri.)	ø	ø	ø	ø	ø	ø	ø	ø	ø	ø
25. Muang Buriram (Buri.)	ø	ø	ø	ø	ø	ø	ø	ø	ø	ø
26. Krasang (Buri.)	ø	r	ø	ø	ø	ø	ø	ø	r	ø
27. Khumuang (Buri.)	r	r	r	r	r	r	r	r	-	r
28. Satuk (Buri.)	ø	r	ø	ø	-	ø	ø	ø	r	ø
29. Phutthaisong (Buri.)	r	r	r	r	r	r	r	r	-	r
30. Sengsang (Nakom.)	r/ø	r/ø	r/ø	r/ø	r/ø	r/ø	r/ø	ø	-	r
31. Taphraya (Sakaew)	r	ø	ø	ø	ø	ø	ø	ø	ø	ø
32. Aranyapathet (Sakaew)	ø	ø	ø	ø	ø	ø	ø	ø	ø	ø
33. Phayakkhaphum (Maha.)	r	r	r	r	r	r	r	r	-	r
34. Kasetwisay (Roi.)	r	r	r	r	r	r	r	r	r	r
35. Suwannaphum (Roi.)	r	r	r	r	r	r	r	r	r	r
36. Phonsai (Roi.)	r	r	r	r	r	r	r	r	r	r
37. Rachasan (Cha.)	ø	j	ø	ø	ø	ø	ø	ø	1	1

Chart 1a. /-r/ variants after long vowels and diphthongs (Note : /-/ = no word)

Words / Locations	11	12	13	14	15
1. Namyen (Ubon.)	r	r	r	r	r
2. Kantharalak (Sri.)	ɾ	ɾ	ɾ	ɾ	ɾ
3. Khunhan (Sri.)	r	r	r	r	r
4. Khukhan (Sri.)	ɾ	ɾ	ɾ	ɾ	ɾ
5. Phraibang (Sri.)	r/n	r/n	r/n	r/n	r/ł
6. Buachet (Surin)	r	r	r	r	r
7. Sangkha (Surin)	r	r	r	r	r
8. Kapchoeng (Surin)	ɾ	ɾ	ɾ	ɾ	ɾ
9. Prasat (Surin)	r	r	r	r	r
10. Lamduan (Surin)	ɾ	ɾ	ɾ	ï	ɾ
11. Muang Surin (Surin)	r	r	r	r	r
12. Srikhoraphum (Surin)	ɾ	ɾ	ɾ	ɾ	ɾ
13. Comphra (Surin)	r	r	r	r	ɾ
14. Thatum (Surin)	ɾ	ɾ	ɾ	ɾ	ɾ
15. Chumphonburi (Buri.)	r	r	r	r	r
16. Bankruat (Buri.)	r	r	r	r	-
17. Lahansai (Buri.)	ɾ	ɾ	ɾ	ɾ	-
18. Pakham (Buri.)	l	l	l	l	ɾ/ø
19. Nangrong (Buri.)	r	ɾ	ɾ	ɾ	r
20. Nongki (Buri.)	r	r	r	ɾ	r
21. Phlapphlachai (Buri.)	r	r	r	r	r
22. Prakhonchai (Buri.)	r	r	r	r	-
23. Nonghong (Buri.)	r	r	r	r	-
24. Lamplaimat (Buri.)	ɾ	ɾ	ɾ	l	-
25. Muang Buriram (Buri.)	ɾ	ɾ	ɾ	l	-
26. Krasang (Buri.)	r	r	r	r	r
27. Khumuang (Buri.)	ɾ	ɾ	ɾ	ɾ	r
28. Satuk (Buri.)	r	r	r	r	r
29. Phutthaisong (Buri.)	r	r	r	r	r
30. Sengsang (Nakorn.)	ɾ	ɾ	ɾ	ɾ	ø
31. Taphraya (Sakaew)	r	r/n	ɾ	ɾ	ø
32. Aranyapathet (Sakaew)	l	l	l	l	ø
33. Phayakkhaphum (Maha.)	r	ɾ	ɾ	r	-
34. Kasetwisay (Roi.)	r	r	r	r	r
35. Suwannaphum (Roi.)	ɾ	ɾ	ɾ	ɾ	r
36. Phonsai (Roi.)	r	r	r	r	r
37. Rachasan (Cha.)	l	l	l	l	ø

Chart 1b. /r-/ variants after short vowels

Lexical Set 1: -r

1. pirr   'two'
2. cirr   'fertilizer'
3. khəmeːr   'Khmer'
4. dʌr   'to walk'
5. kaːr   'work'
6. juːr   'slow, long time'
7. hoːr   'to flow'
8. thəwiər   'door'
9. wiər   'roping plant'
10. chuər   'to stand'
11. hʌr   'peppery hot'
12. kɔnɔr   • 'rat'
13. khɔnɔr   'jackfruit'
14. tɔbar   'to take out'
15. ʔar   'to saw'
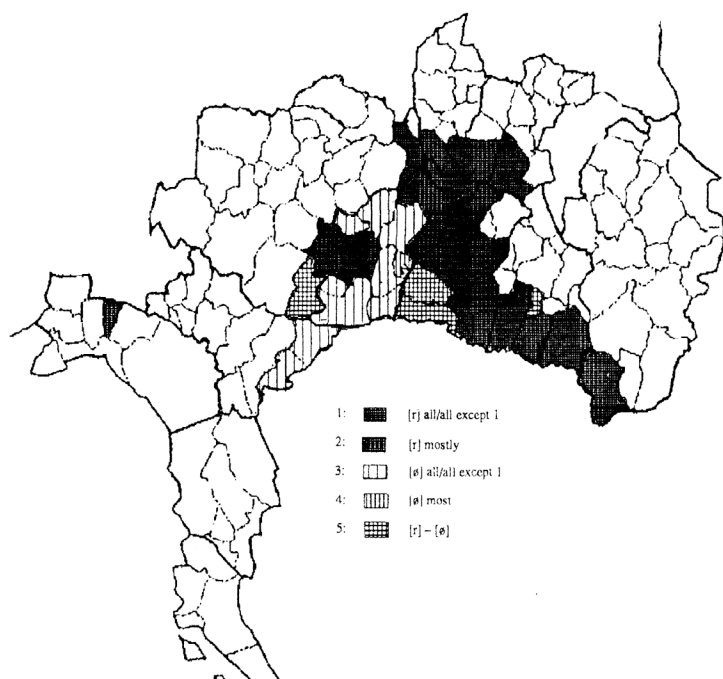
Map 2. Distribution of final /-r/ variants after long vowels and diphthongs

4.2 *Final palatal nasal*

In Khmer palatal nasal /-ɲ/ and velar nasal /-ŋ/ are normally contrasting phonemes. However, when they occur after front vowels, they are not contrastive. In certain areas /-ɲ/ is used but in other areas /-ŋ/ is used as in the following examples.

-ɲ		-ŋ	
tiɲ	~	tiŋ	'to buy'
phlɯɲ	~	phlɯŋ	'rain'
kameːɲ	~	kameːŋ	'children'

Chart 2a presents the survey of /-ɲ/ variants in words with front vowels used by Khmer speakers in 37 locations in Thailand. Final /-ɲ/ is used in more than half (or about 65%) of all locations investigated. Chart 2b presents the occurrence of final /-ɲ/ and /-ŋ/ after central and back vowels. Chart 2b confirms that the two phonemes /-ɲ/ and /-ŋ/ are contrastive even though /-j/ occurs as a variant of /-ɲ/ in two words in one location (in Srisaket)

Since there is the variation after front vowels, the geographical distribution of final /-ɲ/ after front vowels is also shown on Map 3.

Final /-ɲ/ occurs primarily in the central part of the core area (mainly in Surin, and some parts of Buriram) and with a scattering to the east (Srisaket and Ubon) and to the west (some parts of Buriram, Nakhornrachasima, Sakaew and Chachoengsaw). It is represented by dark shaded pattern 1 for all example words pronounced with final /-ɲ/ (or only one word is not so pronounced). Pattern 2 indicates the areas where most examples (except 2-3 words) are pronounced with final /-ɲ/. Final /-ŋ/ areas are found mainly in Buriram and Srisaket and are represented by pattern 3 for areas where all example words are pronounced with final /-ŋ/ (or only one word is not so pronounced). Pattern 4 indicates the areas where most examples (except 2-3 words) are pronounced with final /-ŋ/. The mixed areas indicated by pattern 5 where both final /-ɲ/ and /-ŋ/ are pronounced are found in some districts in Surin where they border the /-ŋ/ area of Srisaket.
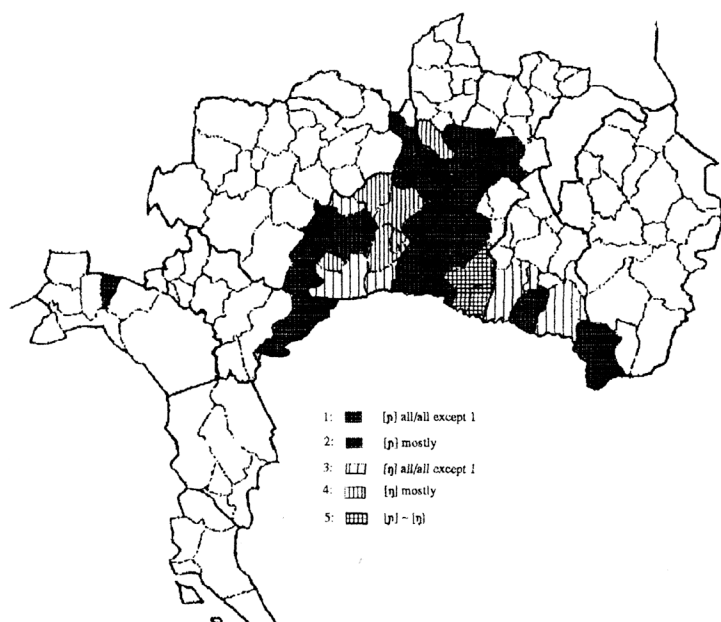
Map 3. Distribution of final /-ɲ/ variants after front vowels

Words / Locations	1	2	3	4	5	6	7	8
1. Namyen (Ubon.)	ɲ	ɲ	ɲ	ɲ	ŋ	ɲ	ɲ	ɲ
2. Kantharalak (Sri.)	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ
3. Khunhan (Sri.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
4. Khukhan (Sri.)	ɲ	ŋ	ŋ	ŋ	ŋ	ŋ	ɲ	ŋ
5. Phraibang (Sri.)	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ
6. Buachet (Surin)	ɲ	ɲ	ɲ/ŋ	ɲ/ŋ	ɲ/ŋ	ɲ	ɲ	ɲ/ŋ
7. Sangkha (Surin)	ɲ/ŋ	ɲ/ŋ	ɲ/ŋ	ɲ/ŋ	ɲ/ŋ	ɲ	ɲ	ɲ/ŋ
8. Kapchoeng (Surin)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
9. Prasat (Surin)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
10. Lamduan (Surin)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
11. Muang Surin (Surin)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
12. Srikhoraphum (Surin)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
13. Comphra (Surin)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
14. Thatum (Surin)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
15. Chumphonburi (Buri.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
16. Bankruat (Buri.)	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ɲ	ŋ
17. Lahansai (Buri.)	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ɲ	ŋ
18. Pakham (Buri.)	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ	ŋ
19. Nangrong (Buri.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
20. Nongki (Buri.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
21. Phlapphlachai (Buri.)	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ɲ	ɲ/ŋ
22. Prakhonchai (Buri.)	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ɲ	ɲ/ŋ
23. Nonghong (Buri.)	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ɲ	ŋ
24. Lamplaimat (Buri.)	ŋ	ɲ	ŋ	ŋ	ŋ	ŋ	ɲ	ŋ
25. Muang Buriram (Buri.)	ŋ	ɲ	ŋ	ŋ	ŋ	ŋ	ɲ	ŋ
26. Krasang (Buri.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
27. Khumuang (Buri.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
28. Satuk (Buri.)	ɲ	ŋ	ɲ	ɲ	ɲ	ɲ	ɲ	ŋ
29. Phutthaisong (Buri.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
30. Sengsang (Nakorn.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
31. Taphraya (Sakaew)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
32. Aranyapathet (Sakaew)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
33. Phayakkhaphum (Maha.)	ɲ	ŋ	ŋ	ŋ	ŋ	ŋ	ɲ	ɲ
34. Kasetwissy (Roi.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
35. Suwannaphum (Roi.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
36. Phonsai (Roi.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ
37. Rachasan (Cha.)	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	ɲ

Lexical Set 2a: -ɲ, -ŋ

1. tiɲ   'to buy'
2. hiːɲ   'bullfrog'
3. phluːɲ   'rain'
4. deɲ   'to know'
5. weːɲ   'long'
6. kameɲ   'children'
7. deɲ   'to chase'
8. khleːɲ   'kite'

Chart 2 a. /-ɲ/ variants after front vowels

Words \ Locations	9	10	11	12	13	14	15	16
1. Namyen (Ubon.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
2. Kantharalak (Sri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
3. Khunhan (Sri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
4. Khukhan (Sri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
5. Phraibang (Sri.)	ɲ/j	ɲ/j	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
6. Buachet (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
7. Sangkha (Surin)	ɲ/ŋ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
8. Kapchoeng (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
9. Prasat (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
10. Lamduan (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
11. Muang Surin (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
12. Srikhoraphum (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
13. Comphra (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
14. Thatum (Surin)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
15. Chumphonburi (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
16. Bankruat (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
17. Lahansai (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
18. Pakham (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
19. Nangrong (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
20. Nongki (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
21. Phlapphlachai (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
22. Prakhonchai (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
23. Nonghong (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
24. Lamplaimat (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
25. Muang Buriram (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
26. Krasang (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
27. Khumuang (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
28. Satuk (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
29. Phutthaisong (Buri.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
30. Sengsang (Nakorn.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
31. Taphraya (Sakaew)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
32. Aranyapathet (Sakaew)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
33. Phayakkhaphum (Maha.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
34. Kasetwisay (Roi.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
35. Suwannaphum (Roi.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
36. Phonsai (Roi.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ
37. Rachasan (Cha.)	ɲ	ɲ	ɲ	ɲ	ŋ	ŋ	ŋ	ŋ

Lexical Set 2b: -ɲ, -ŋ

9. khəɲ   'to see'
10. ʔaŋkaɲ   'a kind of edible plant'
11. salaɲ   'to love'
12. ʔiɲcvɲ   'to invite'
13. kaɲ   'to spread sideways'
14. doŋ   'coconut'
15. ruɲ   'hole'
16. boɲ   'elder sibling'

Chart 2 b. /-ɲ/ and /-ŋ/ after central and back vowels

4.3 *Final palatal stop*

As with the final *-ɲ*, the palatal stop /-c/ and velar stop /-k/ are normally two separate phonemes. However, after the front vowels, they are in variation. Moreover, glottal stop /-ʔ/ is also found as an additional variant of final /-c/ and /-k/. The survey of final /-c/ variants after the front vowels is shown in Chart 3a, and final variation of /-c/ and /-k/ occurring after central and back vowels is shown in Chart 3b. While Chart 3b (words nos.9 - 12) confirms that final /-c/ and /-k/ are separate phonemes, Chart 3a (words nos.1 - 8) shows variation among final /-c/, /-k/, /-ʔ/. Final /-c/ represents two thirds of all occurrences, whereas final /-k/ occurs in about one third and final /-ʔ/ only occurs in a few locations.

The following examples illustrate the variation between final /-c/, /-k/, and /-ʔ/ after front vowels.

-c		-k		-ʔ	
ciːc	~	ciːk	~	ciʔ	'to dig'
phɔneːc	~	phɔneːk	~	phɔneʔ	'eyes'
sɔneːc	~	sɔneːk	~	sɔneʔ	'bean'

The geographical distribution of /-c/ variants after front vowels is also represented in Map 4.

Dark shaded pattern 1 represents the locations where all words are pronounced with final /-c/ (or only one word is not so pronounced). Dark shaded pattern 2 represents the locations where most words (except 2-3 words) are pronounced with the final /-c/. The /-c/ variant which is found in one-third of the occurrences is scattered mainly in Surin, Mahasarakham, Roi-et, some parts of Buriram, and Sakaew. Final /-k/ variant which also represents about one third of all occurrences is represented by pattern 3 and pattern 4. It is pronounced mainly in Buriram and some parts of Srisaket and Ubon. It is noticeable that another one-third of occurrences are in the mixed area where both /-c/ and /-k/ are found and are represented by pattern 5, or in some places /-c/ and /-ʔ/ occur and are represented by pattern 6, or /k/ and /ʔ/ occur and are represented by pattern 7, or /-c ~ -k ~ -ʔ/ occur and are represented by pattern 8. The mixed areas, especially the latter case, are those at the border where there are people from different places living together. It is noticeable that /-ʔ/ is found in the central part of Surin, that is, in Muang and Lamduan districts, and in some places it co-occurs with final /-c/.

For words with central and back vowels, final /-c/, cannot occur in variation with other consonants, e.g., *khlaːc, khamɔːc, tuːc, krɔːc* (nos. 9 - 12); however, final /-k/ can vary with /-ʔ/ or the final consonant can reduce to ø as seen in words 13 through 24 in Chart 3b. Some of the examples are presented below:

-k		-ʔ		-ø	
tuːk	~	tuʔ	~	tuː	'boat'
caruːk	~	caruʔ	~	caruː	'pig'
srɔk	~	srɔʔ	~	srɔː	'village'

In some words final /-ʔ/ is more common. There are only a few locations where /-k/ is pronounced as shown in Chart 3b with examples as listed below:

-ʔ   -k

prɯʔ   ~   prɯk   'early morning'
thaliəʔ ~   thaliək   'to fall'
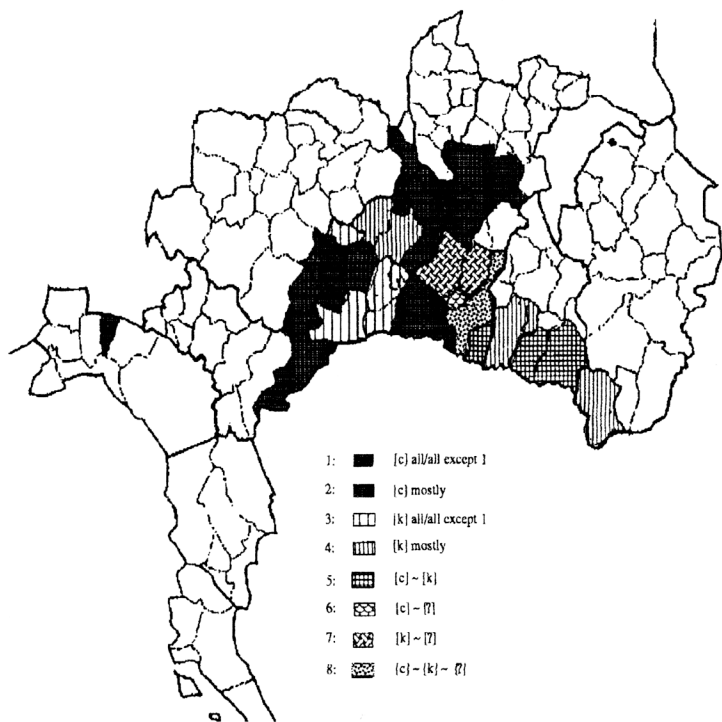
Map 4. Distribution of final /-c/ variants after front vowels

Words / Locations	1	2	3	4	5	6	7	8
1. Namyen (Ubon.)	c	k	k	k	k	k	c	k
2. Kantharalak (Sri.)	k	k	k	k	k	k	c	k
3. Khunhan (Sri.)	c/k	c/k	c/k	c/k	c/k	c/k	c	c/k
4. Khukhan (Sri.)	c	k	k	k	k	k	c	k
5. Phraibang (Sri.)	c	k/ʔ	k	c/k	k	k	c/k	k
6. Buachet (Surin)	c/k	c/k	c/k	c/k	c/k	c/k	c	c/k
7. Sangkha (Surin)	c/k/ʔ	c/k/ʔ	c/k/ʔ	c/k/ʔ	c/k/ʔ	c/k/ʔ	c	c/k/ʔ
8. Kapchoeng (Surin)	c	c/k	c	c	c	c	c	c/k
9. Prasat (Surin)	c	c	c	c	c	c	c	c
10. Lamduan (Surin)	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	c	c
11. Muang Surin (Surin)	c/ʔ	c/ʔ	c/ʔ	c/ʔ	c/ʔ	c/ʔ	c/ʔ	c/ʔ
12. Srikhoraphum (Surin)	c/ʔ	c/ʔ	c/ʔ	c/ʔ	c/ʔ	ʔ	c	c/ʔ
13. Comphra (Surin)	c	c	c	c	c	c	c	c
14. Thatum (Surin)	c	c	c	c	c	c	c	c
15. Chumphonburi (Buri.)	c	c	c	c	c	c	c	c
16. Bankruat (Buri.)	k	k	k	k	k	k	c	k
17. Lahansai (Buri.)	k	k	k	k	k	k	c	k
18. Pakham (Buri.)	c	c	c	c	c	c	c	c
19. Nangrong (Buri.)	c	c	c	c	c	c	c	c
20. Nongki (Buri.)	c	c	c	c	c	c	c	c
21. Phlapphlachai (Buri.)	k	k	k	k	k	k	c	k
22. Prakhonchai (Buri.)	k	k	k	k	k	k	c	k
23. Nonghong (Buri.)	k	k	k	k	k	k	c	k
24. Lamplaimat (Buri.)	k	k	k	k	k	c	c	k
25. Muang Buriram (Buri.)	k	k	k	k	k	c	c	k
26. Krasang (Buri.)	k/ʔ	c	c	c	c	c	c	c
27. Khumuang (Buri.)	c	c	c	c	c	c	c	c
28. Satuk (Buri.)	c	c	c	c	c	c	c	c
29. Phutthaisong (Buri.)	c	c/k	c	c	c	c	c	c
30. Sengsang (Nakom.)	c	c	c	c	c	c	c	c
31. Taphraya (Sakaew)	c	c	k	k	c	c	c	c
32. Aranyapathet (Sakaew)	c	k	c	c	c	c	c	c
33. Phayakkhaphum (Maha.)	c	k	k	c	k	k	c	k
34. Kasetwisay (Roi.)	c	c	c	c	c	c	c	k
35. Suwannaphum (Roi.)	c	c	c	c	c	c	c	c
36. Phonsai (Roi.)	c	c	c	c	c	c	c	c
37. Rachasan (Cha.)	c	ʔ	c	ʔ	k	c	c	c

Chart 3 a. /-c/ variants after front vowels

Lexical Set 3a: -c, -k, -ʔ

1. ciːc   'to dig'
2. kliːc   'armpit'
3. mtɯc   'sky'
4. trɔcɯc   'ear'
5. ceːc   'banana'
6. phaneːc   'eyes'
7. dɛc, dɔːc   'to be the same, similar'
8. sɔneːc   'bean'

Lexical Set 3b: -c, -k, -ʔ

9. khlaːc   'to fear'
10. khɔmɔːc   'spirit, ghost'
11. tuːc   'small'
12. krɔːc   'lemon'
13. tɯk   'water'
14. pruɯk   'morning'
15. phʌk   'to drink'
16. tɯk   'boat'
17. crɯk   'pig'
18. kɯk   'high land'
19. choːk   'lotus'
20. bɔʔ   'to pound'
21. tɕlɔːk   'coconut shell'
22. srɔʔ   'village'
23. krɔeɔːk   'nail'
24. thɔliɔʔ   'to fall'

Words / Locations	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Namyen (Ubon.)	c	c	c	c	k	k	k	k	k	k	k	k	k	k	?	-
2. Kantharalak (Sri.)	c	c	c	c	k	k	k	k	k	k	k	k	k	k	k	?
3. Khunhan (Sri.)	c	c	c	c	k	k	k	k	k	k	k	k	k	k	k	?/k
4. Khukhan (Sri.)	c	c	c	c	k	k	kz	k	k	k	k	k	k	k	k	k
5. Phraibang (Sri.)	c/t	c/t	c/t	c/t	k	k	k	k	k	k	k	k	k	k	k	k/ʔ
6. Buachet (Surin)	c	c	c	c	k	k	k	k	k	k	k	k	k	k	k	k
7. Sangkha (Surin)	c	c	c	c	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ	k/ʔ
8. Kapchoeng (Surin)	c	c	c	c	k/ʔ	k/ʔ	?	?/ø	?/ø	k/ʔ	?	?	?	?	?	?
9. Prasat (Surin)	c	c	c	c	k/ʔ	k/ʔ	?	k/ʔ	k/ʔ	k/ʔ	k/ʔ	?	k/ʔ	?	?	?
10. Lamduan (Surin)	c	c	c	c	?	?	?	?	?	?	k/ʔ	?	?	?	?	?
11. Muang Surin (Surin)	c	c	c	c	?	?	?	k/ʔ	k/ʔ	k/ʔ	?	k/ʔ	?	k/ʔ	?	?
12. Srikhoraphum (Surin)	c	c	c	c	?	k/ʔ	?	k/ʔ	k/ʔ	?	?	?	?	?	?	?
13. Comphra (Surin)	c	c	c	c	k	k	?	k	k	k	k	?	k	?	?	?
14. Thaturn (Surin)	c	c	c	c	k	k	k	k	k	k	k	k/ʔ	k	?	k	?
15. Chumphonburi (Buri.)	c	c	c	c	k	k	?	k	k	k	k	?	k	?	k	?
16. Bankruat (Buri.)	c	c	c	c	k	k	?	k	k	k	k	k	?	?	k	?
17. Lahansai (Buri.)	c	c	c	c	k	k	?	k	k	k	k	k	?	k	?	?
18. Pakham (Buri.)	c	c	c	c	?	?	?	k	k	k	k	?	k	?	k	?
19. Nangrong (Buri.)	c	c	c	c	?	?	?	k/ʔ	k/ʔ	k/ʔ	k/ʔ	?	k/ʔ	?	k/ʔ	?
20. Nongki (Buri.)	c	c	c	c	?	?	?	k/ʔ	k/ʔ	k/ʔ	k/ʔ	?	k/ʔ	?	k/ʔ	?
21. Phlapphlachai (Buri.)	c	c	c	c	k	k	?	k	k	k	k	k	?	k	?	?
22. Prakhonchai (Buri.)	c	c	c	c	k	k	?	k	k	k	k	k	?	k	?	?
23. Nonghong (Buri.)	c	c	c	c	k	k	?	k	k	k	k	?	k	?	k	?
24. Lamplaimat (Buri.)	c	c	c	c	k	k	k	k	k	k	?	k	k	?	k	?
25. Muang Buriram (Buri.)	c	c	c	c	k	k	k	k	k	k	?	k	k	?	k	?
26. Krasang (Buri.)	c	c	c	c	k	k	k	k	k	k	k	k	k	k	k	k
27. Khumuang (Buri.)	c	c	c	c	k	k	?	k	k	k	?	?	k	?	k	?
28. Satuk (Buri.)	c	c	c	c	k	k	?	k	k	k	k	k	k	?	k	?
29. Phutthaisong (Buri.)	c	c	c	c	k	k	k	k	k	k	k	k	k	k	k	?
30. Sengsang (Nakom.)	c	c	c	c	k	k	?	k	k	k	?	k	?	k	?	?
31. Taphraya (Sakaew)	c	c	c	c	k	k	?	k	k	k	k	k	?	k	?	-
32. Aranyapathet (Sakaew)	c	c	c	c	k	k	?	k	k	k	?	k	?	k	?	?
33. Phayakkhaphum (Maha.)	c	c	c	c	k	k	k	k	k	-	k	k	k	k	k	k
34. Kasetwisay (Roi.)	c	c	c	c	k	k	?	k	k	k	k	k	k	k	k	?
35. Suwannaphum (Roi.)	c	c	c	c	k	k	k	k	k	k	k	?	k	?	k	?
36. Phonsai (Roi.)	c	c	c	c	k	k	?	k	k	k	k	?	k	?	k/ʔ	?
37. Rachasan (Cha.)	c	c	c	c	k	k	?	k	k	k	k	k	k	-	?	?

Chart 3 b. /-c/, /-k/, and /ʔ/ after central and back vowels

5. Comparison with modern Cambodian Khmer orthography and standard Cambodian Khmer prononication

Since an alphabet may reflect the pronunciation of a language, the modern Khmer orthography which is generally considered the base for standard pronunciation of Cambodian Khmer should therefore be a reflection of standard Khmer pronunciation to a certain extent. The standard pronunciation here refers to the variety of Khmer that is taught in the schools, used for mass communication and spoken by educated Cambodians especially in their careful speech. Comparing the modern Khmer orthography and the standard Khmer pronunciation as presented in Huffman's Spoken Cambodian (1970) and the Cambodian-English dictionary of Headley, et al (1977) with the variation of final consonants reported in this survey for various locations, we find the following correspondences.

5.1 -ɼ /-r/

Cambodian Orthography	NK Pronunciation	
	After long vowels	After short vowels
-ɼ /-r/	**-r, -ø** , -l, -n, -j	**-r,** -ø, -l. -n, -t

Corresponding to final -ɼ/-r/ in standard written Khmer (e.g. in such words as ខ្មែរ 'Khmer' and ហើរ 'peppery hot') is final /-r/ in the various Khmer varieties of Thailand, especially in words with short vowels. However, words with long vowels or diphthongs may lose the final /-r/. Variants other than /ø/ include -l, -n, -j, or -t with very few occurrences. However, it is noticeable that in standard Cambodian Khmer pronunciation the final /-r/ is actually not pronounced in almost all cases but in some words with short vowel it is realized as final /-l/. Final /-r/ is generally a NK characteristic. It occurs mainly in the Surin dialect which is at the heart of the NK core area.

Gloss	Written Khmer	SK Pronunciation	NK Pronunciation
'Khmer'	ខ្មែរ /-r/	/khmae/	/khameːr ~ khameː~ khameːn/
'peppery hot'	ហើរ /-r/	/haə~ həl/	/hʌr ~ hʌl~ hʌn/
'fertilizer'	ជីរ /-r/	/ciː/	/ciːr ~ ciː~ ciːn ~ ciːj/
'to saw'	សារ /-r/	/ʔaː/	/ʔar~ ʔaː~ ʔat/

5.2 *-ញ/-ɲ/ and -ស/-ŋ/*

Cambodian Orthography	NK Pronunciation	
	After front vowels	After non-front vowels
-ញ /-ɲ/ -ស /-ŋ/	-ɲ, ŋ -ɲ, -ŋ	-ɲ -ŋ

    Words written with final -ញ/-ɲ/ in modern Cambodian Khmer orthography, (e.g. in such words as ទិញ 'to buy') may be pronounced with /-ɲ/ or /-ŋ/ after front vowels, whereas after the non-front vowels in words such as ឃើញ 'to see', they are always pronounced as /-ɲ/. The words written with final /-ŋ/ after the front vowel, such as ភ្លៀង 'rain', vary between finals /-ŋ/ and /-ɲ/; after the non-front vowels in words such as បង 'elder sibling' the final consonant is always pronounced /-ŋ/.

Gloss	Written Khmer	SK Pronunciation	NK Pronunciation
'to buy'	ទិញ /-ɲ/	/tiɲ/	/tiɲ/~ /tiŋ/
'to see'	ឃើញ /-ɲ/	/khəɲ/	/khəɲ/
'rain'	ភ្លៀង /-ŋ/	/phliəŋ/	/phlɯɲ~ phlɯŋ/
'elder sibling'	បង /-ŋ/	/baːŋ/	/bɒːŋ/

    The final /-ɲ/ variant occurs in many places in the NK speaking area, especially in the Surin dialect. In Surin even the Thai words ending with /-ŋ/ are pronounced with /-ɲ/; for example, *phleŋ* 'song' is pronounced *phleɲ*. It is noticeable that even in standard Cambodian Khmer pronounciation the palatalization of final consonants after front vowel also occurs in some cases.

5.3 *-ច /-c/ and -ក /-k/*

Cambodian Orthography	NK Pronunciation	
	After front vowels	After non-front vowels
-ច /-c/ -ក /-k/	-c, -ʔ -c, -ʔ, -k	-c -k, -ʔ

Final /-c/ in Cambodian Khmer orthography (e.g. in such words as ដូច 'same, similar' or តូច 'small') are pronounced /-c/ after non-front vowels. However, final /-k/ following a front vowel as in ជីក 'to dig' can vary between /-k/ and /-c/. It is interesting to see that in the heart of the core area, the Surin dialect around Surin city and Lamduan, final /-ʔ/ can also occur as a variant of both final /-c/ and /-k/ in words with front vowels but not for final /-c/ after non-front vowels. Some examples are listed below.

Gloss	Written Khmer	SK Pronunciation	NK Pronunciation
'same, similar'	ដូច /-c/	/doːc/	/dɛːc, doːc/
'small'	តូច /-c/	/toːc, tuːc/	/tuːc/
'to dig'	ជីក /-k/	/ciːk/	/ciːk ~ ciːc ~ ciːʔ/
'eyes'	ភ្នែក /-k/	/phnɛːk/	/phanɛːk ~ phanɛːc ~ phanɛːʔ/

6. Conclusion

This study of phonetic variation provides a picture of what Khmer dialects in Thailand are like. It reveals that Surin city (Muang district) and surrounding areas which constitutes the heart of the NK core area and has been accepted as standard NK (in an orthography meeting for NK held in 1989) still retains the final trill /-r/ which has been lost in standard Cambodian Khmer. Final -ៈ /-r/ in written Khmer is not pronounced in Cambodian speech. NK has developed the palatalization of velar nasal and velar stop. Final velar nasal -ង /-ŋ/ has been changed to palatal nasal ញ /-ɲ/, and final velar stop -ក /-k/ has been changed to palatal stop -ច /-c/ after the front vowels. This innovation is obviously caused by the influence of the preceding front vowel on the final consonant. Final glottal stop /-ʔ/ has developed in place of the final palatal and velar stops in some words. Its development conforms to the principle of "least effort" in pronunciation. The same kind of innovations may also be developing in certain areas of Cambodian Khmer pronunciation but a systematic study of this phenomenon has still not been done.

REFERENCES

Bauer, Christian. *Northern Khmer Final Palatals.* 1989. Unpublished manuscript.
Chambers, J.K. and Trudgill, Peter, 1980. *Dialectology.* Cambridge: Cambridge
    University Press.
Headley, Robert K. Jr., Kylin Chhor, Jan Kheng Liem, LimHak Kheang, Chen
    Chun. 1977. *Cambodian-English Dictionary.* Washington, D.C.: The
    Catholic University of America Press.
Huffman, Franklin. 1970. *Modern Spoken Cambodian.* New Haven: Yale
    University Press.
Prakorb Phon-ngam. 1987. *A Phonological Comparison of Spoken Central Khmer
    (Phnom Penh) and Northern Khmer (Surin).* MA. Thesis, Mahidol
    University, Thailand.
Smalley, William A. 1964. *Ethnolinguistic survey of Northern Khmer speaking
    people in Northeast Thailand.* (with data on Kuy). Unpublished manuscript.
Smalley, William A. 1976. *Phonemes and Orthography: Language planning in
    ten minority languages of Thailand.* Pacific Linguistics. Series C. No. 43
Smalley, William A. 1988. *Multilingualism in the Northern Khmer Population of
    Thailand.* LS 10, No 2 395-408.
Smalley, William A. 1994. *Linguistic Diversity and National Unity.* Chicago: The
    University of Chicago Press.
Smyth, David A. ed. 1993 *Cambodian Linguistics, Literature and History,
    Collected Articles by Judith Jacob.* London: School of Oriental and African
    Studies, University of London.
Suwilai Premsrirat and Sophana Sricampa. 1990. *Formulating A Thai-Based
    Northern Khmer Orthography.* Salaya: Institute of Languages and Culture
    for Rural Development, Mahidol University.
Thomas, David. 1989. On the "language" status of Northern Khmer. *LC* 9 (1):
    98-106.

Appendix 1

90 words used in the survey (based on Surin Khmer dialect)

1.	piːr	สอง	'two'
2.	ciːr	ปุ๋ย	'fertilizer'
3.	kəsɯr	บุหรี่	'cigarette'
4.	deːr	เย็บ	'to sew'
5.	keːr	มรดก	'heritage'
6.	khəmɛːr	เขมร	'Khmer'
7.	dʌːr	เดิน	'to walk'
8.	cənʌːr	บันได	'staircase'
9.	kaːr	งาน	'work'
10.	ʔaːhaːr	อาหาร	'food'
11.	ʔaːcaːr	อาจารย์, ผู้ทำพิธี	'ritual conductor'
12.	təmaːr	แบน	'flat'
13.	juːr	ช้า, นาน	'long time'
14.	muːr	ม้วน	'to roll by hand'
15.	koːr	กวน	'to stir'
16.	hoːr	ไหล	'to flow'
17.	kɔːr	โกน	'to shave (hair)'
18.	ʔɔːr ●	ดีใจ	'to be delighted'
19.	thəwiːər	ประตู	'door'
20.	wɨər	เถาวัลย์	'climbing plant'
21.	cɨər	ยาง	'rubber'
22.	ɲɨər	ลั่น	'to be shiver'
23.	chuər	ยืน	'to stand'
24.	ŋər	โกรธ สะบัดไป	'to be angry'
25.	hʌr	เผ็ด	'peppery hot'
26.	kənɔr	หนู	'rat'
27.	khənɔr	ขนุน	'jackfruit'
28.	təbar	ปั่น, แคะหู	'to take out'
29.	ʔar	เลื่อย (กริยา)	'to saw'
30.	səmar	เชือกกล้วย	'banana skin rope'
31.	(kroːc) chəmar	มะกรูด	'a kind of lemon'
32.	kəpur	บ้วนปาก	'to spit'

33.	kəmɔr	ปูน	'lime'
34.	khɛː piɲbɔr	พระจันทร์เต็มดวง	'full moon'
35.	tiɲ	ซื้อ	'to buy'
36.	hiɲ	อึ่งอ่าง	'bullfrog'
37.	phlɯɲ	ฝน	'rain'
38.	deɲ	รู้	'to know'
39.	weːɲ	ยาว	'long'
40.	kameɲ	เด็ก	'child'
41.	dɛɲ	ไล่	'to chase'
42.	khlɛɲ	ว่าว	'kite'
43.	khəɲ	เห็น	'to see'
44.	salaɲ	รัก	'to love'
45.	ʔaŋkaɲ	(ดอก) ขี้เหล็ก	'a kind of edible flower'
46.	ʔiɲcɤːɲ	เชิญ	'to invite'
47.	kaɳ	ชี้กางออกไป	'to spread side ways'
48.	doɳ	มะพร้าว	'coconut'
49.	ruːɳ	รู	'hole'
50.	bɔɳ	พี่	'elder sibling'
51.	tic	(แมลง) ต่อย	'to sting'
52.	ciːc	ขุด	'to dig'
53.	klɯc	รักแร้	'armpit'
54.	mɯc	ท้องฟ้า	'sky'
55.	trəcɯc	หู	'ear'
56.	ceːc	กล้วย	'banana'
57.	phəneːc	นัยน์ตา	'eye'
58.	dɛc, doːc	เหมือน, คล้าย	'same, similar'
59.	sɔnɛːc	ถั่ว	'bean'
60.	khlaːc	กลัว	'to fear'
61.	khəmɔːc	ผี	'spirit, ghost'
62.	tuːc	เล็ก	'small'
63.	kroːc	มะนาว	'lemon'
64.	tɯk	น้ำ	'water'
65.	prɯk	เช้า	'morning'
66.	ʔantrɤːk	นั่งเขย่าขา	'to sit with knee shaking'
67.	ʔannʌːk, nʌːk	เต่า	'turtle'
68.	phʌʔ	ดื่ม	'to drink'

69.	ʔulʌʔ	แตงโม	'watermelon'
70.	taːʔ	ชานเรือน	'sitting area of the house without a roof'
71.	khɛː prəsaːʔ	เดือนพฤษภาคม	'May'
72.	plaʔ	คลุก	'to mix'
73.	tuːk	เรือ	'boat'
74.	cruːk	หมู	'pig'
75.	muʔ	หน้า	'face'
76.	lʊːk	พระ	'monk'
77.	kʊːk	บก, โคก	'high land'
78.	choːk	ดอกบัว	'lotus'
79.	sənoːk	รางหมู	'pig's trough'
80.	bɔʔ	ตำ	'to crash'
81.	bɔːk	ซัก	'to wash (cloth)'
82.	təlɔːk	กะลา	'coconut shell'
83.	srɔʔ	หมู่บ้าน	'village'
84.	dɒːʔ	ถอน	'to pull up'
85.	krɔcɒːʔ	เล็บ	'fingernail'
86.	kɒʔ	สระ (ผม)	'to wash (hair)'
87.	piːəʔ	คำพูด	'a word, a talk'
88.	niəʔ	คุณ, ทิด	'you, a man who have been through monkhood'
89.	thəliəʔ	ตก	'to fall down'
90.	lɯc	รั่ว (น้ำรั่ว)	'to leak (water)'