THE CLASSIFICATION OF SOME THAI DIALECTS SPOKEN IN KEDAH

Umaiyah Damanhuri

Faculty of Languages and Linguistics University of Malaya

A. Introduction

Scattered all over Kedah are small communities of Malaysians who also speak a Thai dialect as their first language. The presence of these Thai-speaking communities is attested to at first glance by the presence of Buddhist temples, which constitute almost fifty percent of all such temples in Malaysia.

This paper focuses on the Thai dialects spoken in Kedah (Umaiyah, 1999) specifically, in Kampong Tas, a village in Baling, a district located in south – eastern Kedah, in Naka, a town in the district of Padang Terap, which is in north-central Kedah, and in kampong Kubang Chenok, a village in Kubang Pasu, a district in the north western side of Kedah. These dialects are chosen as samples of Thai dialects spoken in Kedah because of the geographical spread of the locations in which they are spoken in the state. Kubang Chenok is located in the far north, near Perlis; Baling is located in the southeast; and Naka is almost at the centre.

Being a Thai myself who is married to a Malay and thus came to Malaysia, I became interested in the Thai communities in Malaysia, particularly in Kedah. I wanted to know the origins of these Thais in Kedah. My approach is through their language.

B. Problem and Approach

My main problem was the classification of the Thai dialects that are spoken in Kedah. My question was to what branch and sub-branch of the Thai dialects do the Thai – Kedah dialects belong? Of the Thai dialects spoken in Kedah, I concentrated on the dialects spoken in kampung Kubang

Chenok in district of Kubang Pasu, in Kampung Tas in the district of Baling and in the town of Naka. I selected these dialects because of their geographical spread.

The Thai dialects that were selected with which the Thai Kedah dialects are to be compared are: Nakhonsithammarat, Songkhla, Phuket and Satun as representatives of the Southern Thai dialects; Bangkok Thai/Standard Thai as representative of the Ayuthayan dialects; and Tak Bai, a Thai dialect spoken in the Northeastern part of Kelantan.

The aspects of the dialects that I compared were the pattern of splits and coalescences of the tones, the pattern of pitch register and pitch contour, vocalic developments, consonantal developments including changes in consonant clusters and 241 items of basic lexicon. Thus I used different types of evidence in showing dialectal relationships. In this paper however, I will present only the results of the comparison of tonal structures and the pattern of pitch register and pitch contour.

C. The tonal structure of the Thai dialects

The data on the tonal systems of some Thai dialect varieties in Kedah is presented here. The description of the tonal systems consists of the identification of tones and the pattern of tonal splits and coalescences in each of the dialect variety.

The Tonal System of Thai – Kampung Tas, Baling and Naka, Padang Terap

There are seven tones in the Thai dialect variety spoken in Kampung Tas, Baling and Naka, Padang Terap. They were identified by ear using the Gedney system and test words for determining tones in Tai dialects.

Chart 1. Tonal Splits and Coalescences in Thai – Baling and Naka, Padang Terap

Syllable Initial Consonant Type	A	В	С	DS	DL
Consonant Class I Aspirated and Voiceless	ک	1	5	2	7
Consonant Class II Unaspirated, Voiceless And Consonant Class III Glottal	1	2	 	r	
Consonant Class IV Voiced	3		k	6	4

The Tonal System of Thai Kampung Kubang Chenok, Kubang Pasu

There are seven tones in the Thai dialect variety spoken in Kampung Kubang Chenok, Kubang Pasu. Chart 2 presents the pattern of tonal splits and coalescences in the dialect.

Thai-Kubang Chenok has seven tones. Except for DS, the basic tones have a three-way split. All tones have retained the tonal split that was conditioned by the opposition of syllable initial voiced and voiceless consonants. The second split causing the three-way split and distinguishing tones on aspirated initials is retained in tones A, B, C, and DL but not in DS.

Chart 2. Tonal Splits and Coalescences in Thai-Kubang Chenok

Syllable Initial Consonant Type	A	В	С	DS	DL
Consonant Class I Aspirated and Voiceless	٢	1	5		
Consonant Class II Unaspirated, Voiceless And Consonant Class III Glottal	V	2	6	6 Y	6
Consonant Class IV Voiced	3	4	k	7	4

Tone A1 and Tone B1 have coalesced; A1 = B1 and so have Tones A23 and B23; A23 = B23. Tone DL23 merges with Tone C23; DL23 = C23. Tone DS123 is an allotone of the DL23, C23 tone while DS4 = C4. DL4 coalesces with B4; DL4 = B4 and DL1 with the B1 = A1 merger, i.e., A1 = B1 = DL1. This could provide an evidence that at one time in the past, B = DL (Gedney, 1972; Chamberlain, 1975).

Comparison of Tonal System

The tonal system of these three Thai dialects spoken in Kedah will be compared with some Southern Thai dialects as classified by Marvin Brown (1965) and Bangkok Thai (Standard Thai). The criteria used for choosing these five Southern dialects from the 17 identified by Marvin Brown (1965: 145) is eleborated in my research (Umaiyah 1999).

In summary, the points used for classifying in general the Thai – Kedah dialect varieties are the following: The pattern of splits in the tonal system, especially the presence of

a three-way split in at least the Tone A column in recognition of aspirated initial consonants and voiced initial consonants (Brown, 1965; Chamberlain, 1975); The pattern of coalescences, especially B ≠ DL (Chamberlain, 1975) and B4 = DL4 (cf. Gedney, 1972); and A V-L correlation (Brown, 1965).

Results Towards A General Classification

Turning now on the data and analysis, we find the following:

- 1. On the Southern Thai dialects of Nakhonsithammarat, Songkhla, Phuket and Satun, the shared tonal characteristics are:
 - a. Tones A and B show a three-way split: AB1-23-4;
 - b. Tones A1 and B1 coalesce: A1 = B1;
 - c. Tones A23 and B23 coalesce: A23 = B23;
 - d. Tone A4 differs from Tone B4: $A4 \neq B4$.
 - e. Tone B does not completely coalesce with Tone DL: B

 ≠ DL;
 - f. Tone B4 and Tone DL4 coalesce: B4 = DL4;
 - g. Tone C4 and Tone DS4 coalesce: C4 = DS4;
 - h. Tones preceded by voiced initials are low, i.e., there is a V-L correlation in the system.
- 2. Tak Bai differs from the four Southern Thai dialects in all of the points:
 - There is no trace of a three-way split in the tonal system, all the basic tones exhibit a two-way split: ABCD123-4;
 - b. Tones B and DL completely coalesce: B123 = DL123;
 B4 = DL4;
 - Both a V L correlation and a V H correlations exist in Tak Bai. Only two of the five tone types are low when a syllable is preceded by a voiced consonant;
 - d. Coalescences in Tones A and B are not found in Tak Bai, thus the structure of columns A and B in Tak Bai differ from the four Southern Thai dialects.

- 3. Bangkok Thai definitely differs from the Southern Thai dialects. It has the following characteristics:
 - a. The pattern of splits has Tone A splitting with the tone of aspirated initials separated from the rest of the tones (A1 234) and the other tones in the system separating the tone of voiced initials from unvoiced ones (BCDSDL123-4);
 - b. The pattern of coalescence has B4 and DL4 merge but also with C123: B4 = C123 = DL4;
 - c. Tones preceded by voiced initials are high; only a V H correlation holds in Bangkok Thai.
- 4. The Thai Kedah dialect varieties, Baling/Naka, and Kubang Chenok, share the same structural characteristics as those of the Southern Thai dialects: Nakhonsithammarat, Songkhla, Phuket and Satun:
 - a. Tone A and B show a three-way split: AB1-23-4;
 - b. Tones A1 and B1 coalesce: A1 = B1;
 - c. Tones A23 and B23 coalesce: A23 = B23;
 - d. Tone A4 differs from Tone B4: $A4 \neq B4$;
 - e. Tone B does not completely coalesce with Tone DL:B

 ≠ DL;
 - f. Tone B4 and Tone DL4 coalesce: B4 = DL4;
 - g. Tone C4 and Tone DS4 coalesce: C4 = DS4;
 - h. Tones preceded by voiced initials are low: a V L correlation is present in the system.
- 5. Based on the same criteria used in number 4, the Thai Kedah dialects Baling, Naka and Kubang Chenok, do not share the same telltale characteristics with Tak Bai spoken in Kelantan, Malaysia and much less with Bangkok Thai. They do with the Southern Thai dialects.

The results presented in this section point to the probability of grouping the Thai – Kedah dialects Baling, Naka and Kubang Chenok, with the Southern Thai dialects and of ruling out their classification with Tak Bai in Kelantan, or with Bangkok Thai. However, if a more specific grouping is desired, we need to push the question further and ask, with which Southern Thai dialect can Baling/Naka and Kubang Chenok be more likely grouped? With the Southern Thai

dialects in the Southeast of Thailand? With those in the Southwest of the country? With the Nakhon branch of Southern Thai? With the Chaiya branch? With the Songkhla branch?

Toward A More Specific Grouping

To learn of other developments in the dialects and come closer to a more specific grouping, we focus on the differences among the four Southern Thai dialects and find out characteristics in the tonal system of each of the Thai-Kedah dialects that are similar to these differences. In particular, we examine columns C, DL and DS in terms of tonal structure since the four Southern Thai dialects and the Thai-Kedah dialects- are alike in patterns of splits and coalescences in the A and B columns and in Row 4 of the Tone Charts. We also examine tone configuration.

Closer View of Structural Patterns

A summary of the tonal structures of four of the established Southern Thai dialects - Nakhonsithammarat, Songkhla, Phuket, Satun - and the Thai-Kedah dialect varieties Baling/Naka and Kubang Chenok is given in Chart 3, Summary of Patterns of Splits and in Chart 4, Summary of Patterns of Coalescences. Chart 3 shows that the patterns of splits that have occurred are a continuum where a complete three-way split (1-23-4) is retained on one end (found in Nakhonsithammarat) and where only tones A and B exhibit this pattern on the other end (found in Baling and Naka). All seven dialects have a three-way split on tones A and B. The closest pattern to that found in Nakhonsithammarat is where tones C and DL also have a three-way split of 1-23-4 and the only tone deviating is DS with a two-way split of 123-4. This pattern is found in Songkhla and Kubang Chenok. The next pattern is where tone C and DL have a two-way split of 123-4 with the other three tones having a three-way split.

Chart 3. Summary of patterns of splits

Dialects	A.B.C.DL. DS 1-23-4	A.B.C.DL 1-23-4 DS123-4	A.B.DS 1-23-4 C.DL123-4	A.B.1-23-4 C.DL.DS 123-4
Nakhonsithammarat (Nakhon)	X			
Songkhla (Songkhla)		X		
Phuket (Chaiya)			X X	
Satun (Songkhla)			Λ	X
Baling/Naka		v		^
Kubang Chenok		X		

This is found in the Southwestern dialects of Phuket and Satun. Thus in patterns of splits, Kubang Chenok is aligned with Songkhla while Baling/Naka differs from the rest.

Chart 4 shows that all seven dialects share the same pattern of coalescences in columns A and B. In the pattern where the high and mid tones of C and DL merge, Nakhonsithammarat, Phuket and Satun are alike. In the pattern where the coalescence of the high and low tones of B and DL are still retained and the mid tones of C and DL have merged, Songkhla and Kubang Chenok are alike. In the pattern where DL exhibits a different tone from C and B, Baling and Naka are unlike the rest. Nakhonsithammarat has DL1 and C1 merging, besides DL23 and C23; Songkhla and Kubang Chenok have DL1 and B1 (A) merging, besides DL23 and C23. Phuket and Satun have DL123 and C123 merging; Tak Bai has DL123 and B123 merging; while Bangkok DL123 and B123 almost similar. Baling/Naka on the other hand, has the High and Mid tones not merging with any other tone. Thus in

patterns of coalescences, Kubang Chenok can be grouped with Songkhla but Baling and Naka differ from the rest.

Summary of Tones

An approach that is not usually adopted by students of the Thai dialects (e.g., Kitprasert, Potibal-Trongdee, Thongchuay, and many others) is the comparison of tonal configurations. It is used in this study. Chart 5 presents summary of tones. The pitch and contour are separated to show that although the dialects could be alike on a pitch, they could differ on the contour. Thus, grouping based on patterns of tone in this study is based both on pitch and contour of the tone.

The symbols H, M and L mean High, Mid and Low, respectively. The symbols R, F, L, and Co. mean Rising, Falling, Level, and Complex contour respectively. A complex contour could be a sharply rising – falling one (\wedge) or a gliding one (\checkmark). The chart also shows that the differences among the dialects lie mostly on Tones A and B. This implies that the load of meaning differences rests on these two tones and it is most likely that most of the vocabulary of the dialects have an A or a B tone. Except for Baling and Naka, the rest of the dialects have a High pitch on aspirated initials (Row 1). The contours, however, vary. Songkhla has a rising contour, Nakhonsithammarat and Phuket, a falling contour, Satun and Kubang Chenok a level slightly-rising-at- the-end contour, and Baling/Naka, a complex contour (a mid rather low sharply rising and falling with a creaky sound at the end).

On unaspirated voiceless initials (Rows 2 and 3), the pitch and contour vary much. Nakhonsithammarat and Phuket have Mid pitch, Songkhla, Satun and Kubang Chenok, a Midrather-Low pitch, i.e., a low pitch, and Baling/Naka, a High pitch. Songkhla, Satun and Kubang Chenok are also alike in having a sharply rising contour. Nakhonsithammarat has a complex gliding contour, Phuket, a complex a rising-falling contour, and Baling/Naka, a level, slightly rising at the end contour

Chart 4. Summary of Patterns of Coalescences

Dialects	A1=B1 A23=B23 B4=DL4	C1=DL1 C23=DL23	B1=DL1 C23=DL23 B4=DL4	C123≠DL123 B123≠DL123
Nakhonsithammarat (Nakhon)	X	X		
Songkhla (Songkhla)	X		X	
Phuket (Chaiya)	X	X		
	X	X		
Satun (Songkhla)	X			X
Baling/Naka	X		X	
Kubang Chenok				

On voiced initials (Row 4), tones A and B differ, unlike in Rows 1, 2 and 3 where they merge. This difference is indicated in the chart with the use of differentiated symbols: X for Tone A and O for Tones B and DL. These symbols are also used on the rest of the Chart whenever two tones differ. A doubling of a single symbol is used when two tones coalesce. The symbol / beside a level tone means 'slightly rising'; the symbol \ means 'slightly falling' and the symbol \ means 'rising-falling', adopting the Mary Haas system of symbols.

A low pitch predominates on voiced initials. The pitch for Tone A in Nakhonsithammarat, Songkhla and Satun is Mid, in Kubang Chenok, Phuket and Baling/Naka, Low. All seven dialects have a low pitch in Tone B. The contours, however have subtle differences. Nakhonsithammarat has a rising contour on B and DL and a falling contour on A. Songkhla has a level slightly-falling-at-the-end contour on A and a level contour on B and DL. Phuket also has a level-slightly-falling-

at-the-end contour on A but a level-slightly-rising at the end contour on B and DL

Chart 5. Summary of tonemic configurations

	Tone A·X and Tones B and DL. 0		
Dialects	Row 1 — Aspirated Initials	Rows 2 and 3 – Unaspirated Voiceless Initials	Row 4 – Voiced Initials
	Pitch Contour Pitch Contour H M L R F L Co. H M L R F L C		Pitch Contour H M L R F L Co
1 Nakhonsithammarat (Nakhon)	x x	х х.г	хоох
2. Songkhla (Songkhla)	x x	хх	x o x /o
3 Phuket (Chaiya)	x x	x x^	XO X\ O/
4 Satun (Songkhla)	x x/	хх	X O X O/
5 Baling/Naka	x x∧	x x/	xo xo/
6 Kubang Chenok	x x	хх	xo xo
	Tones C and DS		
Row 1 – Aspirated Initials		Rows 2 and 3 – Unaspirated Initials	Row 4 – Voiced Initials
Dialects	Pitch Contour H M L R F L Co.	Pitch Contour HMLRFLCo.	Pitch Contour H M L R F L Co.
1 Nakhonsithammarat (Nakhon)	xx xx	xx xx	х х
2. Songkhla (Songkhla)	xo x\ o/	xx xx	x x
3 Phuket (Chaiya)	xx xx	xx xx	x x
4. Satun (Songkhla)	xx xx	xx xx	x x
5 Baling/Naka	o x xo	ох хо	x x
6. Kubang Chenok	xo x\ o/	xx xx	x x

Satun has a falling tone on A and a level-slightly-rising-at-the-end contour on B and DL. Baling has a level tone on A and a level-slightly rising-at-the-end contour on B and DL. Kubang Chenok has a level contour on A, B, and DL, the slight difference resting on pitch. Only Nakhonsithammarat and Satun are alike on Tone A4. On Tone B4 and DL4, Phuket, Satun, and Baling/Naka are alike. Songkhla and Kubang Chenok are alike on Tones B and DL.

On aspirated initials (Row 1), Tone C registers on a High pitch in Nakhonsithammarat, Songkhla and Kubang

Chenok. It registers on a Mid pitch in Phuket, Satun and Baling/Naka. Although Nakhonsithammarat on the one hand, and Phuket and Satun on the other register differently, they share the same level contour. Songkhla and Kubang Chenok also share similar Tone C contours, but they are subtly different from that shared by the three. It is a level, slightly-falling-at-the-end shape. On aspirated initials (Row 1) still, Tone DL merges with Tone C in Nakhonsithammarat, Phuket, and Satun. Thus, for these three Southern Thai dialects, the pitch and contour of DL is similar to Tone C. For the dialects in which Tones C and DL do not merge, i.e., Songkhla, Baling, and Kubang Chenok, Tone DL registers High in all three but Baling differs in contour. Songkhla has a slightly rising contour and so does Kubang Chenok. Baling on the other hand has a level contour.

On unaspirated, voiceless initials (Rows 2 and 3), except for Baling/Naka on Tone DL, all the dialects have a mid pitch and a level contour. Tone DL in Baling/Naka has a High pitch (actually, a Mid rather High) and a level contour like the rest. Tone C in unaspirated voiceless initials carries the least burden of meaning differentiation in the Southern Thai dialects.

On voiced initials (Row 4), Tone DL merges with Tone B, which has been discussed in the preceding paragraphs. It is Tone C and Tone DS that merge on this row. Up to this point, Tone DS has not been mentioned. It has not been included in the Summary of Tonemic Configurations either. It is the traditional practice of historical linguists who work on Tai languages to exclude checked syllables in counting the tones of a Tai language or a dialect as they are considered "toneless" or "dead". They copy the tones of the smooth syllables, i.e., Tones A, B or C. Tone DL has been included in the Chart since the tone on a long vowel is clearer than that on a short vowel and since it seems to have a different tone from either B or C in Baling/Naka.

Turning back to Tones C and DS on voiced initials, all seven dialects have a low pitch and except for Nakhonsithammarat and Phuket, which have level contours, the rest have falling contours.

Classification by Tone Comparison

In using the tones as a basis for comparison, the tones or tonal features that are common to most, if not all, as well as those that are variable are identified. The assumption is, as it happened with structural characteristics where there are common patterns of splits and coalescences that group the Southern Thai dialects as a branch of the Tai family of languages, there are characteristics of pitch and contour that are shared by all or most and there are elements that are shared only by some. It is the latter that could indicate to what branch or sub-branch of Southern Thai each of the Thai–Kedah dialect varieties belongs.

The findings of comparison are the following:

- 1. The most stable tonal characteristic, which all seven dialects share is the Low pitch of Tones B, C, DS, and DL on voiced, initials. This characteristic accompanies the two-way bifurcation of basic tones in Southern Thai dialects. The finding supports M. Brown's (1965) hypothesis of a V L correlation in Southern Thai dialects.
- 2. Another tonal characteristic that is common to almost all is the High pitch on aspirated initials of Tones A, B, C and D. This tonal feature accompanies the three-way split that occurred in some Tai languages.
- 3. The most stable pitch-contour in the tonal systems of the seven dialects is Tone C on unaspirated voiceless initials (Rows 2 and 3). All dialects share a Mid-Level pitch-contour.
- 4. Three tonal features separate Songkhla, Satun and Kubang Chenok from the Nakhon sub-branch (Nakhonsithammarat) and the Chaiya sub-branch (Phuket):
 - a. On A1B1, Songkhla, Satun and Kubang Chenok adopt a High-Slightly-Rising pitch contour while Nakhonsithammarat and Phuket have a High-Falling pitch contour. The Baling/Naka pitch contour has a Mid-rather-Low-Rising sharply and falling shape.
 - b. On A23-B23, Songkhla, Satun and Kubang Chenok have a Mid-rather-Low-Rising sharply pitch contour. Nakhonsithammarat has a Mid gently Rising-Falling tone, Phuket, a Mid-sharply Rising-Falling tone, and

- Baling/Naka, a Mid-rather-High Level-Slightly Rising tone.
- c. On C4-DS4, Songkhla, Satun and Kubang Chenok, and Baling/Naka have a Low-Falling tone while Nakhonsithammarat and Phuket, a Low-Level tone.
- 5. Three tonal developments separate Songkhla and Kubang Chenok from the rest:
 - a. On B4, Songkhla and Kubang Chenok adopt a Low-Level tone while Nakhonsithammarat adopts a Low-Rising tone. Phuket, Satun and Baling/Naka adopt a Low-Slightly-Rising pitch contours;
 - b. On C1, Songkhla and Kubang Chenok adopt a High-Slightly Falling pitch contour while Nakhonsithammarat, with C1 and DL1 merging, adopts a High-Level tone. Satun and Phuket, with C1 and DL1 also merging, adopt a Mid-Level tone. Baling/Naka has a Mid-Level tone, without DL1 merging with C1.
 - c. On DL1, Songkhla and Kubang Chenok have a High-Rising tone. Nakhonsithammarat with C1 and DL1 merging, has a High Level tone; Phuket and Satun, a Mid-Level tone; and Baling/Naka a High-Level tone.
- 6. On A4, Songkhla and Kubang Chenok differentiate in pitch-contour. Songkhla has a Mid-Slightly Falling tone, Kubang Chenok, a Mid-rather-Low-Level tone, Phuket a Low-Slightly Falling tone and Baling/Naka, a Low-Level tone. Nakhonsithammarat and Satun share a Mid-Falling tone.

The first three characteristics of tonal configuration group the dialects as Southern Thai dialects. The Songkhla branch separates from the Nakhon and Chaiya branch starting the fourth characteristic. Kubang Chenok shares six of the seven differentiating characteristics with Songkhla. This suggests that Kubang Chenok is a dialect variety of Songkhla. Of the seven tonal characteristics, Baling/Naka differs from the rest on five of them. It is difficult at this point to classify Baling/Naka with any of the four established Southern Thai dialects.

D. Conclusions

- 1. The three Thai -Kedah dialects classify with the Southern Thai dialects
- 2. The Thai dialect spoken in Kelantan is different from the Thai dialects spoken in Kedah
- 3. Thai -Kubang Chenok groups with Songkhla and could be a dialect variety of Songkhla
- 4. The findings of a comparison of tone configuration support and do not contradict my findings on the comparison of tonal structure. The comparison of tone configuration however, gives finer information on the grouping of subbranches
- 5. The tonal chart does not show to with specific Southern Thai dialect, Thai-Baling and Thai-Naka belong. This is cleared up later by evidences from vocalic and consonantal developments and a comparison of some basic lexicon which I hope to give in another paper

Finally, where did the Thai- speaking communities in Kedah come from? The data suggest that they are not remnants of Ayuthayan soldiers who came to fight battles in Malacca or in Kedah. The data suggest that they belong to the Sukhothai people. Particularly, the people of Baling and Naka, given other evidences could be migrants of Sukhothai families, at par with the people of Satun, who moved on to the interior of Kedah hundreds of years ago. Those in Kubang Chenok appear to be more recent migrants from Songkhla.

References

- Brown, Marvin J. 1965. From ancient Thai to modern dialects.

 Bangkok: Social Science Association Press of Thailand.
- Brown, Marvin J. 1975. The great tone split: did it work in two opposite ways?. Studies in Tai Linguistics In Honor of William J. Gedney, ed. by J.G. Harris and J. R. Chamberlain, 33-48 Bangkok: Central Institute of English Language, Office of State Universities.
- Chamberlain, James R. 1975. A new look at the history and classification of the Tai languages. Studies in Tai Linguistics In Honor of William J. Gedney, ed. by J.G. Harris and J.R. Chambelain, 49-66. Bangkok: Central Institute of English Language, Office of state Universities.
- Gedney, William J. 1964. A comparative sketch of white, black and red Tai. The Social Science Review. Special Number 14: 1-47. Bangkok.
- Gedney, William J. 1972. A checklist for determining tones in Tai dialects. Studies in Linguistics In Honor of George L. Trager, ed. by Smith M. Estellie. Janua Linguarum, 423-437. The Hague: Mouton.
- Li, Fang-Kwei. 1954. Consonant clusters in Tai. Language 30:368-377.
- Umaiyah Haji Umar, 1999. A Classification of Thai-Kedah dialects using phonological characteristics. Unpublished Ph.D. dissertation, University of Malaya.