

TONAL VARIATIONS AND CHANGES IN A LANGUAGE MIXTURE AREA : A CASE STUDY OF NORTHEASTERN THAILAND (ISAN)¹

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Abstract

In northeastern Thailand or "Isan"; Lao, otherwise known as the northeastern Thai dialect, is used as a lingua franca by people living in the area, in which minority ethnic groups are scattered. Some of the ethnic groups speak Tai dialects/languages, such as the Nyo, Phuthai, Saek, Kaloeng, Yoi, as well as others. When tonal languages belonging to the same language family are spoken in an area with the respective speakers in constant contact, it is worthwhile to investigate to what extent their tonal systems and tonal characteristics have influenced each other. To achieve this, the earliest available literature has been examined to obtain what appear to be prototypical tonal systems for the three languages. The specific goal, then, was to determine how well these prototypes have been preserved in a region of high language contact.

1 This paper is based on the author's ongoing research and M.A. thesis (Akharawatthanakun, 1998) which was supervised by Dr. M.R. Kalaya Tingsabadh, as a point of departure.

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The That Phanom district of Nakhon Phanom province was selected as the field site since three Tai languages, Lao, Nyo, and Phuthai, are spoken there. The concept of Gedney's tone boxes was adopted but lexically modified for the languages in question. The SIL CECIL programme was used for investigating the tonal systems and tonal characteristics. On the basis of the available literature, the prototypes of Lao, Nyo, and Phuthai tones were tentatively determined.

This study reveals that the prototypes of Phuthai tones are still retained in the Phuthai language, while those of Lao and Nyo have been changed to a certain extent due to mutual interference. That is, their tones have been distorted from the tonal prototypes. This means that both major and minor languages spoken in the same area are susceptible to change; and that at least some of the changes can be caused from external factors. Furthermore, it is questionable whether the new data from the present research supports a single set of tonal prototypes for Lao. To give definite answers, more research needs to be done.

Introduction

In northeastern Thailand, generally known as the Isan region, Lao or Lao Isan is spoken by the Lao or Lao Isan people, the majority group, and various minority languages are sporadically spoken. Some of the ethnic groups speak Tai dialects/languages, such as the Nyo, Phuthai, Saek, Kaloeng, Yoi, as well as others. It is generally understood that Lao or Lao Isan is used as a lingua franca by people living in the area while the minorities use their own languages to communicate within their own groups.

As a Lao native speaker of Udonthani, a province in the Isan region, I am interested in Lao as well as other surrounding minority languages. It is noticeable that the accents of Lao spoken in some areas, for example in Nakhon Phanom and Sakon Nakhon where Nyo and Phuthai are minorities, are different from others I have heard, including mine. My special interest is in the tonal systems which are perhaps the most useful criterion for dialect boundaries within the Tai-speaking area (Gedney 1972). The suspicion is that the influence on the tones in Lao and minority languages can be one cause of such difference between Lao accents.

I have examined earlier available literature, relating to the tonal systems of Lao³ and minority languages, mainly spoken in northern Isan, Nyo⁴ as well as Phuthai⁵, and it is noticeable that while most of the tonal systems in each language are distinctly different, there appears no clear-cut difference between them. In other words, some tonal systems in the three languages show the same or similar patterns of tone mergers and splits (see the appendix 2 for the pairs of the same or similar tonal systems in Lao, Nyo, and Phuthai, for example Lao no. 45 ~ Nyo no.9&10, Lao no.51 ~ Nyo no.1&2 = Phuthai no.6 ~

Phuthai no.7, Lao no.53 = Nyo no.4, Lao no.54 = Nyo no.3, Lao no.55&56 ~ Nyo no.5&6).⁶

In addition to confirming the migration of each ethnic group, such similarity of tone mergers and splits between Lao, Nyo, and Phuthai leads to questions about the influence on the tonal languages which might have occurred over very many years. Therefore, it is worthwhile to investigate to what extent the tonal systems and tonal characteristics have influenced each other when tonal languages belonging to the same language family are spoken in an area where the respective speakers are in constant contact.

The Lao tonal systems in the That Phanom district of Nakhon Phanom province had been investigated in my pilot study and it was found that the tonal system of Lao spoken in the northern area of the district was noticeably different from that spoken in the southern area. Based on my personal experience, I strongly suspected that the accent of Lao spoken in the northern area was influenced by some minority languages spoken in the same locale. Therefore, the northern area of the That Phanom district was selected as the field site for investigating the influence on the tonal languages, since three Tai languages, Lao, Nyo, and Phuthai, are spoken there. In the northern part of the That Phanom district, there are a few villages of Phuthai and very few of Nyo, therefore, we can infer that Lao is the majority in that area.

³ From Brown (1965), Chamberlain (1975 & 1984), Chantanakhom & Rattanaprasert (1983), Chinchest (1989), Daecha (1987), Dejvongsa et. al. (eds.) (1972), Haas (1958), Hoonchamlong (1985), Khanittanan (1973), Osatananda (1997), Panka (1980), Pungpaopan (1984), Simmonds (1965), and Wattanaprasert & Liamprawat (1985).

⁴ From Brown (1965), Chamberlain (1975 & 1984), Koowatthanasiri (1981), and Simmonds (1965).

⁵ From Brown (1965), Chamberlain (1984), Khanittanan (1977), and Sritarat (1983).

⁶ The symbol = is used instead of the words "is the same as", and the symbol ~ as "is similar to".

Twenty "Lao", fifteen "Nyo", and ten "Phuthai" were selected to be the sources of information, according to the ethnic name they call themselves and their languages. Based on information from village headmen and villagers, each study location selected had to have been inhabited only by a single group, and people from those villages had to have been in contact with each other for a very long time.

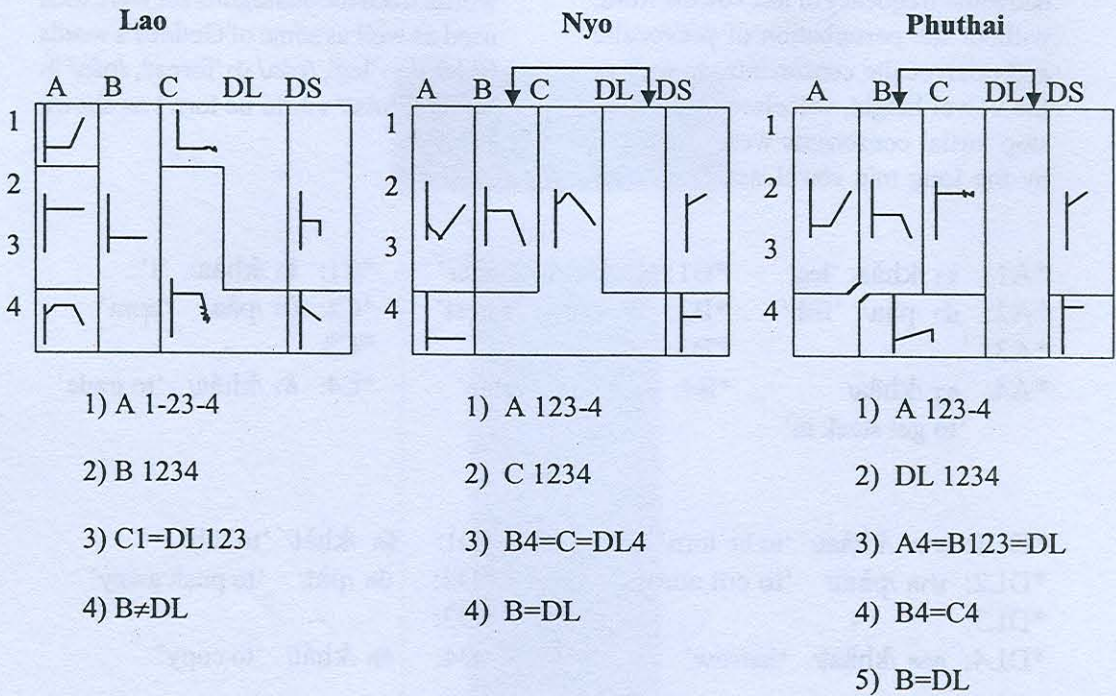
From studying the earlier literature as mentioned above, it can be claimed that most of the tone merger and split patterns in these three languages are different as well as most of the tonal characteristics. But on studying the tones in these three languages used in a language mixture area, an unexpected phenomenon was found: the "Lao" and the "Nyo" tonal systems overlap while the ones of the "Phuthai" do not. Also, with reference to the tonal characteristics, it was found that these three languages share several similar tone shapes. It was also found that the "Phuthai" is the only group which is consistent in using their own ethnic name, the name of their language as well as the linguistic characteristics of their speech. Conversely, the "Lao" and the "Nyo" use their own respective names for themselves and their

languages but the linguistic characteristics of their speech show a considerable degree of mixture. This paper aims to show the tonal variations and changes in the languages of the "Lao", the "Nyo", as well as the "Phuthai", and also to show the patterns of tonal mixture in these languages. Furthermore, there will be further discussion about the hypotheses of tone changes in Lao and Nyo languages.

Language data

As mentioned above, there is more than one tonal system in the Lao, Nyo, and Phuthai spoken in the studied area, and that led to questions about tonal variations and changes in the three languages. Therefore, the earlier available literature was examined to obtain what appear to be the prototypical distinctive merger and split patterns for the three languages. The frequency of tone merger and split patterns was the criterion for determining the prototypical tonal system. In other words, the pattern which predominantly appears in each language will be proposed to be the prototypical one of each language. The same method was used to determine the prototypical tonal characteristics. These can be seen in Figure 1.

Figure 1 The prototypical tonal systems of the Lao, Nyo, and Phuthai languages⁷



The conclusion from earlier studies leads me to assume that the patterns which appear most in Lao are B1234, C1=DL123, and B DL; the ones in Nyo are columns B, C, and DL coalescence; and the ones in Phuthai are the mergers between columns A, B, and DL. Those patterns were then used to indicate the difference between the three languages. When considering the tonal characteristics, some tones in the three languages share similar characteristics, especially the rising tone in columns A and DS, and some in Nyo look similar to Phuthai, for example the mid-falling tone in column B.

To determine how well these prototypes have been preserved in a region of high language contact, these prototypical tones were compared to the ones in the languages of the "Lao", the "Nyo", and the "Phuthai".

Method

To study the tones in the "Lao", the "Nyo", and the "Phuthai" languages, the concept of Gedney's tone boxes (see the detail in Gedney, 1972) was adopted but lexically modified for the languages in question. In order for the tonal systems to be judged by both listening analysis and the instrumental analysis of the tonal characteristics, fifteen monosyllabic words from the analogous set were selected from a minimal set which had been used in earlier tone studies (L-Thongkum et al. 1978, Tingsabadh 1980

⁷ See the tonal systems and the tonal characteristics of Lao, Nyo, and Phuthai from the earlier literature in the appendix 2.

&1990, Nuanchansang 1992, Banditkun 1993, Kritsanapan 1995). To get the fundamental frequency of test vowels word, without the perturbation of prevocalic and postvocalic consonants, as well as the vowel height, voiceless (aspirated) stop initial consonants were followed by the long mid vowel /aa/. The voice-

less stop final consonants were also controlled in the test words. Some of the words from the analogous set were then used as well as some of Gedney's words (/khǎa/ ขา 'leg', /pǎa/ ป่า 'forest', /pâa/ ป้า 'aunt', /khâat/ ขาด 'to be torn') as shown below,⁸

*A1: ขา /khǎa/ 'leg'	*B1: ข่า /khâa/ 'ginger'	*C1: ข้า /khâa/ 'I'
*A2: ปลา /pǎa/ 'fish'	*B2: ป่า /pǎa/ 'forest'	*C2: ป้า /pâa/ 'aunt'
*A3: -	*B3: -	*C3: -
*A4: คา /khāa/ 'to get stuck in'	*B4: ค่า /khâa/ 'value'	*C4: คำ /kháa/ 'to trade'
*DL1: ขาด /khâat/ 'to be torn'	*D1: ขัด /khàt/ 'to rub'	
*DL2: ปาด /pàat/ 'to cut across'	*D2: ปัด /pàt/ 'to push away'	
*DL3: -	*D3: -	
*DL4: คาด /khâat/ 'harrow'	*D4: คัด /khát/ 'to copy'	

Results

When comparing the various tonal systems in the languages of the "Lao", the "Nyo", and the "Phuthai" in the That Phanom district with the prototypical tonal systems, it was found, surprisingly, that there were five tonal system patterns: the Lao pattern, the Non-Lao pattern (Nyo?), the Nyo pattern, the Non-Nyo pattern (Lao?) and the Phuthai pat-

⁸There is no test word in the 3rd row as there has never been a 2-3 split in each column in the Lao, Nyo, and Phuthai tonal systems. And in the 2nd row, the [paa] set was selected in place of the [kaa] one so as to suit the three languages, i.e. some words in the [kaa] are meaningless in the three languages. And actually, in Central Thai, the word in A2 and DL4 should be pronounced /plāa/ ปลา and /khrâat/ คราด respectively but there is no cluster in Lao, Nyo, and Phuthai, thus they are spelt ป่า /pǎa/ and คาด /khâat/ respectively.

In order to get accurate results, the word list consisted of 5 tokens of each test word arranged in random order: 1,500 test words of the "Lao" (15 words X 5 tokens X 20 informants); 1,125 words of the "Nyo" (15 words X 5 tokens X 15 informants); and 750 words of the "Phuthai" (15 words X 5 tokens X 10 informants).

The tonal systems were first evaluated by listening, based on a system from the concept of Proto-Tai tonal systems of Li (1977) and Gedney (1972). Then, the instrumental analysis (the SIL CECIL programme -- Summer Institution of Linguistics's Computerized Extraction of Intonation in Language), was used to examine the tonal characteristics and confirm the tonal systems.

tern (A/B). When examining the speakers of each tonal system, the "Phuthai" only has the Phuthai tonal system but the "Lao" and the "Nyo" have both intermixed Lao and Nyo patterns. The re-

lationship of the ethnic names, the language names, and the linguistic characteristics of the three groups is also addressed in this study. The number of speakers of each tonal system can be seen in Table 1.

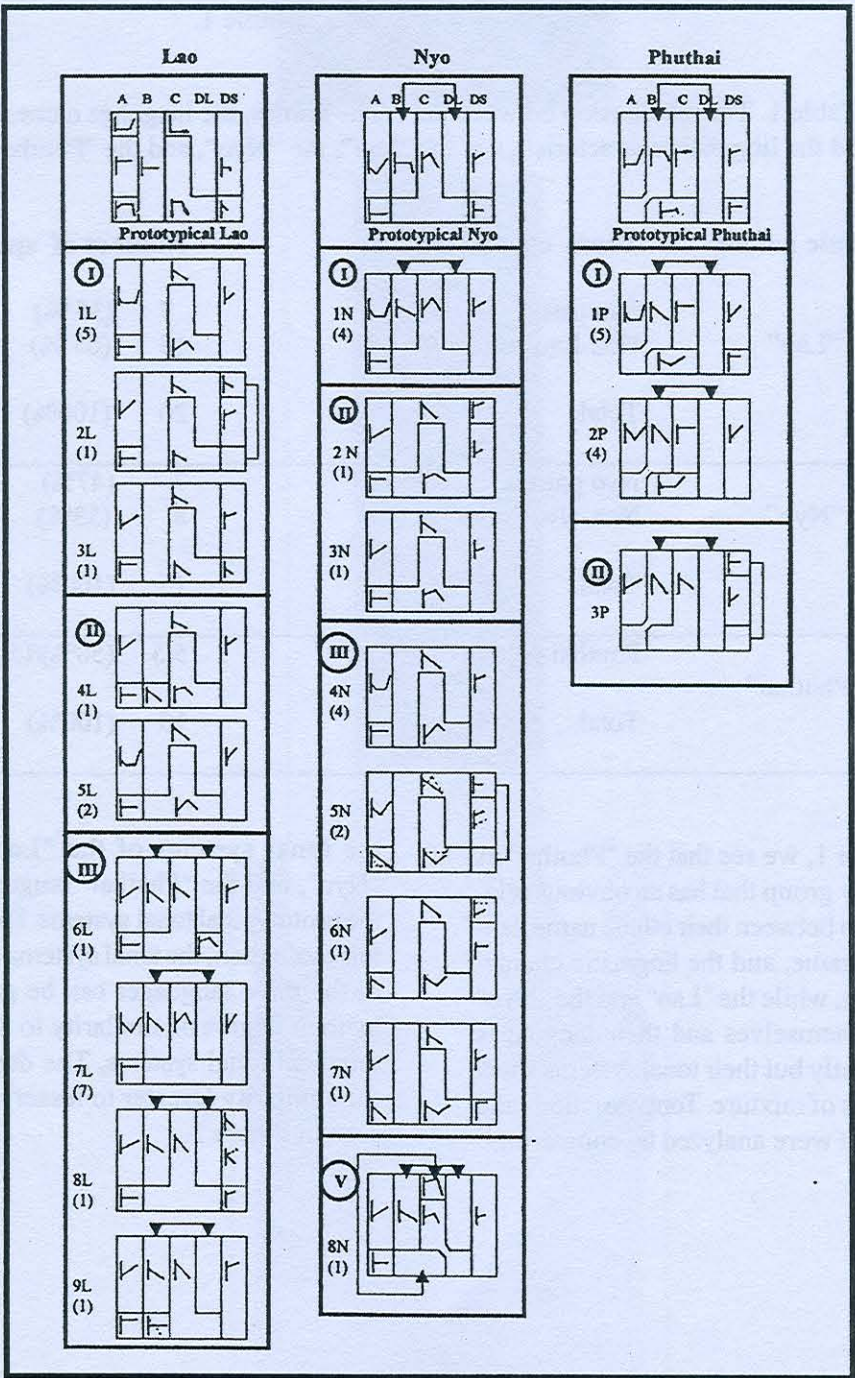
Table 1 The relationship between the ethnic names, the language names, and the linguistic characteristics of the "Lao", the "Nyo", and the "Phuthai"

Ethnic names	Tonal characteristics	Number of speakers	
"Lao"	Lao pattern	7	(35 %)
	Non-Lao pattern (Nyo?)	13	(65 %)
	Total	20	(100%)
"Nyo"	Nyo pattern	7	(47%)
	Non-Nyo pattern (Lao?)	8	(53%)
	Total	15	(100%)
"Phuthai"	Phuthai pattern (A)/(B)	5/5	(50%)/(50%)
	Total	10	(100%)

In Table 1, we see that the "Phuthai" is the only group that has an obvious relationship between their ethnic name, language name, and the linguistic characteristics, while the "Lao" and the "Nyo" name themselves and their languages differently but their tonal systems show patterns of mixture. Tone variations and changes were analyzed by comparing

the tonal systems of the "Lao", the "Nyo", and the "Phuthai" languages to the prototypical tonal systems. Based on this evaluation, the tonal systems of each of the three languages can be grouped by their degree of similarity to the prototypical tonal systems. The degree of the similarity (greater to lesser) can be seen in Figure 2.

Figure 2 The comparison between the tonal system of the “Lao”, the “Nyo”, the “Phuthai”, and the prototypical pattern⁹



⁹ The number in the parentheses represent the number of speakers that use each tonal system.

As far as the change and variation of tonal systems are concerned, Figure 2 indicates that the "Phuthai" is the only group that still retains the prototypical tonal mergers and splits even though the 2P pattern is slightly variable. The 3P pattern is the most variable tonal system, especially the merger of tone C (C1234) which is the pattern of Nyo prototype. When considering the tonal systems of the "Lao" and the "Nyo", all patterns of the tone merger and split in the "Lao" and the "Nyo" languages have both a greater and a lesser degree of variation when compared to the prototypical tones. The pattern of C and DL tone coalescence (C1=DL123) and the B tone merger (B1234) are still retained in group I of the "Lao" (1L-3L) but a change that can be clearly seen is the B and DL tone coalescence (B=DL) which is the distinctive pattern in the Nyo and Phuthai prototypes. Group III (6L-9L) of the "Lao" is changed considerably to be similar to the Nyo prototype; in other words, there is no Lao pattern retained in this group at all. Similarly, the tonal merger and split patterns of the "Nyo" are variable from the prototypical one. There is only 1N pattern that still retains most of the Nyo prototype while the others are changed.

A more interesting phenomenon was that there were some tone merger and split patterns of the "Lao" which look the same as the ones of the "Nyo", they are patterns 1L : 4N, 2L : 5N, 5L : 3N, and 7L : 1N. And when comparing each pair with the prototypical tonal systems in each language, Lao, Nyo, and Phuthai, it was found that the first two pairs are similar to the Lao, i.e. there are patterns of the tone B merger (B1234) and the C1=DL123 pattern, but the pattern that is not the same is the tone B and DL merger (B=DL). Differently, the

5L : 3N pair carry both the pattern of the Lao and the Nyo, the C1=DL123 pattern, as well as the B=DL pattern respectively. The 7L : 1N pair look the most similar to the prototypical Nyo, especially the patterns of the tone C merger (C1234) and the B=DL pattern.

Turning now to the phonetic characteristics, many tones in the three languages were found to be similar as shown in Figure 2. Similar to the case of the tone merger and split patterns, the "Phuthai" is the only group that still retains most of prototypical tonal characteristics while the "Lao" and the "Nyo" vary from their prototypes. What can be clearly noticed is the similarity of many tonal characteristics in the three languages, especially the rising tone [214, 324] in A123, the high tone [35, 45] in B123(4)=(C1)=DL123 of the "Lao", as well as the "Nyo", and in A4=B123=DL1234 of the "Phuthai", and the rising tone [25, 35, 45] in column DS of the three languages. The tonal characteristic that separates the "Phuthai" from the "Lao" and the "Nyo" is the rising tone [324, 335] in B4=C4 which comes from only three of the "Nyo" informants (5N-7N), but not of the "Lao". And the tone characteristic of the "Lao" that looks the same as the "Nyo" is the falling tone [353, 354] in (B4)=C(1)234=DL4.

These overlapping tonal systems and the tonal characteristics of the "Lao" and the "Nyo" lead to questions about language interference which causes language variations and changes. This, and other issues need to be discussed.

Conclusion and discussion

The findings in this study are different from earlier studies on tones in Lao, Nyo, and Phuthai. Some patterns of tone

mergers and splits in each language have never been mentioned, especially the case of the tone mixture between the three languages. It remains doubtful that some overlapping patterns in Lao, Nyo, and Phuthai that appear in the earlier studies (as mentioned in the introduction section) can be seen as evidence of language mixture as well. In other words, it is questionable whether or not some tonal systems may be Lao, Nyo, or Phuthai as they were indicated, especially in the case of Lao; for example Lao Ngaew and Lao Khrang may or may not be in the Lao group, and the dialects/languages in some areas of Lao PDR., such as Muang Ngoi, Vangviang, Kasi, Nam Bak, Sam Nua, Muang Yong, Muang Van, Muang San, may not be in the Lao group either. To further this investigation, more evidence needs to be gathered.

However, from the study of tone variations and changes in the That Phanom district, a language mixture area, there can still be no absolute conclusion about the language changes as more data on tones need to be collected. But what can be proposed from this study is that when tonal languages belonging to the same language family are spoken in an area where the speakers are in constant contact, their tonal systems and tonal characteristics influence each other. The prototypes of Phuthai tones are still retained in the language of the "Phuthai" so it can be concluded that the "Phuthai" tones were influenced minimally, while those of the "Lao" and the "Nyo" have been changed to a great extent due to mutual interference, that is, their tones have been distorted from the tone prototypes.

One possible reason why the "Phuthai" keep their own prototypical tones is their

pride at not being the minority. There are a large number of them living in the nearby district, Renu Nakhon, and they maintain constant contact with each other. Thus, their language tends to be less influenced by the other languages.

It is also evident that tones of the "Lao" have been interfered with, which means that in an area with multiple languages spoken, major languages, as well as minor ones, can face change. That is in accordance with the claim of Weinreich (1953, pp.92), describing what develops when there is extensive contact between groups speaking different mother-tongues. He states that congruent culture and language contact seems to invite interference of a lexical-cultural type. Also, there is no intrinsic reason to assume that when a large group and a small group are brought into contact, the smaller group will borrow more extensively than the larger one. From this study, it can be seen the phenomenon of tonal interference has occurred in the language of the "Lao" which is majority influenced by the "Nyo", or perhaps by the "Phuthai", the minorities in this area. However, what needs to be further discussed is the influence between the languages: it cannot clearly be concluded whether Lao influenced Nyo, Nyo influenced Lao, or Phuthai influenced Lao and Nyo, all of which resulted in derived patterns of the Lao and Nyo tonal systems.

Moreover, the phenomenon of language variations and changes may cause confusion in identifying a group's ethnic name and language name. While collecting the tone data from the sources, it was noticed that the "Nyo" was the only group to have been confused when naming themselves. When they were interviewed, some immediately identified

themselves as "Nyo", while some said that they were actually not "Nyo" but that they were "Lao". Because their accent is different from the Lao that is generally spoken, they have been called "Nyo" for a very long time, thus they have now accepted calling themselves "Nyo". This leads to many hypotheses about the ethnic groups and their languages in the studied area. For example, there may actually be three groups in the area, Lao, Nyo, and Phuthai. The Phuthai language has been less influenced while Lao and Nyo have been interfered with greatly. Or, there may only be Lao and Phuthai in the area and "Nyo" is the name of the group that has derived tones which are the result of the interference between Lao and Phuthai. In other words, it is questionable whether or not "Nyo" may be the name of a creole. Even though the origin of "Nyo" is said to be at Muang Nyo in Lao PDR., there is yet no obvious evidence where Muang Nyo situated in Lao PDR. This issue needs to be further discussed.

Furthermore, from researching the earliest available literature to find the prototypes of the Lao tone, it was noticed that there are various patterns of tone mergers and splits in Lao spoken in different areas (see appendix 2). Except for the patterns of tone B merger (B1234) and the C1=DL123 pattern, there are other patterns as well. It is questionable whether there is only a single set of tonal prototypes for Lao, or there is such tonal diversity in Lao resulting in its splitting into different varieties. To give definite answers, more areas in both Thailand and Lao PDR. where Lao is spoken as the majority and minority language will need to be selected as the sites for my future research. Hopefully, through further study of such issues, I can find

clearer explanations for linguistic change and variation.

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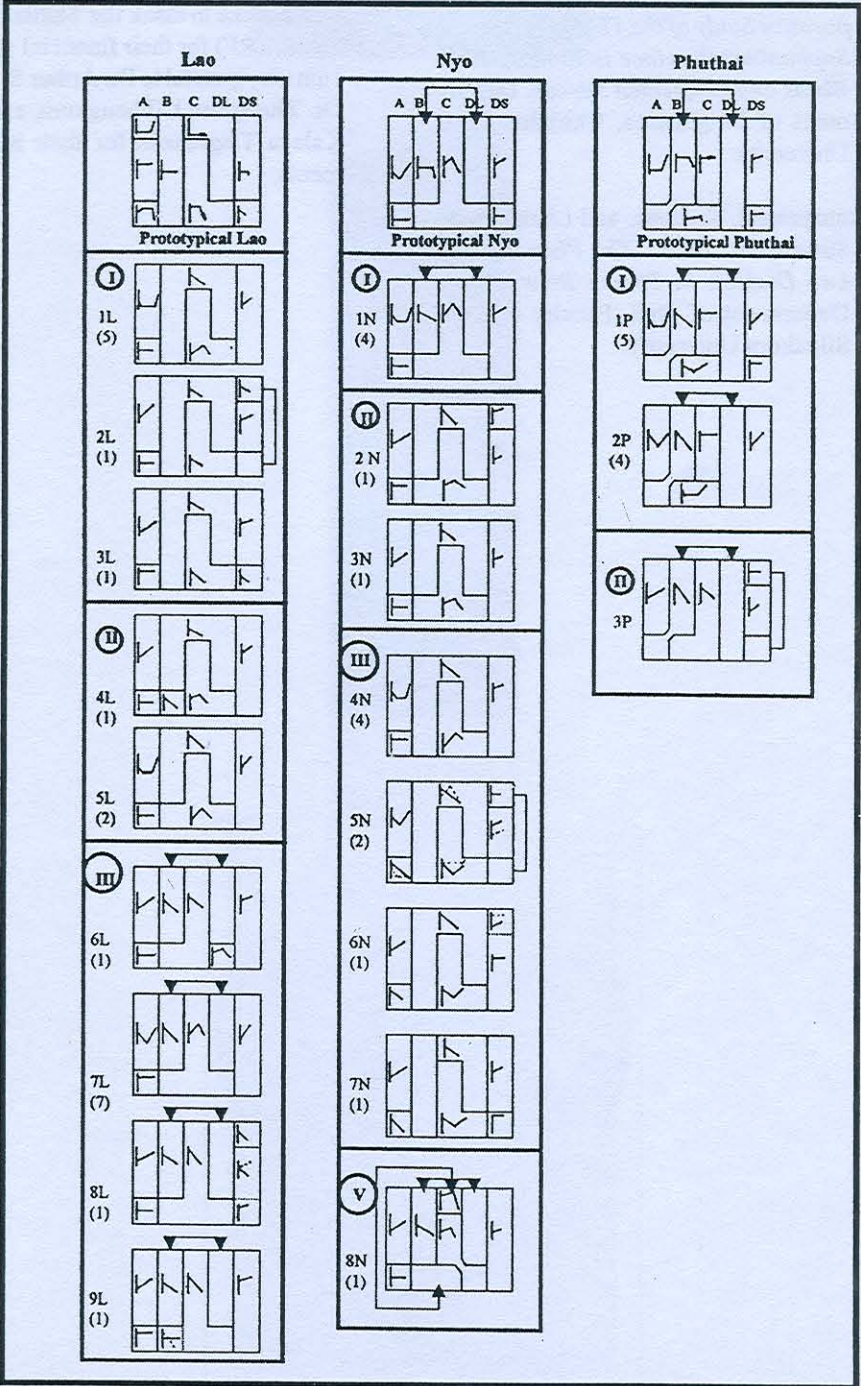
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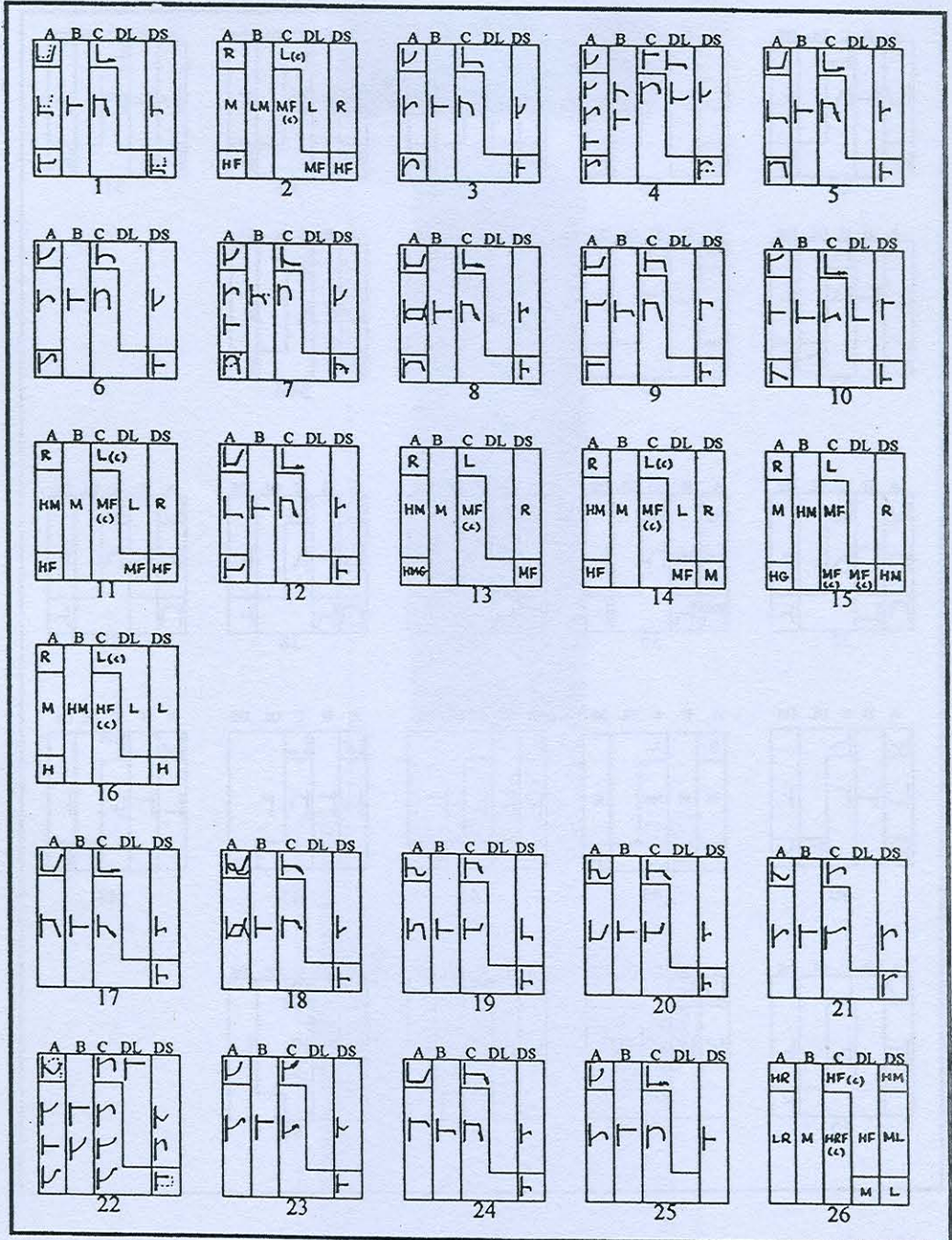
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Appendix1 Lao, Nyo, and Phuthai tonal patterns based on the author’s findings

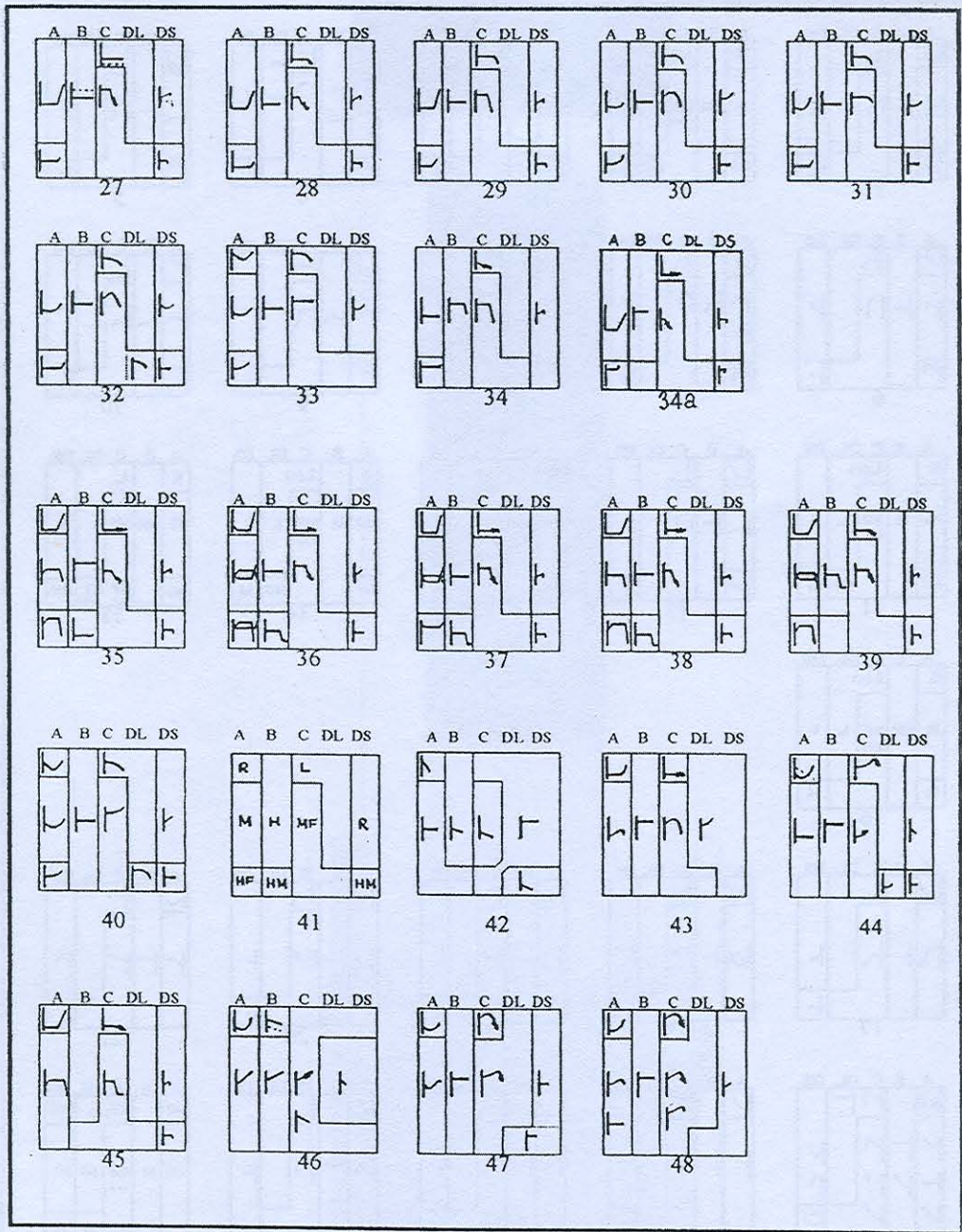


Appendix 2 Lao, Nyo, and Phuthai tonal patterns based on the literature

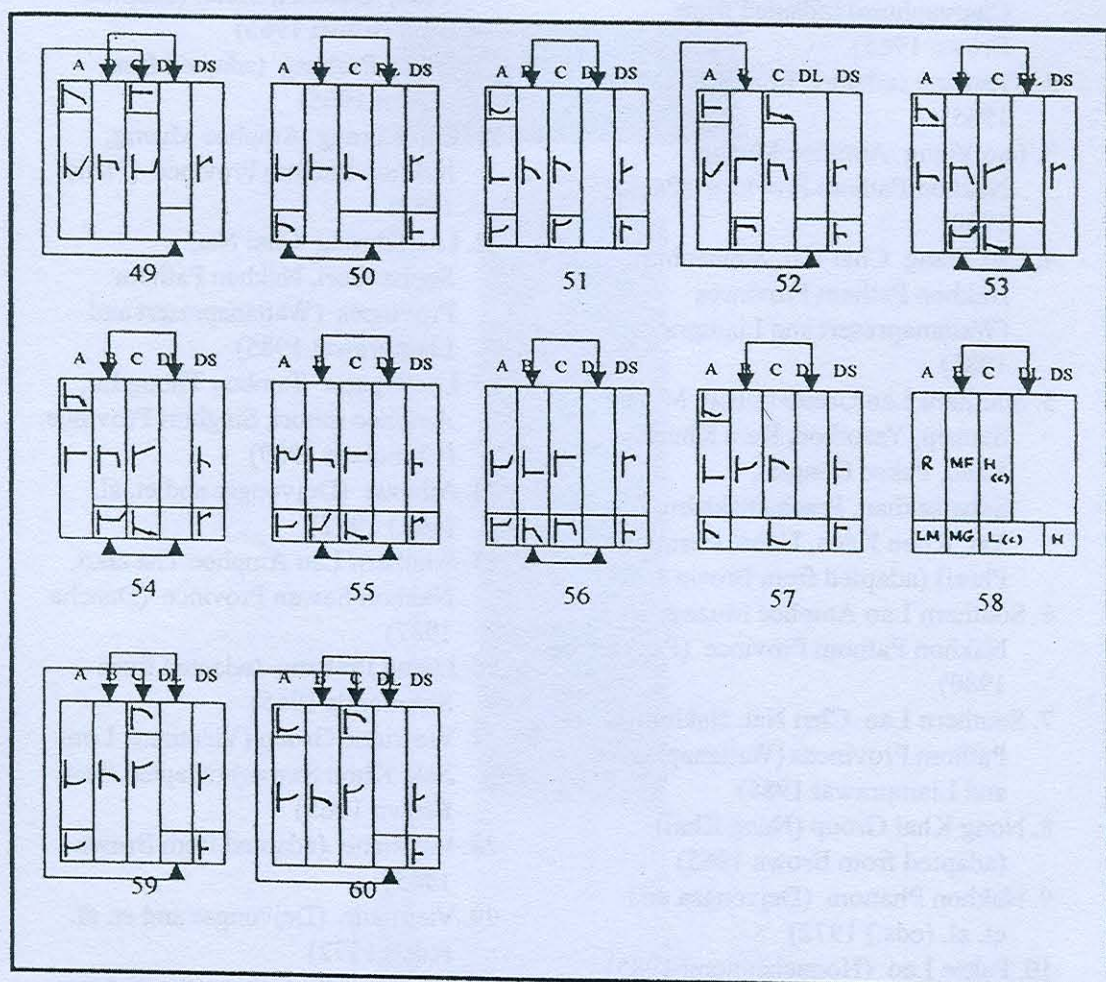
Lao Tonal Patterns (see the sources on pages 46-47)



Lao Tonal Patterns (continued)



Lao Tonal Patterns (continued)

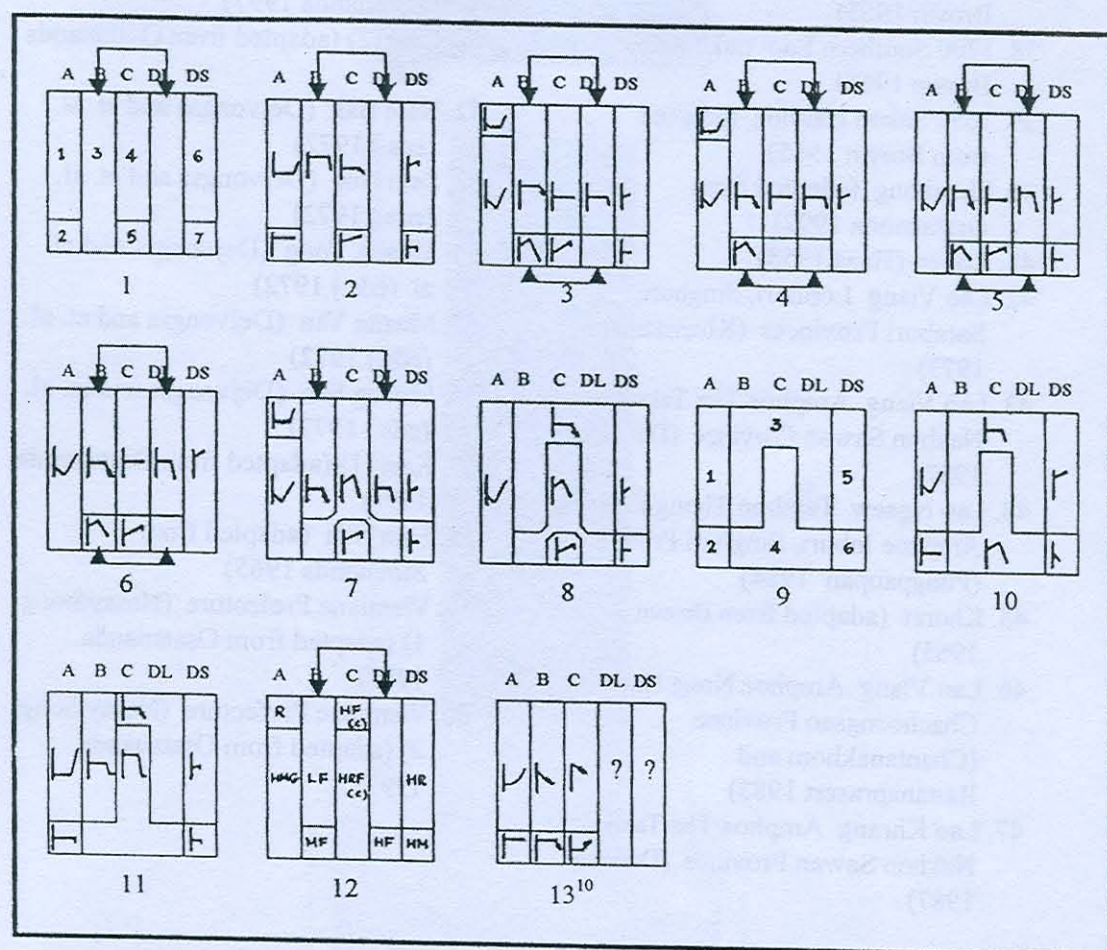


Sources of Lao Tonal Patterns

1. Vientiane Group (Thurakhom, Chaiyaphum) (adapted from Brown 1965)
2. Vientiane (adapted from Simmonds 1965)
3. Lao Viang Amphoe Muang, Nakhon Pathom Province (Panka 1980)
4. Lao Viang Chai Nat, Suphanburi, Nakhon Pathom Provinces (Wattanaprasert and Liamprawat 1985)
5. Southern Lao Group (Ubon, Muang Samsip, Yasothon, Kam Khuean Kaeo, Pakse Bongfai, Sahatsakhan, Prachantakham, Bua Yai, Khon Kaen, Udon, Phanom Phrai) (adapted from Brown 1965)
6. Southern Lao Amphoe Muang, Nakhon Pathom Province (Panka 1980)
7. Southern Lao Chai Nat, Nakhon Pathom Provinces (Wattanaprasert and Liamprawat 1985)
8. Nong Khai Group (Nong Khai) (adapted from Brown 1965)
9. Nakhon Phanom (Dejvongsa and et. al. (eds.) 1972)
10. Pakse Lao (Hoonchamlong 1985)
11. Pakse (adapted from Simmonds 1965)
12. Thurakhom (Dejvongsa and et. al. (eds.) 1972)
13. Savannakhet (adapted from Simmonds 1965)
14. Khong (adapted from Simmonds 1965)
15. Repatriated Lao (adapted from Simmonds 1965)
16. Ken Thao (adapted from Simmonds 1965)
17. Southern Lao Group (Si Saket, Tha Tum) (adapted from Brown 1965)
18. 1750 Luang Prabang (adapted from Brown 1965)
19. Luang Prabang Group (Kaen Thao, Dan Sai, Loei) (adapted from Brown 1965)
20. Luang Prabang (adapted from Brown 1965)
21. Lao Khrang Amphoe Muang, Nakhon Pathom Province (Panka 1980)
22. Lao Khrang Chai Nat, Suphanburi, Nakhon Pathom Provinces (Wattanaprasert and Liamprawat 1985)
23. Lao Ngaew Tambon Thong En, Amphoe Inburi, Singburi Province (Chinchest 1989)
24. Attapue (Dejvongsa and et. al. (eds.) 1972)
25. Southern Lao Amphoe Tha tako, Nakhon Sawan Province (Daecha 1987)
26. Luang Prabang (adapted from Simmonds 1965)
27. Vientiane Group (Vientiane, Lom Sak, Khon Sawan) (adapted from Brown 1965)
28. Vientiane (adapted from Brown 1965)
29. Vientiane (Dejvongsa and et. al. (eds.) 1972)
30. Vientiane Prefecture (the district of Xajthani) (adapted from Osatananda 1997)
31. Thourakhom (adapted from Osatananda 1997)
32. Keo-Oudom (adapted from Osatananda 1997)
33. Xanakham (adapted from Osatananda 1997)
34. Northern Lao (Ban Na Lae-Luang Nam Tha) (Dejvongsa and et. al. (eds.) 1972)
- 34a Khon Sawan (adapted from Brown 1965)

35. Southern Lao Group (Roi-et, Thawatburi, Wapipathum, Non Phet) (adapted from Brown 1965)
36. 1550 Vientiane (adapted from Brown 1965)
37. 1700 Vientiane (adapted from Brown 1965)
38. 1700 Southern Lao (adapted from Brown 1965)
39. 1650 Sakon Nakhon (adapted from Brown 1965)
40. Phonhong (adapted from Osatananda 1997)
41. Roi-et (Haas 1958)
42. Lao Viang Lopburi, Singburi, Saraburi Provinces (Khanittanan 1973)
43. Lao Viang Amphoe Tha Tako, Nakhon Sawan Province (Daecha 1987)
44. Lao Ngaew Tambon Thong En, Amphoe Inburi, Singburi Province (Pungpaopan 1984)
45. Khorat (adapted from Brown 1965)
46. Lao Viang Amphoe Nong Nae, Chachoengsao Province (Chantanakhom and Rattanaprasert 1983)
47. Lao Khrang Amphoe Tha Tako, Nakhon Sawan Province (Daecha 1987)
48. Lao Ngaew Amphoe Tha Tako, Nakhon Sawan Province (Daecha 1987)
49. Muang Ngoi (Dejvongsa and et. al. (eds.) 1972)
50. Vangviang (adapted from Osatananda 1997)
51. Kasi (2) (adapted from Osatananda 1997)
52. Nam Bak (Dejvongsa and et. al. (eds.) 1972)
53. Sam Nua (Dejvongsa and et. al. (eds.) 1972)
54. Muang Yong (Dejvongsa and et. al. (eds.) 1972)
55. Muang Van (Dejvongsa and et. al. (eds.) 1972)
56. Muang San (Dejvongsa and et. al. (eds.) 1972)
57. Kasi (1) (adapted from Osatananda 1997)
58. Sam Nua (adapted from Simmonds 1965)
59. Vientiane Prefecture (Nasaythong 1) (adapted from Osatananda 1997)
60. Vientiane Prefecture (Nasaythong 2) (adapted from Osatananda 1997)

Nyo Tonal Patterns

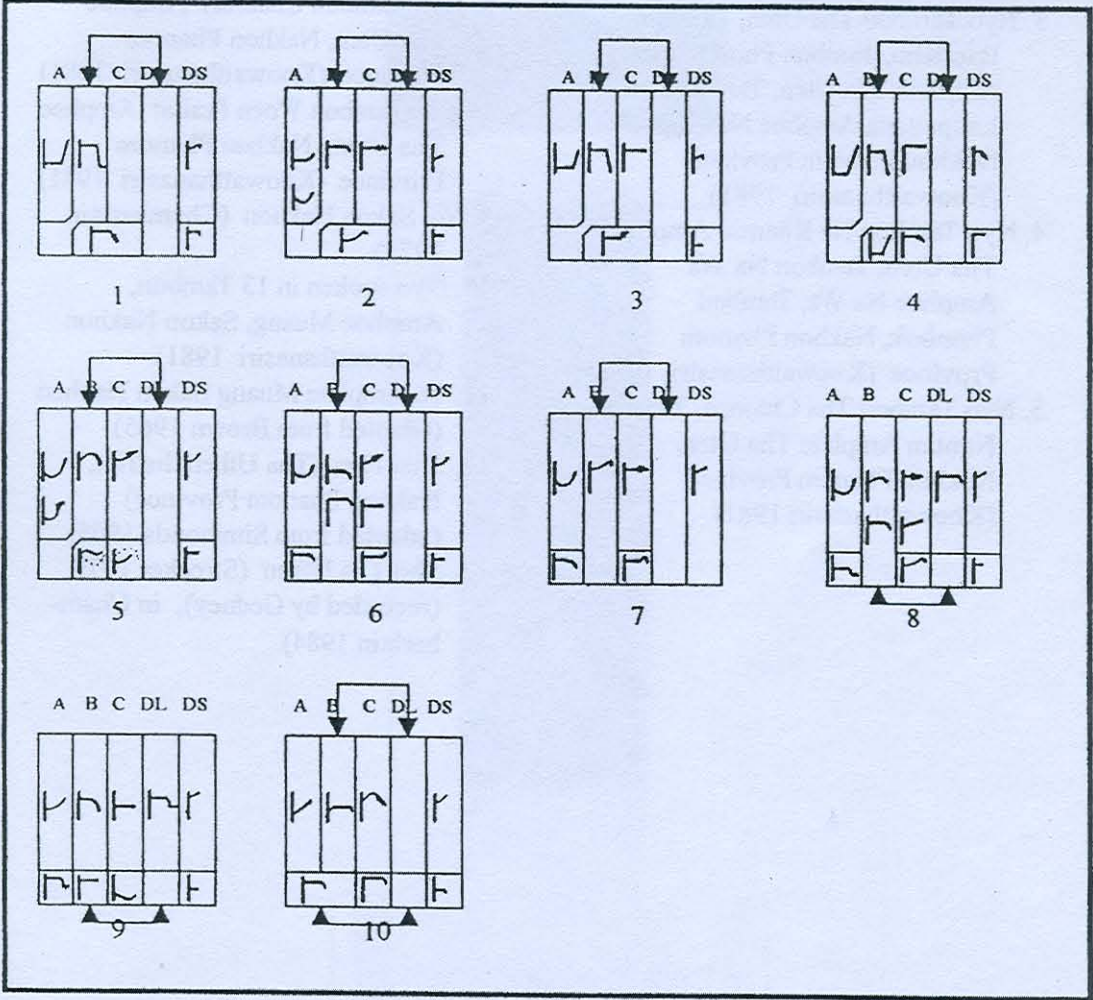


¹⁰ The merger and split of the tones DL and DS were not included in this source.

Sources of Nyo Tonal Patterns

1. Nho Tha Uten (Chamberlain 1975)
2. Nho Na Kang (Chamberlain 1984)
3. Nyo Tambon Tha Uten, Tambon Ban Kho, Tambon Phon Sawan Amphoe Tha Uten, Tambon Ban Laopattana Amphoe Na Wa, Nakhon Phanom Province (Koowatthanasiri 1981)
4. Nyo Tambon Na Khamin Amphoe Tha Uten, Tambon Na Wa Amphoe Na Wa, Tambon Phonbok, Nakhon Phanom Province (Koowatthanasiri 1981)
5. Nyo Tambon Tha Champa, Tambon Nontan Amphoe Tha Uten, Nakhon Phanom Province (Koowatthanasiri 1981)
6. Nyo Tambon Na Ngua, Tambon Ban Liaw Amphoe Na Wa, Nakhon Phanom Province (Koowatthanasiri 1981)
7. Nyo Tambon Chaiburi Amphoe Tha Uten, Nakhon Phanom Province (Koowatthanasiri 1981)
8. Nyo Tambon Woen Prabat Amphoe Tha Uten, Nakhon Phanom Province (Koowatthanasiri 1981)
9. Yo Sakon Nakhon (Chamberlain 1975)
10. Nyo spoken in 13 Tambon, Amphoe Muang, Sakon Nakhon (Koowatthanasiri 1981)
11. Yo Amphoe Muang Sakon Nakhon (adapted from Brown 1965)
12. Thai Nyq (Tha Uthen district, Nakhon Phanom Province) (adapted from Simmonds 1965)
13. Nho Tha Uthen (Strecker 1979 (recorded by Gedney), in Chamberlain 1984)

Phuthai Tonal Patterns



Sources of Phuthai Tonal Patterns

1. Phu Thai Amphoe Muang, Amphoe Wanonniwat, Sakon Nakhon (adapted from Brown 1965)
2. Phu Thai Amphoe Kham Cha-ee, That Phanom, Nakae, Renu Nakhon, Plapak, Muang, Nakhon Phanom Province, Amphoe Khamtakla, Sakon Nakhon Province (Sritarat 1983)
3. Phu Thai Ban Dong Keum (Khammouan) (Chamberlain 1984)
4. Phu Thai Nakhon Phanom (Khanittanan 1977)
5. Phu Thai Amphoe Ban Muang, Phanna Nikhom, Kusuman, Sakon Nakhon Province, King Amphoe Huai Phueng, Khao Wong (2), Kalasin Province (Sritarat 1983)
6. Phu Thai Amphoe Wanonniwat, Sakon Nakhon Province, Amphoe Na Wa, Nakhon Phanom Province (Sritarat 1983)
7. Phu Thai Kut Bak, Sakon Nakhon Province (Sritarat 1983)
8. Phu Thai Amphoe Sawang Dandin, Warichaphum, Phang Khon, Sakon Nakhon Province, Amphoe Sahatsakhan, Somdet, Khao Wong (1), Kalasin Province (Sritarat 1983)
9. Phu Thai Amphoe Kham Muang, Sakon Nakhon Province (Sritarat 1983)
10. Phu Thai Amphoe Muang, Sakon Nakhon Province (Sritarat 1983)