Tonal Variation and Change in Tak Bai Dialects

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Tak Bai dialect is classified under the Tai Language Family spoken in lower southern Thailand and northern Malaysia. Tak Bai speakers in Thailand and Malaysia still retain the six tones with similar features. Although tone splits and coalescences are the same across locations, phonetic values vary according to age-group and region. The six representative phonetic features of tones were determined based on the highest frequency of usage: Toneme 1 (A123) mid-falling-rising to high; Toneme 2 (A4) mid level; Toneme 3 (B123) high mid level; Toneme 4 (B4) mid-falling to low mid; Toneme 5 (C123) high mid-falling to mid; and Toneme 6 (C4) high mid-falling to low mid. The phonetic features of these tones in some middle age and young generation speakers were different from the typical one.

Key words: *Tak Bai, Tone, Variation, Change, Dialect.*

Introduction

Tak Bai dialect, of the Tai Language Family, is spoken in Panare District in Pattani Province and several districts in Narathiwat Province to Kelantan and Terengganu States of Malaysia. The dialect is called differently in accordance with geographical areas. In Narathiwat and its vicinity, for instance, the dialect is called Chehe, which is the name of the central county of Tak Bai District, while in Malaysia, it is known as Tumpat, the name of the area where the dialect speakers are most populous. The Tumpat region is located in Kelantan State, Malaysia, along the Thai-Malaysian border.

Despite lacking clear evidence about the historical background of Tak Bai speakers in this study area, linguistic evidence can be utilised to explain the relationship between Tak Bai

speakers and speakers of southern Thai dialect in Thailand and Malaysia. Thai residents in Kelantan State use the same accent and lexical items as those residing in Narathiwat and Pattani. The accent is different from Thai speakers in Perlis, Kedah, and Terengganu states, whose accent is more similar to that of speakers in Songkhla and Nakhon Srithamarat Provinces (Umaiyah, 2003; Thongchuay, 1983). The latest data from the website, *Southdeep Outlook* (2017), states that there are currently over 100,000 Tak Bai dialect speakers.

Tak Bai dialect is a cultural identity of the area because its tonal system is different from those of the southern Thai dialect, the neighbouring dialect in the same southwestern Tai branch (Brown, 1965). The dialect is surrounded by Malay dialects classified under the Austronesian Language Family, bringing about an inevitable phenomenon of language contact as well as leading to language change. Prasithrathsint (1989) pointed out about the result of language contact that when two or more languages are used interchangeably by one speaker, the two languages will mutually borrow one another's linguistic aspects. When the contact occurs among large numbers of speakers for a long time, the two languages will become more similar to each other despite originating from different language families.

This investigation focuses on the variation and change of the dialect due to language contact in two countries with an emphasis on tonal variation and change. These features are unique to the dialect, which is different from those of the southern dialect even though they are closely related in the same branch (Potibal & Trongdee, 1997).

Research Objective

The present study is aimed to examine the tonal variation and analyse the trends of tonal change of the dialect according to the ages and residences of the speakers.

Review of Related Literature on Tak Bai Linguistic History

Brown (1965) was the first person who mentioned the Tak Bai dialect in his study, 'From Ancient Thai to Modern Dialects'. He maintained that there were two quite distinct groups of southern Thai dialects, one of which is Tak Bai group as shown in Figure 1. The dialect has been spoken in a few scattered areas of Pattani and Narathiwat provinces of Thailand and near the Thai and Malaysian border down to the northern part of Kelantan and the Terrengganu state of Malaysia.
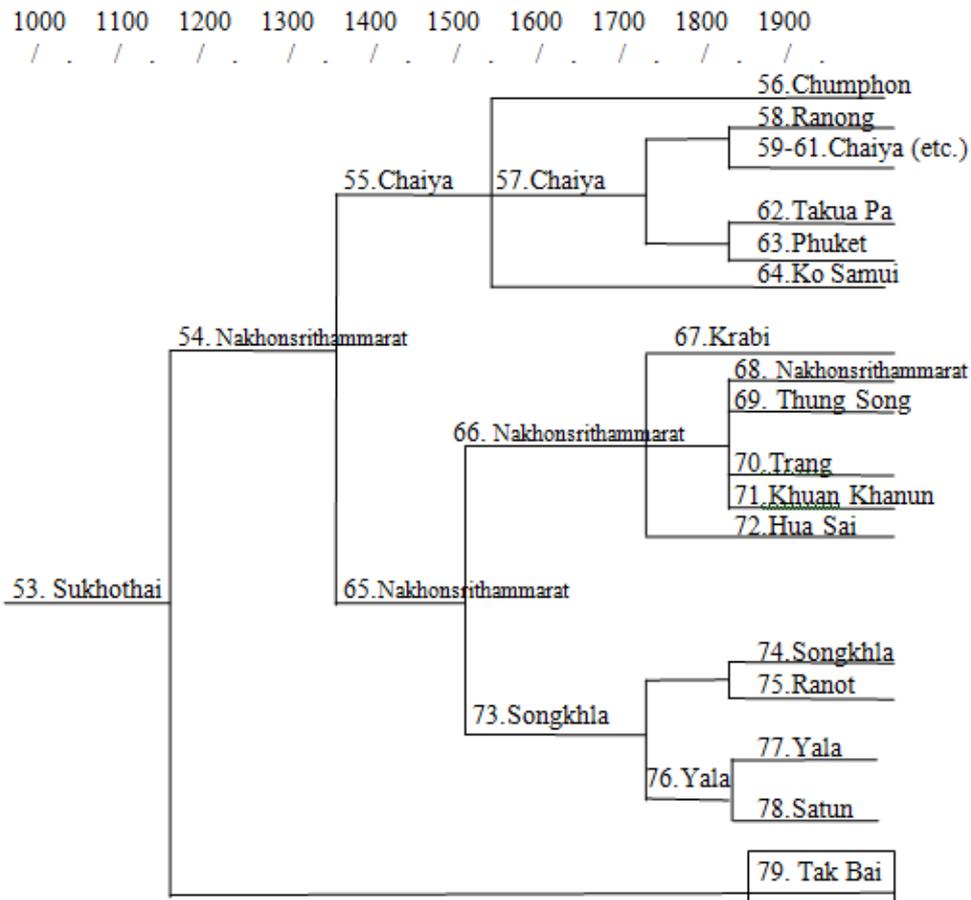
Figure 1. Genealogy of Southern Thai and Tak Bai (Brown, 1965)

In the aforementioned study of Brown (1965), he proposed that the Tak Bai dialect was one of the southern Thai dialects, which were separated, based on the pattern of tone coalescence and splits, from Sukhothai branch in 1250. However, Gedney (1965) reviewed Brown's study and reclassified the Tak Bai dialect into the same group as Shan and Phutai, Lao Vientiane, Isan Lom Sak, Isan Korn Sawan, and Nyo. He further pointed out that the dialect shared the same two-way tonal split pattern with these dialects. Meanwhile, Li (1977) grouped the Tak Bai dialect into the southwestern Tai groups based on the two-way splits of the original three tones into six, depending on vocal cords' vibration of the initial consonants at the time of the splits. Thus, the Tak Bai dialect was determined to be in the same group as Lue, White Tai, Black Tai, Lao Sam Nuea, and Shan and Phutai. He explained that "this type is rare in Thailand, but Tak Bai, situated far southward, seems to show this type (the two-way splits) and is therefore interesting, both typologically and geographically".

Strecker (1979) employed a hypothetical set of tone shapes in order to group the Tak Bai dialect into the Lan Na group with the northern Thai dialect, Lao Yuan, Phuan, Nyo Tha Uthen, Western Nung, Lao Ngaeo, Lao Xieng Khouang, Nam Bac, and others. However, his

hypothesis was not accepted by Chamberlain (1975). Kitprasert (1985) mentioned through personal correspondence with Chamberlain that tone shapes can be easily borrowed, but not for patterns of splits and merges because they are much more stable. Therefore, he did not accept the idea that the Tak Bai dialect is in the Lan Na group.

In 1983, Kitprasert (1985) in personal correspondence with Chamberlain, suggested that:

> *"Tak Bai dialect… is a full-fledged member of the Non-Lao PH group, along with standard Thai, U-Thong, and the Neua-Phuan Languages. In term of the tone system, it is in fact identical to many of the Neua-Phuan dialects, and we should remember that the A-column splits in this group vary (i.e. A123-4, A1-234, and A1-23-4) and have the B-DL coalescence as does Tak Bai…"*

Kitprasert (1985) concluded that the Tak Bai linguistic position among the Tai dialects was quite elusive. Linguists using different approaches have placed the Tak Bai dialect in different groups; however, it is not identified with the southern Thai.

The most recent study classifying Tak Bai was *The Position of Tak Bai in Tai Dialects* by Potibal & Trongdee (1999). They compared some linguistic characteristics of the Tak Bai dialect with those of Tai dialects to find out their genetic relationships. They found that the Tak Bai dialect was closely related to the Phutai one. Moreover, there were two more dialects, Phithen and Sakom, which were related to the Tak Bai one. Phithen is the spoken dialect in Phithen sub-district, Thungyangdaeng district, and Pattani province, Thailand. In relation to this, Srisuwittanon (1985) revealed the borderline between the Tak Bai dialect and the southern Thai ones. Though Phithen phonology was similar to the Tak Bai one, Junlawan (2011) indicated that it was not a Tak Bai sub-dialect. She proved this by regarding Phithen's six tones as three-way split which was different from the two-way tonal split of the Tak Bai dialect. In contrast, Kitprasert (1985) grouped it into two subgroups which were the subgroup 1 always showed a two-way split of the Proto-tones and the subgroup 2 showed a three-way split. In support of this, Phithen was in the second of the Tak Bai subgroup.

Review of Related Literature on the Variation and the Change of Tone

Studies relating to variation and change of languages particularly the change of tone has been paid attention by social linguists in several aspects, particularly the aspect of the factor contributing to the variation and the change of languages. Therefore, this study focuses on the variation and the change of tone, which was elaborated below.

There are some related studies previously investigating the variation and the change of tone in the Tak Bai dialect. For instance, Thongchuay's Ph.D. dissertation (1983) explored 'The Use

of the Thai Language in Present Time in Kelantan and Perlis States of Malaysia'. The study compared between phonology, morpheme, semantics, and syntax in the Thai language used in the states of Malaysia with the standard Thai language and the southern Thai dialects. This comparison was designed to look into the relationships between the Thai language used in Malaysia and Thailand. With regard to the studies relating to tones, Thongchuay used words in order to test the tones which were adapted from Gedney's (1972) and from the data collected from three areas. These areas were chosen to represent three states of Malaysia, which were 1) Kelantan, collected the data from Ban Bo Samed, Terbok sub-district, Tumpat district of Kota Bharu, 2) Tai Buri or Kedah, collected the data from Naka, Terkaikanan sub-district, Padang Terap district of Alor Setar, and 3) Perlis, collected the data from Gua Musang, Chuping sub-district, Arau district of Kangar. Furthermore, Chantas Thongchuay compared consonants, diphthongs, and tonal split pattern of the Thai language in the three previous-mentioned areas. Thongchuay (1983) concluded that the Thai language used in the Kelantan state was different from those of Kedah and Perlis. However, it was similar to that of Tak Bai. Meanwhile, the Thai language used in Kedah and Perlis were categorised in the same group as southern Thai dialects, Nakhon Sri Thammarat and Songkhla. Even though he grouped the Thai language used in the Kelantan state in the same as the Tak Bai dialect, when it came to considering the tonal split patterns of it, his study showed that there were the three-way tonal split pattern and the patterns that did not appear in the Tak Bai dialect, which were the tonal splitting in the column A into the three-way and the coalescence tones B4 = DS1234 = DL4.

Kitprasert (1985) conducted his M.A. dissertation whose title was *A Tonal Comparison of Tai Dialects: Tak Bai Group*. His study examined tones in the Tak Bai dialect in 54 areas, 51 areas in Thailand and three areas in Malaysia. One of these areas in Malaysia was Bo Samed in Tumpat sub-district where Thongchuay conducted his study. In addition to these, Kitprasert also employed words in order to test tones adapted from Gedney's (1972) in a bid to collect the data. His study disclosed that there were six tonal systems and the original tones B = DL were merged in the Tak Bai dialect. These results supported those of Brown's (1965) concluding that the Tak Bai dialect constituted six tones and the two-way tonal split, which were different from other southern Thai dialects which there were seven tones and the three-way tonal split. Therefore, Kitprasert concluded that although the Tak Bai dialect and the southern Thai ones were the sub-dialects of Sukhothai, they were split as shown in Figure 1.

When considering the analysis of the tone, it can be stated that most of the studies were conducted by means of listening in order to analyse the tone. Most of the tonal studies utilised an acoustic phonetics method by the use of the Praat program, designed by Pauls Boersma and David Weenink, Institute of Phonetic Sciences, University of Amsterdam, the Netherlands (1992-2006). Then, semitones were analysed in order to support and verify the results analysis so that the results might be more accurate. The same can be said that this study would also employ the Praat program in order to analyse the tonal phonetic features and the fundamental frequency of tone in each word. Apart from this, the researcher would employ the fundamental

frequency to find out semitones of every tone so that the fundamental frequency was adapted from Hertz into semitones. This method was demonstrated and supported by Jitwiriyanont (2012) stating that this was the most suitable and congruent method with a perception process which has never been utilised in the study of the tones of the Tak Bai dialect. Thus, the researcher is interested in using this method in the study of the Tak Bai dialect tones so that it can be the database for the study of the Tak Bai dialect tonal variations.

Review of Related Literature on the Concepts of the Variation and the Change of Dialects Based on Social Factors

Linguists tend to pay attention to the study of the variation and the change of dialects as the dialects are still being used and existed. Obviously, it is inevitable for the existing dialects to experience this change. Prasithrathsint (1989) defined a dialect variation as "two words that can be interchangeably used without changing their main meanings, this variation may occur in any unit of a dialect such as, phonology, lexicon, syntax, and so on". In the same fashion, Kullavanijaya, et al. (1997) noted that a dialect variation may occur in the form of vocabulary or feature of the dialects. However, most importantly, the occurrence of the variation should not change the meaning of a word or the main features of the language. Thus, there are several characteristics of variation such as phonological, lexical, and syntactic variations.

When any forms of dialect variation prevailed for a long period of time and which is acknowledged by the society, a particular dialect may experience a state of a language change. According to Akharawatthanakun (2012), the dialect change means the forms of any language which were changed from the original ones after some time. This change may occur in terms of phonology, lexicon, and grammar. Accordingly, it seems that linguists are determined to investigate the causes and features of the language change.

In general, when it comes to dialect variation and change, sociolinguists tend to explore the relationship between social variables such as, genders, ages, ethnicities, residences, and contexts of a language used. These variables are likely to relate and have an effect on the dialects. Based on the literature reviewed, this study will investigate two social variables, ages and residences of speakers, which may affect Tak Bai dialect variation and change.

Scope and Delimitation of the Study

1. This study focused on tonal variation and change of Tak Bai speakers in three age groups: the elderly (60 years and over) or G1, the middle-aged (35-50 years) or G2, and the youth (18-25 years) or G3.

2. This investigation covered four areas, namely, Bang Noi Village in Chehe sub-district and Ban Mai Village in Phron sub-district, Takbai district, Narathiwat province, as representatives of the dialect's speaking areas in Thailand and Yung Kaw Village in Tumpat district and Bang Sae Village in Pasir Mas district, Kelantan State, as representative of the dialect's speaking areas in Malaysia.

Research Methodology

1. The recruitment of informants

In this study, the recruitment of each informant was based on two considerations, namely the informants' attributes and the informants' age groups.

In the process of data collection, the researcher aimed to recruit informants who represented the Tak Bai speaking population well and could provide the target data in a comprehensive and clear manner, especially from those who actually used the Tak Bai dialect in their everyday communication. The researcher used non-structured interview, observation, and tracked the informant's way of living in order to observe their everyday uses of the dialect in their everyday communication and familiarised with the family and their activities. The purpose was to find appropriate representative informants. The attributes of the informants are as follows:

1) The informants could be either male or female since the present investigation aimed to examine the factors related to ages and residences of the speakers, rather than their gender. Therefore, the informants' gender was not manipulated. In the preliminary trial of data collection in a field survey, it was revealed that the informants' attributes were appropriate for data collection in that they were from a wide diversity of age ranges and study areas. That is, in some study areas most of the informants were females doing their work at home, such as cloth weaving and making local desserts for sales. The male informants mostly worked for wages and as fisheries or construction workers in other areas away from home. In some areas, however, it went the other way around. Female informants worked away from home while male informants worked in the villages in which they lived. For this reason, the criteria relevant to genders might not be useful for the present study due to these difficulties and limitations.

2) The informants must be a Tak Bai dialect speaker who used the dialect as their mother tongue and still used it in their everyday communication in order to be considered a good representative of the Tak Bai speaking population.

3) The informants must be native to and raised and reside in the study areas. They had never migrated to other areas for more than one year in order to be considered a good representative of the Tak Bai speaking population. In addition, the informants must live in the areas for at

least five years if they have ever migrated to other areas, so as to maintain only those who have least language interference from other local dialects.

4) The informants must have the organs of speech necessary for pronouncing words in a clear manner without any language problems and be able to answer questions with astuteness.

5) The informants must be willing, cooperative during the data collection, and enthusiastic in giving information to the researcher and research assistants.

2. The age ranges of the informants

This research concerns the speakers' ages assumed to affect the variation of the Tak Bai dialect. The informants who passed the recruitment criteria were divided into three groups based on their ages. In order to clearly distinguish the age groups of the informants, each age group was separated by a period of 10 years in between.

The elderly:	60 years and over
The middle-aged:	35-50 years
The youth:	18-25 years

In each of the 4 study areas, only those informants who met the recruitment criteria and were most willing to give information were selected. There were 5 informants from each age groups for every area. Accordingly, a total of 60 Tak Bai speaking informants participated in this study.

The Research Instruments

The research instruments in the present research consisted of three main parts as follows:

1. The questionnaire surveying the informants' personal information and language ability was devised to collect data relevant to the informants, such as name, gender, age, educational background, profession, domiciles of origin and current residences of the informants and parents. The data were used to ensure the informants met the selection criteria in the present investigation.

2. The wordlist for data collection on the uses of tones was divided into two parts as follows:

1) A wordlist to test the uses of tones by the auditory analysis

The wordlist was adapted from Gedney's (1972) wordlist to determine the mergers and splits of tones. The auditory information of the uses of tones was composed of a wordlist of 80 diagnostic words as shown in Table 1.

Table 1 A diagnostic wordlist of tones by the auditory analysis adapted from a Gedney's Tone Box (1972).

	*A	*B	*C	*DL	*DS
Voiceless friction sounds	hǔ: 'ear'	kʰàj 'egg'	kʰâ:w 'rice'	kʰà:t 'broken, torn'	màt 'flea'
	kʰǎ: 'leg'	pʰà: 'to chop'	sûːa 'upper garment'	mùak 'hat'	pʰàk 'vegetable'
	hǔa 'head'	kʰà: 'galangal'	mɔ̂: 'pot'	sɔ̀:k 'elbow'	hòk 'six'
	sɔ̌:ŋ 'two'	tʰùa 'bean'	hâ: 'five'	sà:k 'pestle'	sìp 'ten'
Voiceless unaspirated stops	pu: 'crab'	kàj 'chicken'	kâ:w 'step'	pà:k 'mouth'	kòp 'frog'
	ta: 'eye'	pàw 'to blow'	pâ: 'aunt'	kɔ̀:t 'hug'	cèt 'seven'
	kin 'to eat'	tàw 'turtle'	tôm 'to boil'	tà:k 'to spread in the sun'	kàt 'to bite'
	ka: 'crow'	pì: 'wind instrument'	kâ:ŋ 'bone (of a fish)'	pì:k 'wing'	pèt 'duck'
Glottal sounds	bin 'to fly'	tʰâ: 'port, pier'	bâ: 'mad'	bɔ̀:t 'blind'	bèt 'fishhook'
	dɛ:ŋ 'red'	bà: 'shoulder'	ʔâ: 'to open'	dɛ̀:t 'sunlight'	dìp 'raw, unripe'
	da:w 'star'	bɔ̀: 'well, pond'	ʔɔ̂j 'sugar cane'	ʔɔ̀:k 'to leave'	ʔòk 'chest'
	ba:n 'to bloom'	ʔà:n 'to read'	dâ:j 'thread'	bà:t 'to cut'	dèt 'to pluck'
Voiced sounds	mɯ: 'hand'	pʰî: 'older sibling'	ná: 'aunt'	mî:t 'knife'	nók 'bird'
	kʰa: 'be stuck'	rûa 'to leak'	má: 'horse'	lûat 'blood'	mót 'ant'
	na: 'paddy field'	lûːaj 'saw, to saw'	ná:m 'water, liquid'	cʰûːak 'rope'	mát 'to tie'
	ŋu: 'snake'	pʰɔ̂: 'father'	nɔ́:ŋ 'younger sibling'	mɔ̂:t 'weevil'	lép 'nail'

2) A wordlist for an analysis of tone sticks by using acoustic phonetics

A wordlist for an analysis of tone sticks by using acoustic phonetics included minimal sets / analogous sets which were a wordlist with the same or most similar consonant and vowel sounds. In the analysis of the tone sticks by the analysis of acoustic phonetics, this research

employed the wordlist adapted from the minimal sets of Akarawatthanakul (2003) which consisted of 20 diagnostic words. They were comprised of 12 words of live syllables and eight words of dead syllables. Some words, however, do not exist in the Tak Bai dialect; consequently, analogous sets were used instead as shown in Table 2.

Table 2 A wordlist of minimal sets/analogous sets adapted from the minimal sets of Akarawatthanakul (2003)

	*A	*B	*C	*DL	*DS
Voiceless friction sounds	pʰă: 'cliff'	pʰà: 'to chop'	pʰâ: 'cloth'	pʰà:k 'forehead'	pʰàk 'vegetable'
Voiceless unaspirated stops	pa:n 'birthmark'	pà: 'forest'	pâ: 'aunt'	pà:k 'mouth'	pàk 'to stick in'
Glottal sounds	ba:n 'to bloom'	bà: 'shoulder'	bâ: 'mad'	bà:t 'to cut'	bàt 'card'
Voiced sounds	tʰa: 'to rub'	tʰâ: 'pier'	tʰá: 'to challenge'	tʰâ:k 'snail'	tʰák 'to greet'

In the data collection, the informants were asked to pronounce each word three times. Each word was presented to the informants in a random order so that they could not predict the tonal patterns. To obtain data on the uses of tones, the researcher interviewed each of the informants using research instruments and equipment as follows:

1. A tablet computer, a Microsoft PowerPoint presentation program, and textual descriptions in the forms of questions or explanation were employed to elicit data on tonal uses. Before collecting data, the researcher devised materials using the PowerPoint program and piloted them with five informants who were not involved in the sample group.

2. TASCAM DR-40 V.2, a digital voice recorder, was employed to record and verify the informants' voice with a function of recording sounds without interfering noise.

Data collection in a field survey

The survey was conducted in the Tak Bai dialect to prevent the influence of Standard Thai and Southern Thai dialect spoken by the researcher, which might affect the informants' pronunciation. For this reason, the researcher had practiced speaking basic Tak Bai. Moreover, a Tak Bai dialect speaking research assistant helped with the coordination with the informants, conduct of the interviews, and verification of the data during the field survey.

The researcher collected data on tonal systems of the Tak Bai dialect by using the wordlist for diagnostic words to determine the splits and mergers of tones for auditory analysis. The

diagnostic wordlist consisting of 80 words was adapted from a Gedney's Tone Box (1972) as illustrated in Table 1. To confirm the results of the auditory analysis, the researcher used minimal sets / analogous sets adapted from the minimal sets of Akarawatthanakul (2003), which consisted of 20 diagnostic words as shown in Table 2. The words were placed in a random order twice.

In the data collection, the informants pronounced each word three times while the researcher made a record on the data sheet using International Phonetic Alphabet: IPA. The researcher repeated the word in order for the informants to verify. Data from the pronunciation of all the words on the diagnostic wordlist were recorded using a voice recorder for verification and retrievability of the transcriptions. The data were analysed using an acoustic analysis program called Praat and presented through charts.

Results and Discussion

Tone analysis and the presentation of results

Once the tonal data were collected, they were analysed and presented in accordance with the research objectives as follows: The data analysis on tones was conducted through an auditory analysis and then verified by an acoustic-phonetic analysis. The procedures are described below.

1) The analysis of tones was conducted through an auditory analysis. The tone sticks provided by the diagnostic wordlist were used in the auditory analysis. In this research, the speakers' pitch ranges were classified into five tonal categories designated by the numbers 1-5.

5		High
4		Mid-high
3		Mid
2		Mid-low
1		Low

Two or three numbers were placed in consecutive positions to designate a pitch range. The first numeral character showed the tones pronounced at the starting point, and the second numeral character marked the ending of the tone. However, if three numerical characters were used, the second character denoted a tonal shift, and the third character served as to mark the ending of the tone.

2) In the verification process, the researcher used specialised software in the acoustic analysis to confirm the results obtained from the auditory analysis. The data gained from the field survey were edited and segregated into monosyllabic words and analysed with respect to tone sticks to attain the fundamental frequency of the tones of each word by using Praat, which was designed by Pauls Boersma and David Weenink of the Institute of Phonetic Sciences of the University of Amsterdam, the Netherlands (1992-2006). Normalisation of duration was performed to adjust the fundamental frequency of the tones. The fundamental frequency of the tones was measured every 10%, between 0% and 100%, resulting in 10 parts to be measured. Once the data on the fundamental frequency of the tones of each word from every informant were obtained, Microsoft Excel was used to determine the mean scores of the fundamental frequency of each word offered by each age group. Then, the mean scores were used to determine the semitone of each tone. According to Jitwiriyanont (2012), conversion of Hertz values to semitones is proved to correlate closely with perception. In addition, it could help reduce variations in the fundamental frequency which could be caused by the distinction between the genders of the informants. The formula below used for converting the Hertz values to semitones was adopted in the present research.

$12 \times \log_2[\text{Hertz values}/(0.9 \times \text{reference values})]$[1]

After the researcher had calculated the semitone of each tone, the results were used to create a line graph to show tone sticks. The range was adjusted and organised into five levels in order to facilitate the description of the tone sticks.

3) In the analysis of the mergers and splits of tones to determine the number of tones taking place in this study, the researcher considered the tones of dead syllables as allotones of the tones of syllables that shared similar tone sticks. They were then analysed to determine similarities and differences of the informants from each age group in the study areas.

Comparison of the Tonal Variation and Change of the Tak Bai Dialect

The tonal analysis results indicated that the variation of the Tak Bai tones in the four communities shared a common characteristic in that they split into two ways: ABCD123-4 based on the voicing of the initial consonants. There are six tonemes and their main and sub-features are detailed as follows.

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[1] Formula for converting Hertz values to semitones from a research article entitled "Fundamental Frequency Normalisation by Converting Hertz into Semitone" by Jitwiriyanont (2012)

The features of Toneme 1 are mid-falling-rising to high [325]. There are six sub-features of this toneme. They include mid-falling-rising to high, [325], mid-falling-rising to high mid [324], mid-rising to high [35], mid-rising to high mid [34], low mid-rising to high [25], and low mid-rising to high mid [24]. The feaures, mid-falling-rising to high [325] and mid-falling-rising to high [324], occur only in the live syllables, whereas the features, mid-rising to high mid [34], occur only in the short dead syllables. The features of Toneme 2 are mid-level [33] and its sub-features include mid-level [33] and low mid-level [22]. The features of Toneme 3 are high mid-level [44] and the sub-features include high mid-level [44] and high-level [55]. The features of Toneme 4 are mid-falling to low mid [32]. There are six sub-features of this toneme, which include mid-falling to low mid [32], high mid-falling to low [41], high mid-falling to mid [43], low mid-level [22], and mid-rising-falling to mid [343]. Only the sub-features [43] and [343] are found in the live syllables. The features of Toneme 5 are high mid-falling to mid [43]. There are two sub-features of this toneme, which include high mid-falling to mid [43] and mid-falling to low mid [32]. The features of Toneme 6 are high mid-falling to low mid [42]. There are three sub-features of this toneme, which include high mid-falling to low mid [42], high mid-falling to low [41] and mid-falling to low [31].

Tonal variation of the Tak Bai dialect by ages of the informants

When the tonal variation by the ages of the Tak Bai informants was taken into consideration, it was revealed that the age factor affected the variation of certain tones and the variation varied from community to community. The details of the tonal variation are as follows.

For Toneme 1 (A123), the elderly informants used the features mid-falling-rising to high [325] the most, while the middle-aged and teenage informants used the features mid-rising to high [35]. Although the number of the informants in the two age groups was not significantly different, most elderly informants tended to use the falling-rising sub-features [325/324] rather than the rising sub-features. Most of the middle-aged and teenage informants tended to use the rising sub-features [35/25/24] rather than the falling-rising sub-features. This trend is expected to be the influence of Toneme 1 in Standard Thai. It is indicated that the future use of the falling-rising features of Toneme 1 might be decreasing among the two latter groups of informants. As for the DS123 features of Toneme 1, the informants in the three age groups used the mid-rising features [35] the most.

For Toneme 2 (A4) in the live syllables, the informants in the three age groups used the level features [33/22] with the majority of the informants using the mid-level features [33]. As for the DS4 features of Toneme 2, the informants in the three age groups used the level features [33/22] in the dead syllables.

For Toneme 3 (B123), in the live syllables, the informants in the three age groups used the level features. Most of the informants used the high mid-level [44] as well as the high-level

[55], with fewer number using the latter features. For the variation of Toneme 3 (DL123) in the long dead syllables, it was found that most of the informants used the high mid-level features [44] the most.

For Toneme 4 (B4) in the live syllables, it was found that the variation was more diverse than other tonemes among the informants in the three age groups. The falling features [32/31/41/42] were used the most. Among the elderly and middle-aged groups, the mid-falling to low mid features [32] were used the most. For the teenage informants, the mid-falling to low [31] and mid-falling to low mid [32] features were used with a slightly equal number. Additionally, a number of the informants used the level features [22], but the number was not as high as those using the falling features. For the variation of Toneme 4 (DL4) in the long dead syllables, it was revealed that the mid-falling features [32] were used the most among the informants in the three age groups.

For Toneme 5 (C123), the falling features [43/32] were used the most among the informants in the three age groups. When the sub-features of the variation were considered, the high mid-falling to mid features [43] and the mid-falling to low mid features [32] were used by the informants with a similar number.

For Toneme 6 (C4), it was revealed that the falling features [42/31/41] were used by the informants in the three age groups. When the sub-features were taken into consideration, it was found that the high mid-falling to low mid features [42] were used the most, followed by the mid-falling to low features [31] and the high mid-falling to low features [41] respectively. However, very few informants used these latter two sub-features compared with those using the main features of the toneme.

From the analysis results of the tones by the ages of the informants, it was revealed that the teenage and middle-aged groups used different tonal features of Toneme 1 from the elderly group. The rising features were used by the former, whereas the falling-rising features were used by the latter. This is because young and middle-aged informants were more influenced by Standard Thai through education, occupation and modern media, enabling them to gradually adopt the features of Standard Thai. This intergenerational variation of Toneme 1 indicated that the Tak Bai tones are in the stage of change in progress.

Tonal variation of the Tak Bai dialect by residences of the informants

From analysing the tones in the four Tak Bai speaking communities, it was revealed that the dialect in the four communities has the same number of tonemes and the same tone split. However, the tonal features are both similar and different. Furthermore, those occurring in the dead syllables are different in some communities.

Diagrams 1 to 4 illustrate the tonal systems and features for each Tak Bai speaking communities.

Bang Noi tone split				
*A	*B	*C	D*	
			*DS	*DL
1				
2 35	44	43	35	44
3				
4 33	32	42	33	32

Diagram 1 Split and main
features of the tones at Bang Noi
community

Ban Mai tone split				
*A	*B	*C	D*	
			*DS	*DL
1				
2 325	44	43	35	44
3				
4 22	32	42	22	32

Diagram 2 Split and   main
features of the tones at Ban Mai
community

Yung Kaw tone split				
*A	*B	*C	D*	
			*DS	*DL
1				
2 35	44	32	35	44
3				
4 33	22	42	33	22

Diagram 3 Split and main features
of the tones at Yung Kaw community

Bang Sae tone split				
*A	*B	*C	D*	
			*DS	*DL
1				
2 24	55	43	24	55
3				
4 33	31	42	33	32

Diagram 4 Split and main features of
the tones at Bang Sae community

The above diagrams indicate that the six Tak Bai tones in both Thailand and Malaysia have similar features. Each toneme has both different and similar variants and the variants have slightly different features. Furthermore, the variation of these features did not occur in all communities, as shown in the following details.

Toneme 1

In the two communities in Thailand, it was found that the main features of this toneme are in the same direction. Out of the 15 informants, eight informants at Bang Noi used the rising tone with mid features or low mid-rising to high [35/25] and seven informants used the rising tone

with the mid-falling-rising to high features [325] and the mid-falling-rising to high mid features [324]. It could be seen that the number of the informants using these two variants was relatively the same. For the Ban Mai community, seven informants used the mid-falling-rising to high features [325] and one informant used the mid-falling-rising to high mid features [324]. However, seven informants used the low mid-rising to high features [25], which were almost the same number of those using the main features. The results clearly indicated that Toneme 1 of the dialect in Thailand was in a process of change.

In the communities in Malaysia, it was found that the variation of Toneme 1 was similar to that in Thailand. In the Yung Kaw community, the main feature was rising and eight informants used the mid-rising to high features [35] and low mid-rising to high mid features [24]. In addition, seven informants used the mid-falling-rising to high mid features [324] and mid-falling-rising to high [325]. It is noticeable that the number of informants using the two variants of the tonemes was the same as those in Thailand. Nevertheless, all informants in the Bang Sae community used the rising features: low mid-rising to high mid features [24] and low mid-rising to high features [25]. Thus, the variation in the Bang Sae community indicated a clear change of the toneme.

Toneme 2

The variation of this toneme in the two communities in Thailand was found to be the same in that it was a level tone. An interesting variation was that the informants at the Bang Noi community used the mid-level sub-features [33] while nine informants at the Ban Mai community used the low mid-level sub-features [22], the main features of the toneme, and six of them used the mid-level sub-features [33]. The use of the main tonal features of Ban Mai informants was in line with those of Kitprasert (1985) and Potibal & Trongdee (1997). The findings from this investigation revealed the evidence that the change of this toneme had been taking place. For the informants in Malaysia, all informants in the two communities used the mid-level features [33].

Toneme 3

The informants in the two communities in Thailand used the level features for this toneme with slightly different sub-features. Most of the Bang Noi informants used the high mid-level features [44] with three informants using the high-level features [55]. However, all informants at the Ban Mai community used the high mid-level features [44]. The variation of this toneme in Malaysia was similar to that at the Bang Noi community in Thailand. Both types of sub-features were used with slightly the same number of informants using each type. Therefore, it could not be stated that the variation of the toneme in Malaysia was different.

Toneme 4

The main features of this toneme in Thailand were the same in the two communities: mid-falling to low mid [32]. However, when the sub-features were carefully analysed, it was found that they were clearly different. Besides the falling sub-features, the mid-rising to high mid-falling to mid features [343] were found at Bang Noi but not at Ban Mai. This variation indicated the original features of the toneme, that is, the falling-rising tone, which was in line with Kitprasert (1995). The changing feature was the falling tone. In Malaysia, the Yung Kaw informants used the main features of the toneme as low mid-level [22], which was not found in the other three communities. The features found at the Bang Sae community was mid-falling [32], which were the same as those found in Thailand. It was hypothesised that the Yung Kaw informants were influenced by the Song Khla southern Thai dialect, since the residents are the same group as those residing in Kelantan State. Thongchuay's 1983 study about Thai in Kelantan State revealed that there were two dialects: Song Khla southern dialect and Tak Bai dialect. Yung Kaw residents have been in regular and constant contacts with other Thai groups in Malaysia through intermarriages and participation in religious ceremonies. Thus, there has been language contact with others for a long time.

Toneme 5

From this investigation, it was revealed that the informants in Thailand used the falling features for this toneme. The main features of the tonemes were high mid-falling to mid [43] with the only one sub-features of mid-falling to low mid [32]. In Malaysia, Bang Sae informants used the same main and sub-features of the toneme as those in Thailand. However, 12 Yung Kaw informants used the mid-falling to low mid features [32].

Toneme 6

The informants in Thailand used the falling features of this toneme and the main features were high mid-falling to low mid [42]. However, the sub-features were slightly different from Bang Noi informants who used the high mid-falling to low features [41] and Ban Mai informants who used the mid-falling to low features [31] instead. In Malaysia, the main and sub-features of the toneme were the same as those in Thailand with the sub-features of high mid-falling to low [41] and mid-falling to low [31]. The study results indicated that variation of the tones and their features did not occur in all study areas. The variation was due to inter-communication among other groups, such as, contact with the Songkhla dialect, education and access to modern media.

The present study finds that there were two-ways split of tonal system different from Thongchuay (1983) who concluded that there were only three-ways split system. Such a conclusion was hypothesised to be the influence of the southern Thai dialect. It was in line with

that of Umaiyah (2003) that categorised the Thai dialects in Kelantan State into two groups: Song Khla and Tak Bai, based on the tonal split. Such a feature is specific to the southern Thai dialect because there have been southern Thai speakers migrating to the area for earning a living and trade for a long time. Additionally, Potibal & Trongdee (1997) noted that Thongchuay's analysis of Tak Bai tones might have been erroneous because solely depending on acoustic analysis of the tones might not have been completely correct. It was recommended that both acoustic and auditory analyses be utilised to propose the tone system for a reliable result and to prevent mistakes.

Potibal & Trongdee (1997) revealed that glottalisation was found in Toneme 5, which was a distinct aspect of Tak Bai dialect. Glottalised tones were not found in the southern Thai dialect, but could be found in the Tai Dam, Lue and/or northern Thai dialect. Nonetheless, glottalisation of the tones was not found in this investigation among the middle-aged and teenage informants. It was found in very few elderly informants and it was not regular during the two periods of data collection. Therefore, it could be hypothesised that glottalisation of the tones could be disappearing from the dialect in the future.

Conclusion

The finding revealed that Tak Bai speakers in Thailand and Malaysia still retain the six tones with similar features. Although tone splits and coalescences are the same across locations, phonetics values vary according to age-group and region. The six representative phonetic features of tones were determined based on the highest frequency of usage: Toneme 1 (A123) mid-falling-rising to high; Toneme 2 (A4) mid level; Toneme 3 (B123) high mid level; Toneme 4 (B4) mid-falling to low mid; Toneme 5 (C123) high mid-falling to mid; and Toneme 6 (C4) high mid-falling to low mid. The phonetic features of these tones in some middle age and young generation speakers were different from the typical one.

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