

Tone variation of Thai Song Dam  
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Abstract

This paper explores synchronic phonetic and phonological variations in tone systems of Thai Song Dam or Black Tai, a language of the southwestern branch of the Tai-Kadai language spoken in Thailand. It aims to study how the tone systems are regionally and socially varied.

The study of regional tone variation is based on the research results of previous studies of Thai Song Dam tone systems in 12 locations. The sociolinguistic study is focused on how the tones vary according to age group. The data were collected from Thai Song Dam speakers from three age groups: old generation (over 60), middle generation (35-55), and young generation (18-30). Thai Song Dam speakers residing in Nakornpathom province were selected as representatives of the three generations. A set of 80 monosyllabic words adapted from Gedney's (1972) checklist shown in his tone boxes was used to investigate both patterns of tone splits and coalescences as distinguishing characteristics of Thai Song Dam varieties. These words are pronounced in citation style. The tone splits, coalescences, and complementary distribution were generalized by auditory judgment and the tone characteristics, namely tone height and shape, were identified by employing the PRAAT 4.5.08 speech software program.

The qualitative analysis shows that from the five tone categories of the parent language called A, B, C, DL, DS, two series of tones have developed in Thai Song Dam varieties in all locations. Splits that have developed are ABCD123-4. In most locations, DL and DS have merged with each other and DLDS123 and DLDS 4 correspond to B123 and B4 respectively. Even though tone splits and coalescences are the same across locations, phonetic values vary from place to place. In most places, original voiced consonant initials give series 2 tones, low or falling tones, and the other three types of consonants, voiceless friction, voiceless unaspirated stops, and preglottalized consonants, give series 1 tones, high or rising. The phonetic characteristics of tones do not significantly vary by age group. The insignificant differences in tone characteristics among the three generations still conform to the typical Thai Song Dam tone pattern. It can be concluded that the tones are quite stable. The typical tone pattern of Thai Song Dam language is still preserved and has not been phonemically changed.

Key words: tonal variation, regional variation, social variation, Thai Song Dam, Lao Song Dam, Black Tai

## **1. Introduction**

Thai Song Dam (TSD) people have been addressed by various names such as Song, Lao Song, Lao Song, Tai Song, Thai Song Dam, Tai Dam or Black Tai.<sup>1</sup> The name “Thai Song Dam” refers to people dressed in black costumes. These people migrated from Muang Thaeng (Myang Teng or Muoi)<sup>2</sup>, Sipsongchutai (Sipsong Chao Tai) in the northern part of Laos. This place used to be under the Luang Prabang government (M. Sribusara 1987).

The original settlement of Thai Song Dam people in Thailand was in Phetchaburi province. Later on, Lao Song Dam people moved to other provinces such as Kanchanaburi, Ratchaburi, Suphanburi, Nakhonpathom, Samutsakhon, Samutsongkhram, Nakhonsawan, and Phitsanulok. In addition to the migration to Thailand, Tai Dam people also migrated from Muang La (Son La) in Vietnam to Laos.

Thai Song Dam belongs to the Southwestern Branch of the Tai-Kadai language family (Li 1960). Based on tonal splits and mergers, Thai Song Dam is distinguished from the Lao language and other Lao ethnic group languages as a member of the Tai language group (Brown 1965).

This paper<sup>3</sup> explores synchronic phonetic and phonological variations in tone systems of Thai Song Dam. The research questions are: i) how do the tones vary at different locations, and ii) how do the tones vary according to age group.

## **2. Framework**

The theoretical framework of this tonal study is based on the checklist for determining tones in Tai dialects (Gedney 1972). Variation Theory is also used as a framework for this study. This theory holds that linguistic forms have variants that are alternatively used but their meanings remain the same. Variation Theory is an important part of sociolinguistics which asserts that there is no free variation. Linguistic variation is conditioned by social factors such as region, social class, educational background, or style (Snyder 1995). This study covers both social and regional variation. Age is chosen as an independent variable as it has been found in most Thai Song Dam studies that age group is an important independent variable that conditions linguistic variation (Anchulee 1988, Suwattana and Kantima 1996, and Suntharat 2006).

## **3. Methodology**

This study proposes the following hypotheses: The phonetic characteristics of tones vary by location and age group.

The study of regional tone variation was based on previous studies of Thai Song Dam/Tai Dam tone systems and fieldwork by the researcher at the 14 locations listed in table 1. The Tai Dam dialect compiled by the researcher was spoken in Muang La (Son La), Vietnam. The informant from Muang La was female and 66 years old. She came from Lae village to visit her relatives in Vientiane where the data were collected.

Table 1 Sources of data

Abbreviations of locations	Locations	Researchers	Methods of data processing
ML1	Muang La (Son La), Vietnam	Gedney (1964) and Fippinger (1974)	Auditory judgment
ML2	Muang La (Son La), Vietnam	Somsonge (Fieldwork 2010)	Auditory judgment and Praat program
NP1	Donyaihom sub-district, Muang district, Nakhonpathom province	Kanchana (1979)	Auditory judgment and sound spectrograms
NP2	Dontoom sub-district, Banglen district, Nakhonpathom province	Kantima and Suwattana (1988)	Auditory judgment
SP1	Suantaeng sub-district, Muang district, Suphanburi province	Kantima and Suwattana (1988)	Auditory judgment
SP2	Bandon sub-district, U-thong district, Suphanburi province	Anchulee (1988)	Auditory judgment
SM	Nongsonghong sub-district, Banphaew district, Samutsakhon province	Kantima and Suwattana (1988)	Auditory judgment
PB1	Khaoyoi sub-district, Khaoyoi district, Phetchaburi province	Orapan (1993)	Auditory judgment
PB2	Nongprong sub-district, Khaoyoi district, Phetchaburi province	Orapin (1993)	Auditory judgment and Visi-pitch model 6087
PB3	Nongprong sub-district, Khaoyoi district, Phetchaburi province	Suntharat (2006)	Auditory judgment and Praat program
KB	Rangway sub-district, Phanomthuan district, Kanchanaburi province	Rosarin (1992)	Auditory judgment
NW	Huathanon sub-district, Thatako district, Nakhonsawan province	Wilailuck (1986)	Auditory judgment and sound spectrograms
PL	Bothong sub-district, Bangrakam district, Phitsanulok province	Supatra et al (2003)	Auditory judgment
L	Khawkaew sub-district, Chiangkhan district, Loei province	Chakhrit (1978)	Auditory judgment and sound spectrograms

The study of social tone variation is based on the researcher's fieldwork. The data were collected from two locations, Moo 6 Huathanon village, Donphutsa sub-district, Dontoom district and Moo 9 Sakaeray village, Donyayhom sub-district, Muang district, Nakhonpathom province. These two locations were chosen for this case study because no

previous acoustic studies of tones in these locations have been found and the language vitality in these locations is strong. Young generation speakers still use the Lao Song Dam language in their villages. The gender and ages of the six informants are as follows:

Table 2 Genders and ages of the six informants

Age groups	Hua Thanon		Sakaeray	
	Age	Gender	Age	Gender
Old generation (G1)	66	Male	74	Male
Middle generation (G2)	40	Female	39	Male
Young generation (G3)	22	Female	21	Male

All studies in table 1 used Gedney's (1972) tone box or tone checklist for their tone analyses. The study of Thai Song Dam tone system in Nakhonpathom province also used the tone box as shown in diagram 1. This tone box is a short-cut tool for discovering tone splits, coalescences, complementary distribution and the numbers of contrastive tones.

Diagram 1 Tone box (Gedney 1972:434)

		Proto-Tai Tones				
		A	B	C	D-long	D-short
Initials at time of tone split	1. Voiceless friction sounds <i>*s, hm, ph,</i> etc.	1	5	9	13	17
	2. Voiceless unaspirated stops, <i>*p, t,</i> etc.	2	6	10	14	18
	3. Glottal, <i>*ʔ, ʔb,</i> etc.	3	7	11	15	19
	4. Voiced, <i>*b, m, l, z,</i> etc.	4	8	12	16	20
		Smooth Syllables			Checked Syllables	

The tone box displays four categories of tones reconstructed in the Proto-Tai language labeled as A B C in smooth syllable and D in checked syllable. The tone splits and mergers in each category or between different categories are conditioned by four different classes of phonetic features of the initial consonant of each syllable, that is, aspirated, unaspirated, glottalized/implosive, and voiced. In the checked syllable, tone splits and mergers are conditioned by vowel length. Tones in checked syllables are identified as being in the same categories as those in smooth syllables.

A checklist of eighty monosyllabic words was prepared by adapting the wordlists of Gedney (1972) and Phinnarat (2003)<sup>4</sup>. The tone box displayed in diagram 1 has twenty cells

for possible tone distinctions. Each cell contains four test words whose initial consonants fall into the same consonant class. In addition to the checklist of eighty test words, analogous sets of twenty monosyllabic words, adapted from Phinnarat (2003), were used for an acoustic study of tones. Each monosyllabic word was tripled, resulting in sixty words. To eliminate the repetitive environments of these words, three tokens of each word were shuffled in random order.

The tone checklist and analogous sets were used to interview the Muang La informant and the six Thai Song Dam speakers from three age groups: old generation (over 60), middle generation (35-55), and young generation (18-30) at two locations, Huathanon and Sakaeray villages. The informants pronounced the test words in citation style. The data were recorded on IC recorder and transferred to a computer. The tone characteristics were transcribed by using auditory judgment confirmed by an acoustic analysis which displayed tone shape and height on line graphs. The acoustic study was carried out by using the speech software program PRAAT 4.5.08 and Microsoft Excel Version 2003.<sup>5</sup> Finally, the fundamental frequency ( $F_0$ ) value of each word was calculated. The analysis of tone patterns, i.e., the split, coalescence, and complementary distribution of tones, was based on Gedney's (1972) approach. The tone characteristics of the Muang La 2 and Thai Song Dam six contrastive tones are displayed as tone shapes in five-level line graphs in the appendix.

#### **4. Findings**

The regional and social variation of Thai Song Dam tones have been found as discussed below.

##### **4.1 Regional variation of tones**

The phonetic characteristics of tones and number of tones at 14 locations are summarized in table 3. The 1-5 numerals represent different levels of tone height and direction of tone movement from the lowest to the highest levels of pitch respectively, i.e. 1: low, 2: lower-mid, 3: mid, 4: higher-mid, and 5: high.

All works, except Gedney (1964), Fippinger (1974), Anchulee (1988), and Suntharat (2006), use these numerals. While the 1-5 numerals designate the phonetic values of tones, tone numbers are assigned to contrastive tones. Thai Song Dam at all locations, except at Loei (Chakhrat 1978), have six tones. The tone numbers in some studies were adjusted so that their tone numbers conformed to most studies, that is, tone 1 (A123), tone 2 (A4), tone 3 (B123), tone 4 (B4), tone 5 (C123), and tone 6 (C4). The Loei variety has five tones, so C123 tones were labeled as tone 4 and C4 as tone 5.

Table 3 Thai Song Dam/Tai Dam tones at 14 locations

		A	B	C	DL	DS
1, 2, 3	ML1	1 lower-mid level	3 high rising	5 low and glottalized	3 high rising	
	ML2	1 mid level [33]	3 lower-mid high rising [25]	5 mid falling and glottalized [31?]	3 lower-mid rising [24]	
	NP1	1 lower-mid rising [24]	3 mid rising [35]	5 mid level [33]	3 mid rising [35]	
	NP2	1 lower-mid rising [24]	3 mid rising [35]	5 mid level [33]	3 mid rising [35]	
	SP1	1 mid rising [34]	3 lower-mid rising [24]	5 mid falling [32]	3 lower-mid rising [24]	
	SP2	1 mid falling rising	3 lower-mid falling rising	5 lower-mid falling and glottalized	3 lower-mid falling rising	
	SM	1 mid rising [34]	3 mid rising [24]	5 mid falling [32]	3 lower-mid rising [24]	
	PB1	1 mid rising [35]	3 mid rising [24]	5 lower-mid falling [21]	3 lower-mid rising [24]	
	PB2	1 lower-mid rising [23]	3 lower-mid high rising [25]	5 mid level and glottalized [33?]	3 mid rising [35]	
	PB3	1 mid rising	3 low rising	5 low level	3 lower-mid rising	
	KB	1 mid rising [34]	3 low rising [24]	5 mid falling [32]	3 lower-mid rising [24]	
	NW	1 low rising [14]	3 mid rising [35]	5 lower-mid level and glottalized [22?]	3 mid rising [35]	
	PL	1 low rising [23]	3 mid rising [35]	5 lower-mid level [22]	3 mid rising [35]	
	L	1 lower-mid rising falling [241]	3 high rising [45]	4 lower-mid falling [21]	3 higher-mid rising [45]	3 higher-mid level [44]
4	ML1	2 high level	4 higher-mid level	6 mid falling and glottalized	4 higher-mid level	
	ML2	2 high level [55]	4 higher-mid level [44]	6 higher-mid falling and glottalized [42?]	4 higher-mid level [44]	
	NP1	2 mid rising falling [354]	4 higher-mid level [44]	6 higher-mid falling [43]	4 higher-mid level [44]	
	NP2	2 mid rising falling [354]	4 higher-mid level [44]	6 higher-mid falling [43]	4 higher-mid level [44]	
	SP1	2 mid rising falling [354]	4 higher-mid level [44]	6 higher-mid rising falling [452]	4 higher-mid level [44]	
	SP2	2 mid rising falling	4 higher-mid level	6 mid falling	4 higher-mid level	
	SM	2 high rising [45]	4 mid level [33]	6 higher-mid rising falling [452]	4 higher-mid level [44]	

		A	B	C	DL	DS
	PB1	2 higher-mid falling [43]	4 mid level [33]	6 higher-mid rising falling [452]	4 mid level [33]	
	PB2	2 higher-mid rising falling [453]	4 mid rising falling level [342]	6 mid falling [32]	4 mid rising falling [343]	
	PB3	2 low rising falling	4 mid level	6 mid falling	4 mid level	
	KB	2 mid rising falling [354]	4 higher-mid level [44]	6 higher-mid rising falling [452]	4 higher-mid level [44]	
	NW	2 mid rising falling [343]	4 mid level [33]	6 higher-mid falling [42]	4 mid level [33]	
	PL	2 mid rising falling [354]	4 mid level [33]	6 higher-mid falling [42]	4 mid level [33]	
	L	2 higher-mid rising falling [453]	4 lower-mid falling [21]	5 mid falling [31]	2 higher-mid falling [43]	

#### 4.1.1 Tone splits and coalescences

As mentioned above, Thai Song Dam and Tai Dam varieties at all locations, except Loei, have six tones. The Loei variety has five tones as it merges C123 tones with B4 tone. The tone splits of all varieties agree with the statement made by Pittayawat (2009:243) that “Most modern varieties show a basic split, i.e., bipartition across the four tonal categories based on voicing.” That is, from the five tone categories of the parent language called A, B, C, DL, DS, two series of tones have developed in Thai Song Dam varieties at all locations. Splits that have developed are ABCD123-4. At all locations except Loei, DL and DS have merged with each other and DLDS123 and DLDS 4 correspond to B123 and B4 respectively. Unlike in other varieties, in the Loei variety, DL123 has not merged with DS123. DL123 is a high rising tone [45] which corresponds to B123 while DS123 is a high level tone [44]. Furthermore, DS4 corresponds to A4.

Because of this binary split of tones, tones conditioned by earlier voiceless and glottalized initials are referred to as A1, B1, C1, and D1 tones and tones conditioned by earlier voiced initials are labeled A2, B2, C2, and D2 tones (Pittayawat 2009). The discussion of tones below will follow this convention.

#### 4.1.2 Tone characteristics

Even though tone splits and coalescences are the same across locations, phonetic values vary from place to place. At all locations, except Muang La, Loei, Phetchaburi 2, and Samutsakhon, original voiced consonant initials give series 2 tones, falling (A2, C2) or higher-mid level (B2) tones. In the Loei and Phetchaburi 2 varieties, the original voiced consonant initials all give falling tones (ABC2) and in the Samutsakhon variety a rising tone (A2). In the Muang La varieties, the original voiced consonant initials give falling (C2) or high level/higher-mid level tones (A2/B2).

The other three types of consonants, voiceless friction, voiceless unaspirated stops, and preglottalized consonants, give series 1 tones, rising (A1B1) or lower-mid level/falling (C1) at all locations, except Muang La varieties, which have lower-mid level tone (A1). C1

and C2 tones are terminated with a glottal closure in Muang La varieties whereas all other varieties, except Suphanburi<sup>2</sup>, Phetchaburi<sup>2</sup> and Nakhonsawan, have lost this feature. It should be noted that the phonetic values of Muang La 1 and Muang La 2 tones are not much different. For example, the B tone of Muang La 1 is high rising whereas that of Muang La 2 is lower-mid rising. The phonetic features of tones are further compared in detail below.

### **Tone 1: A1 Lower-mid rising**

Tone 1 in all varieties, except ML1 and ML2, is a contour tone. The phonetic value shared by most varieties is lower-mid rising [24]. The minor difference of the phonetic feature is the starting and ending points of the contour. The contour starts at low, lower-mid, or mid and rises to mid, higher-mid, or high. The Loei variety has a falling contour after the rising. In ML1 and ML2, tone 1 is lower-mid and mid level respectively. The tone 1 variation, by location, is as follows:

1. Low/lower-mid rising (NP1, NP2, PB2, NW, PL, L)
2. Mid rising (SP1, SP2, SM, PB1, PB3, KB)
3. Lower-mid/mid level (ML1, ML2)

### **Tone 2: A2 Mid rising falling**

Tone 2 in most varieties is a humped tone. The phonetic feature shared by most varieties is mid rising falling [354]. The contour starts at low, mid or higher-mid, then rises to higher-mid or high, and falls to low, mid, or higher-mid. SM and PB1 have rising [45] and falling [43] respectively. In ML1 and ML2, tone 2 is high level. The tone 2 variation, by location is as follows:

1. Low/Mid/higher-mid rising falling (NP1, NP2, SP1, SP2, PB2, PB3, KB NW, PL, L)
2. Higher-mid rising (SM)
3. Higher-mid falling (PB2)
4. High level (ML1, ML2)

### **Tone 3: B1 Mid rising**

Tone 3 in all varieties is a contour tone. The phonetic feature shared by most varieties is mid rising [35]. The contour starts at lower-mid, mid, or higher-mid to lower-high or high. The tone 3 variation, by location, is as follows:

1. Mid rising (NP1, NP2, NW, PL)
2. Lower-mid rising (ML2, SP1, SP2, SM, PB1, PB2, PB3, KB)
3. Higher-mid rising (ML1, L)

### **Tone 4: B2 Higher-mid level**

Tone 4 in all varieties, except PB2 and L, is a level tone. The phonetic value shared by most varieties is higher-mid level [44]. PB2 and L have a contour tone, i.e., mid rising falling [342] and lower-mid falling [21] respectively. The tone 4 variation, by location, is as follows:

1. Higher-mid level (ML1, ML2, NP1, NP2, SP1, SP2, KB)
2. Mid level (SM, PB1, PB3, NW, PL)
3. Falling (PB2, L)

### **Tone 5: C1 Lower-mid falling**

Tone 5 in most varieties is a lower-mid falling tone [21]. This contour tone starts at lower-mid or mid and ends with low or lower-mid respectively. Some varieties show lower-mid [22] or mid level [33]. Tone 5 is terminated with a glottal closure in some varieties (ML1, ML2, SP2, PB2, NW). The tone 5 variation, by location, is as follows:



1. Mid/lower mid falling (ML1, ML2, SP1, SP2, SM, PB1, KB, L)
2. Mid/lower-mid level (NP1, NP2, PB2, PB3, NW, PL)
- 3.

**Tone 6: C2 Higher-mid falling**

Tone 6 in all varieties is a contour tone. The phonetic feature shared by most varieties is higher-mid falling [42]. The contour starts at mid or higher-mid and falls to lower-mid, mid or low respectively. Some varieties (SP1, SM, PB1, KB) show a humped tone [452]. The variation of tone 5 by locations is as follows:

1. Higher-mid/mid falling (ML1, ML2, NP1, NP2, SP2, PB2, PB3, NW, PL, L)
2. Higher-mid rising falling (SP1, SM, PB1, KB)

**4.2 Social variation of tones**

This section presents the tone variation by age group of Huathanon variety (HTN) and Sakaeray variety (SKR). The tone variation is shown in Gedney’s tone boxes as seen in diagrams 2 and 3.

Diagram 2 Tone variation by age group at Huathanon village

	A	B	C	DL	DS
aspirated	G1 [13]	G1 [15]	G1 [22ʔ]	G1 [15]	G1 [25]
unaspirated	G2 [213]	G2 [214]	G2 [21ʔ]	G2 [213]	G2 [23]
glottalized	G3 [213]	G3 [215]	G3 [21ʔ]	G3 [215]	G3 [24]
voiced	G1 [243]	G1 [33]	G1 [31ʔ]	G1 [33]	G1 [33]
	G2 [232]	G2 [22]	G2 [31]	G2 [22]	G2 [22]
	G3 [232]	G3 [22]	G3 [31]	G3 [22]	G3 [22]

Diagram 3 Tone variation by age group at Sakaeray village

	A	B	C	DL	DS
aspirated	G1 [23]	G1 [24]	G1 [33ʔ]	G1 [13]	G1 [24]
unaspirated	G2 [213]	G2 [215]	G2 [21ʔ]	G2 [24]	G2 [35]
glottalized	G3 [313]	G3 [215]	G3 [21ʔ]	G3 [214]	G3 [24]
voiced	G1 [242]	G1 [22]	G1 [21ʔ]	G1 [22]	G1 [22]
	G2 [232]	G2 [22]	G2 [31]	G2 [22]	G2 [22]
	G3 [232]	G3 [33]	G3 [31]	G3 [33]	G3 [33]

The tone patterns of HTN and SKR varieties are identical to that of the 14 varieties discussed in 4.1. That is, they show a binary register split giving six contrastive tones. In most cases, DL1 and DS1 correspond to B1 while DL2 and DS2 correspond to B2. The tone characteristics varying according to age group are discussed below.

**Tone 1: A1 Lower-mid rising**

The phonetic feature of A1 tone by all informants is a rising tone. This rising tone has two shapes.

	Tone features	Age group and location
Tone shape 1	13/23	G1-HTN/G1-SKR
Tone shape 2	213/313	G2, G3-HTN and G2-SKR/G3-SKR

### **Tone 2: A2 Lower-mid rising falling**

A2 tone of all varieties is a humped tone which has two tone shapes.

	Tone features	Age group and location
Tone shape 1	243	G1-HTN
Tone shape 2	232/242	G2, G3-HTN and G2, G3-SKR/ G1-SKR

### **Tone 3: B1 Lower-mid high-rising**

B1 tone of all varieties is a rising tone. This tone is similar to tone A1 except that the ending point is higher than A1. Similar to A1, it has two tone shapes.

	Tone features	Age group and location
Tone shape 1	15/24	G1-HTN and G1-SKR
Tone shape 2	214/215	G2-HTN/G3-HTN and G2, G3-SKR

### **Tone 4: B2 Mid/lower mid level**

B2 tone of all varieties is a level tone.

	Tone features	Age group and location
Tone shape 1	33	G1-HTN and G3-SKR
Tone shape 2	22	G2, G3-HTN and G1, G2-SKR

### **Tone 5: C1 Lower-mid level/lower-mid falling with glottalized**

The characteristics of tone 5 conform to the tone features of 14 varieties described in 4.1. That is, they are low/mid level or low falling tone terminated with a glottal closure as classified into two groups below.

	Tone features	Age group and location
Tone shape 1	22ʔ/33ʔ	G1-HTN/G1-SKR
Tone shape 2	21ʔ	G2, G3-HTN and G2, G3-SKR

### **Tone 6: C2 Mid falling**

Tone 6 in all varieties features falling tones. Only G1 speakers terminate this tone with a glottal closure. Based on the starting point of this contour tone, the phonetic features of this tone are classified into two groups.

	Tone features	Age group and location
Tone shape 1	31ʔ/31	G1-HTN/G2, G3 HTN and G2, G3-SKR
Tone shape 2	21ʔ	G1-SKR

As mentioned in 4.1, the Loei variety merges C1 tones with B2 tone so it has five tones. In HTN and SKR varieties, the phonetic value of C1 is low/mid level [22ʔ/33ʔ] or low falling [21ʔ]. The former is used by the G1 speakers and the latter by G2 and G3 at both locations.

## 5. Conclusion and discussion

This paper aims to study tone variation according to location and age group. The regional variation was based on previous studies and the researcher's study of the Muang La variety. The social variation study was conducted by collecting tone data from six informants at two locations, Huathanon village and Sakaeray village, Nakhonpathom province. The Muang La and Nakhonpathom phonetic data were analyzed by using auditory judgment and acoustic measurements. Analysis of the tone patterns was based on Gedney's (1972) approach.

A tone comparison of 14 Thai Song Dam/Tai Dam varieties reveals that the tone patterns of most varieties are uniform. All varieties, except that of Loei, show a basic binary split, giving six tones. DS1 and DL1 correspond to B1 while DS2 and DL2 correspond to B2. These tone correspondences (B=DL) distinguish the languages of the Tai group from those of the Lao group (Chamberlain 1975). The Loei variety has five tones as C1 [21] merges with B2 [21] and D tone splits into DS1 [44] and DL1 [45], corresponding to B1 [45].

The study of tone characteristics partly agrees with the hypothesis. Most varieties show similar tone features. That is, A1 and B1 tones are rising tones; A2 and C2 are falling tones; C1 is a falling tone or level tone, glottalized in some varieties; and B2 is a level tone as shown in diagram 4. Some phonetic differences lie at the starting and ending points of contours and pitch levels. Phetchaburi 2 and Loei varieties show a minor difference, namely that B2 is a falling tone. The phonetic value of the A2 tone in the Samutsakhorn variety is distinct from other varieties in that it is a rising tone [45]. It should be noted that the Loei variety is different from other varieties in the number of tones and phonetic values of some tones. This may be due to the fact that this variety is used by those speakers who migrated directly from Laos, not from Phetchaburi, and thus distinguishing it from varieties which share a common (Phetchaburi) ancestor origin.

These TSD varieties are different from the ML1 and ML2 varieties spoken in Vietnam in terms of A1 and A2 tones which are lower-mid/mid level and high level respectively as shown in diagram 5. Both C1 and C2 are glottalized falling tones in ML1 and ML2 varieties whereas C1 is a glottalized falling tone in SP2 and a glottalized level tone in PB2 and NW varieties. The glottalized feature is absent in C2 in all 12 varieties.

Diagram 4 Pattern of tonal splits and mergers in most TSD varieties

	A	B	C	DS	DL
aspirated	Rising	Rising	(Glottalized)	Rising	
unaspirated			Falling/level		
glottalized					
voiced	Falling	Level	Falling	Level	

Diagram 5 Pattern of tonal splits and mergers in ML1 and ML2

	A	B	C	DS	DL
aspirated	Level	Rising	Glottalized	Rising	
unaspirated			Falling		
glottalized					
voiced	Level	Level	Glottalized	Level	
			Falling		

Pittayawat (2009) reconstructed Black Tai \*A as a mid level tone, \*B as a rising tone<sup>6</sup>, and \*C as a glottalized falling tone. The ML1 and ML2 varieties still conform to this reconstruction. The data of ML2 variety was collected 37 years after the data collection of the

ML1 variety (Fippingger 1974) but the tone systems of these two varieties are still the same. On the other hand, other varieties in Thailand have changed level tones to rising tone in A1 and falling tone in A2. And the glottalized feature of C tone is remained in few varieties.

The study of tone variation by age group concludes that the typical tone pattern of Thai Song Dam language is still preserved by three generations of speakers and has not been phonemically changed at both locations. All varieties show the same tone patterns as the 14 regional varieties. This finding agrees with Suntharat's (2006) work that tone change occurs slower than lexical change.

The tone characteristics are not completely conditioned by age group as hypothesized. The phonetic features of all tones, except C1 tone, do not vary according to age group. That is, for all informants, the tone characteristics of A1 and B1 are a rising tone; A2 is a humped tone; B2 is a level tone; and C2 is a falling tone. Some minor phonetic differences exist but are insignificant.

In the case of C1 tone, G1 speakers at both locations use a level tone while the speakers of other generations use lower-mid falling. All informants still keep the glottal closure of C1 whereas in C2, only G1 speakers preserve it.

In overall view, the tone features of all informants mostly conform to those of the 12 varieties spoken in Thailand. That is, A1 and B1 are rising tones; A2 humped tone; B2 level tone; C1 low or mid level/falling tones; and C2 falling tone. And the glottal closure of C tone is not stable. The unstable condition of this feature suggests that it might be lost in the future.

Both regional and social varieties have the tone patterns which are mostly uniform across the nation. All varieties show the regular tone split between rows 3 and 4 in all tone categories as seen in Gedney's chart. Two tones developed from each proto-tone. Li (1977) refers to these two tones as tones of series 1 and tone of series 2. The former developed from original voiceless initials and are typically high or rising in phonetic value (voiceless-high). The latter developed from original voiced initials and are typically low or falling (voiced-low). The tone patterns of most regional and social varieties show this usual pattern of tone splitting, that is, voiceless-high in A1 and B1 and voiced-low in A2 and C2. Tones C1 and B2 are level or falling.<sup>7</sup>

The change of tones A1 and A2 from level tones in Tai Dam varieties (ML1 and ML2) to contour tones in Thai Song Dam varieties may be due to internal or external causes such as a language contact which is interesting for further research. Wipawan (1981) notes that the tone patterns of Lao Song Dam at most locations in Ratchaburi province have been affected by those of Lao ethnic groups residing nearby such as Lao Ti. As the Ratchaburi variety is a mixed variety, it is not included in this study.

## Notes

<sup>1</sup> The term “Tai” is distinguished from “Thai” in so far as: “Conventionally, Southeast Asianists use the term “Tai” in referring to any speakers of the Tai language family, reserving the aspirated “Thai” to designate only those citizens of the Kingdom of Thailand as a Siamese Tai state” (Sams 1988:116). So Thai Song Dam residing in Vietnam and Laos are referred to as Tai Dam in this paper.

<sup>2</sup>Muang Thaeng is presently Muang Dien Bien Fu in northwestern Vietnam. The term Tai Dam or Black Tai is used to refer to this ethnic group residing in this area.

<sup>3</sup>This paper was presented at the 21st Annual Meeting of Southeast Asian Linguistic Society May 11 – 13, 2011, Kasetsart University, Bangkok, Thailand. It is a part of the sub-project “Ethnic language processes in progress” of the cluster research “Ethnicity: New paradigm in language and cultural transmission” sponsored by the Research-Team Promotion Grant 2010-2013, Thailand Research Fund (TRF). The author thanks Richard Hiam for editing the paper. My special thanks go to Pittayawat Pittayaporn for sharing his expertise on Comparative Tai with me. I thank Zirivarnphicha Thanajirawat, and Attasith Boonsawasd, my research assistants, for helping me with the application of the speech software program to the acoustic study of tone and data collection respectively.

<sup>4</sup>Phinnarat’s wordlist was adapted from Kalaya’s (1990) wordlist.

<sup>5</sup>PRAAT is a speech software program for identifying the tone characteristics, that is, tone height and shape. It was created by Paul Boersma and David Weenink of the Institute of Phonetics Sciences of the University of Amsterdam in 1992 ([www.praat.org](http://www.praat.org)). The Microsoft Excel program version 2003 was used to process the fundamental frequency of tones in the form of line graphs. Fundamental frequency is an acoustic measurement associated with the physical reality underlying the range or the number of complete variations in air pressure per second conducted by the opening and closing of vocal folds. On the other hand, pitch is sensed by a perception. It refers to the auditory sensation of ranging sound from high to low. Both fundamental frequency and pitch distinguish contrastive tones of a language (Kritsana 2010).

<sup>6</sup>B2 is considered tone B1 with a raised onset resulting from the register split so Black Tai \*B is reconstructed as a rising tone (Pittayawat 2009).

<sup>7</sup>Snyder (1995) uses the term “tonal flip flop” to refer to the situation in which the tone values are opposite of that predicted.

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Appendix

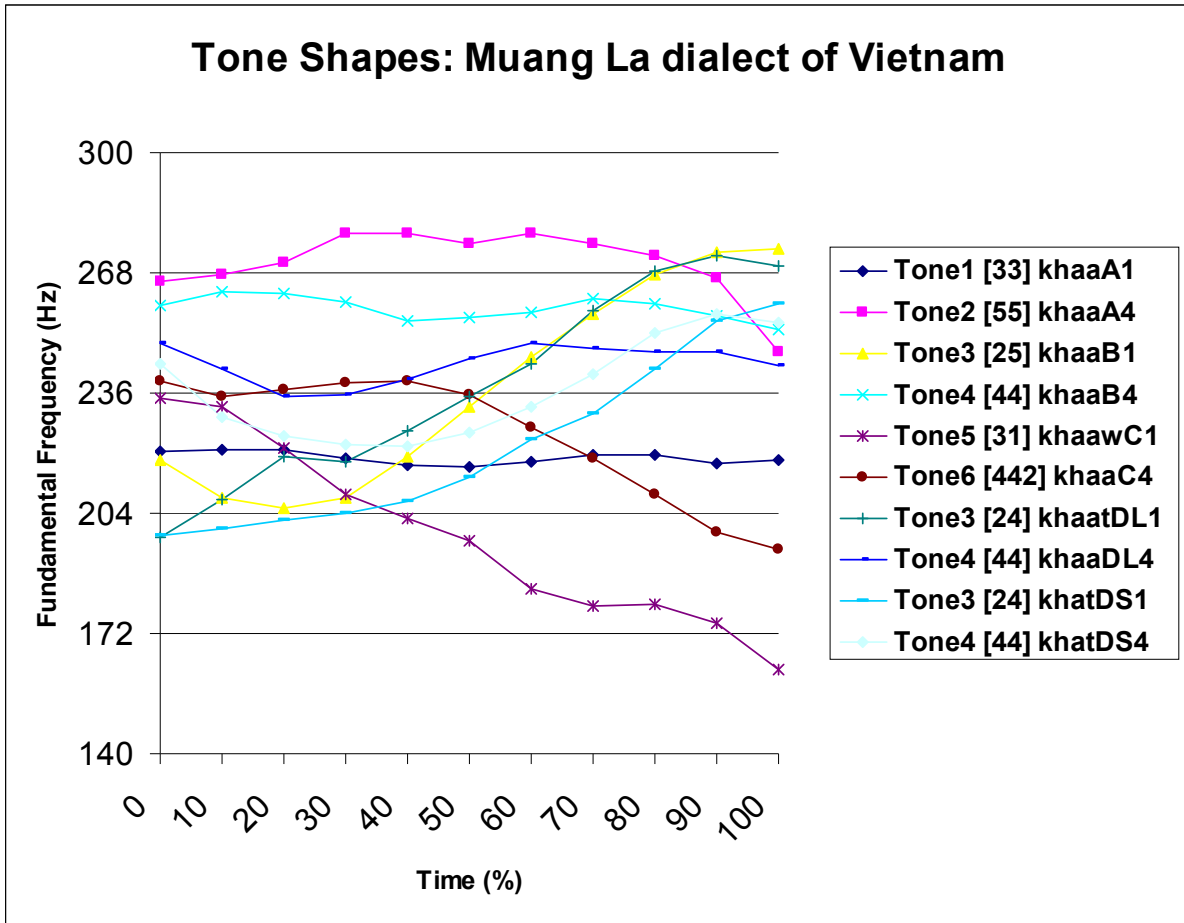


Figure 1. Tonal characteristics of Muang La dialect (ML 2)

khaa<sup>A1</sup> 'leg'

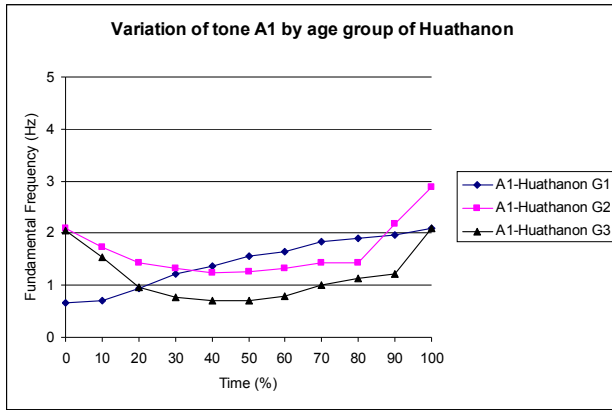


Figure 2. Variation of tone A1 by age group (Huathanon)

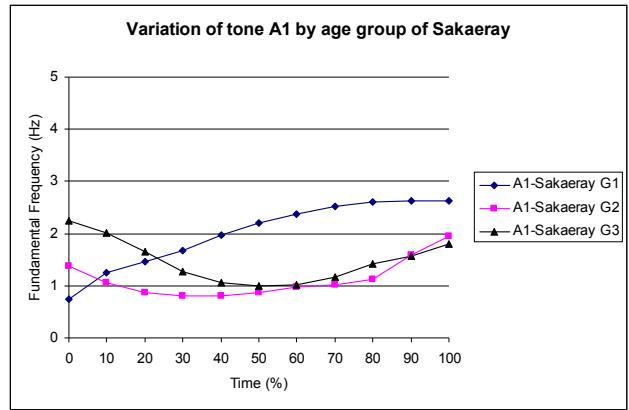


Figure 3. Variation of tone A1 by age group (Sakaeray)

khaa<sup>A4</sup> 'lalang'

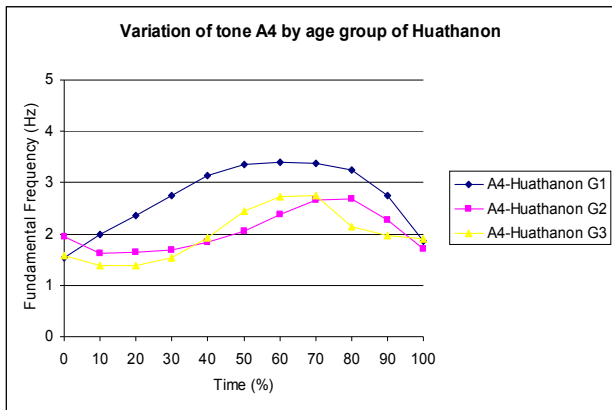


Figure 4. Variation of tone A4 by age group (Huathanon)

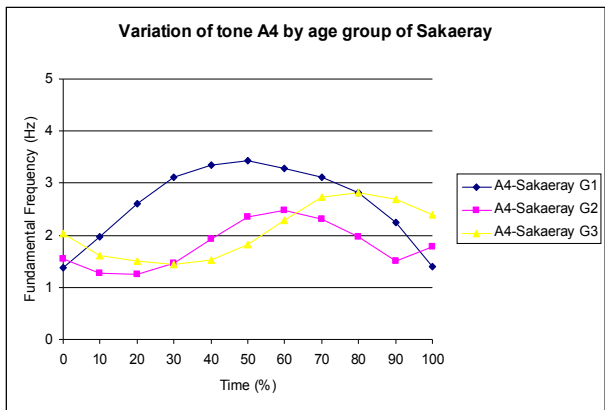


Figure 5. Variation of tone A4 by age group (Sakaeray)



khaa<sup>B1</sup> ‘galingale’

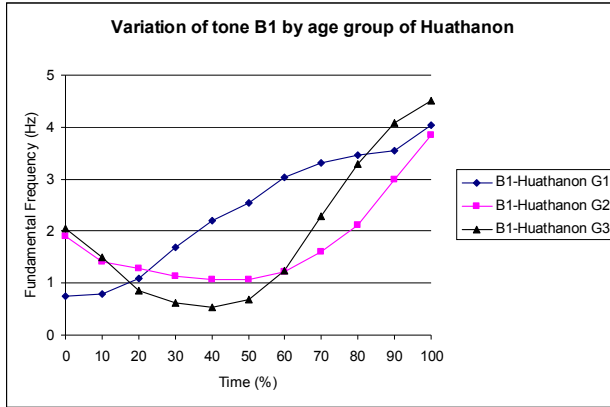


Figure 6. Variation of tone B1 by age group (Huathanon)

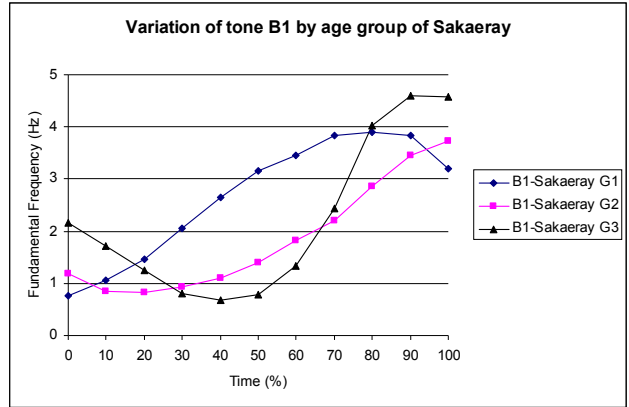


Figure 7. Variation of tone B1 by age group (Sakaeray)

khaa<sup>B4</sup> ‘value’

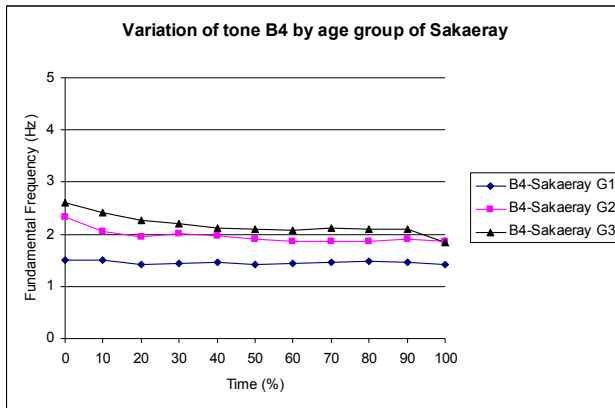


Figure 8. Variation of tone B4 by age group (Huathanon)

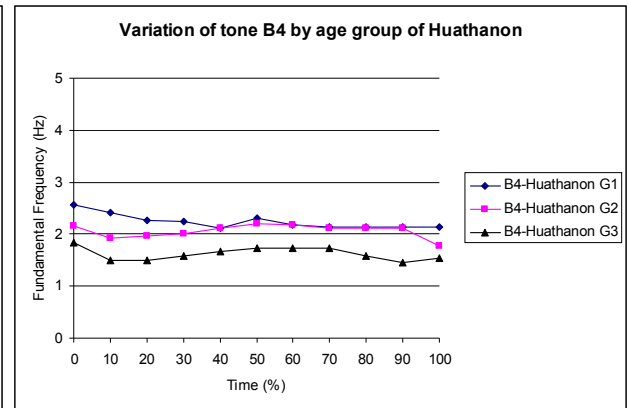


Figure 9. Variation of tone B4 by age group (Sakaeray)

khaaw<sup>C1</sup> 'rice'

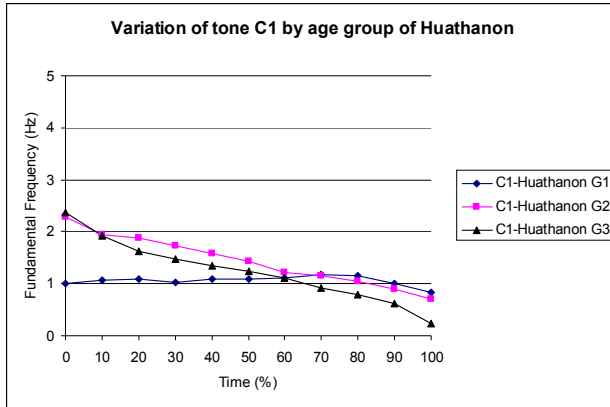


Figure 10. Variation of tone C1 by age group (Huathanon)

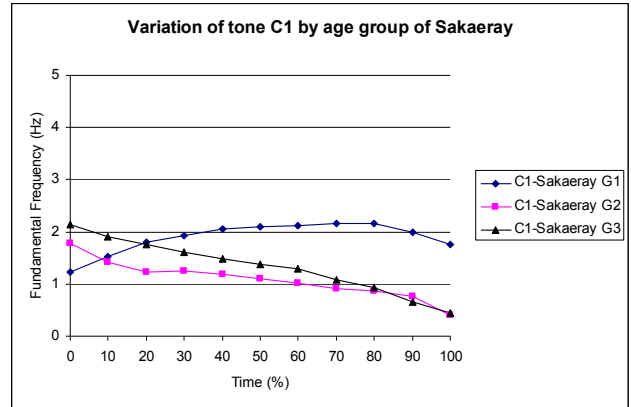


Figure 11. Variation of tone C1 by age group (Sakaeray)

khaa<sup>C4</sup> 'trade'

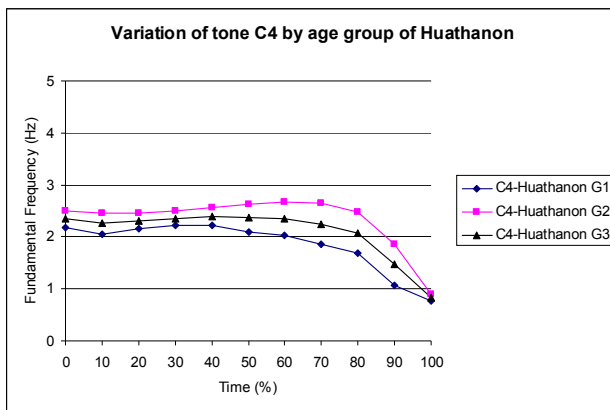


Figure 12. Variation of tone C4 by age group (Huathanon)

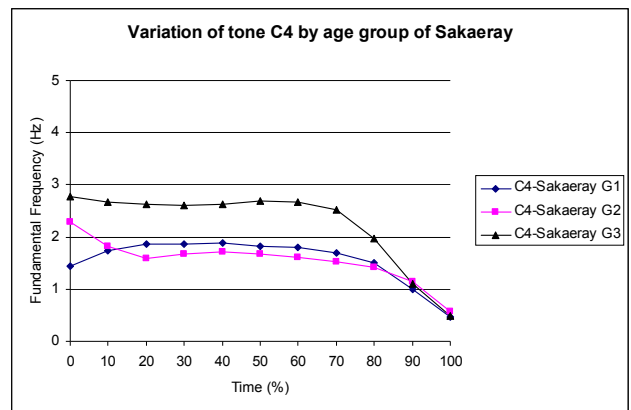


Figure 13. Variation of tone C4 by age group (Sakaeray)

khaat<sup>DL1</sup> ‘to be cut off’

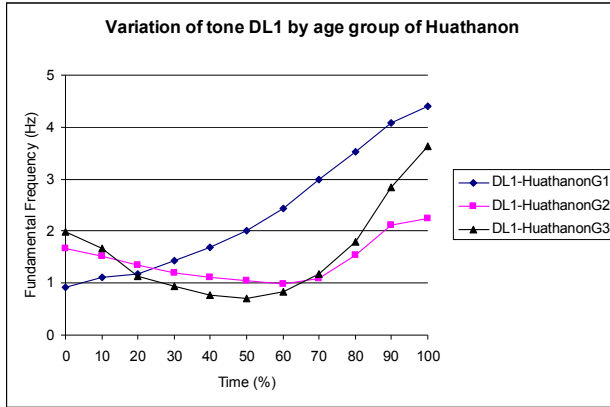


Figure 14. Variation of tone DL1 by age group (Huathanon)

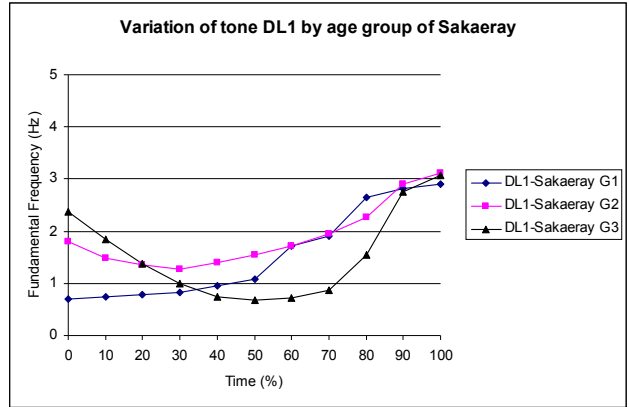


Figure 15. Variation of tone DL1 by age group (Sakaeray)

khaat<sup>DL4</sup> ‘to buckle’

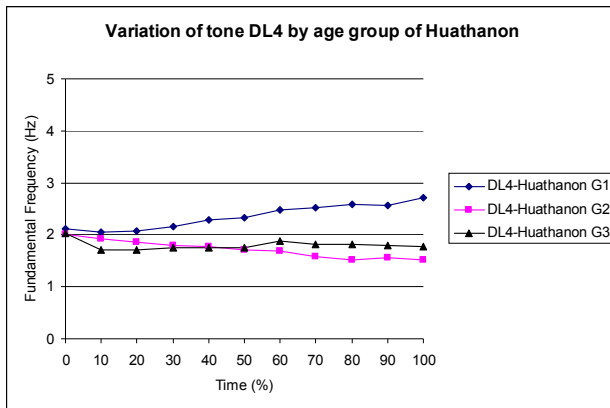


Figure 16. Variation of tone DL4 by age group (Huathanon)

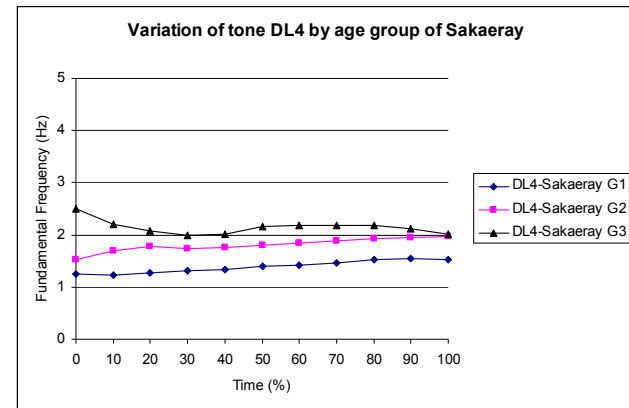


Figure 17. Variation of tone DL4 by age group (Sakaeray)

khat<sup>DS1</sup> ‘to scrub’

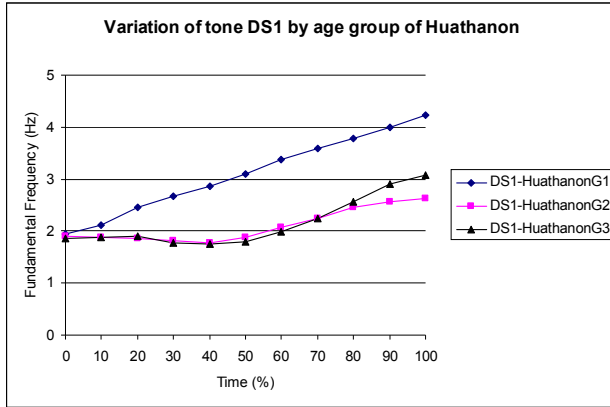


Figure 18. Variation of tone DS1 by age group (Huathanon)

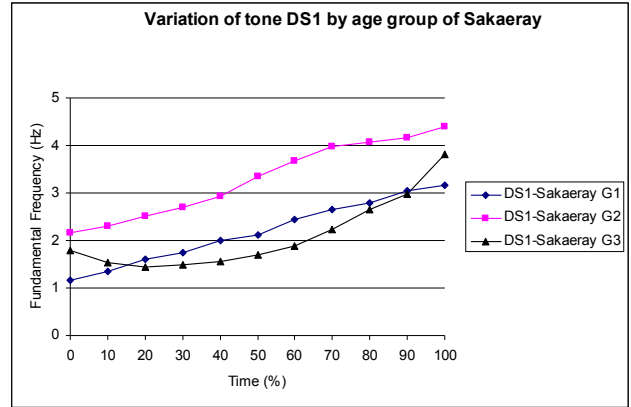


Figure 19. Variation of tone DS1 by age group (Sakaeray)

khat<sup>DS4</sup> ‘to select’

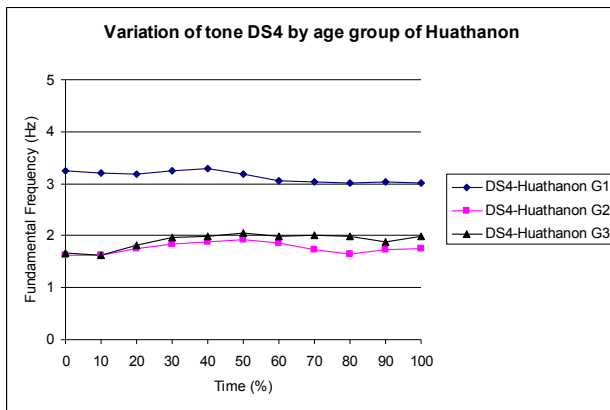


Figure 20. Variation of tone DS4 by age group (Huathanon)

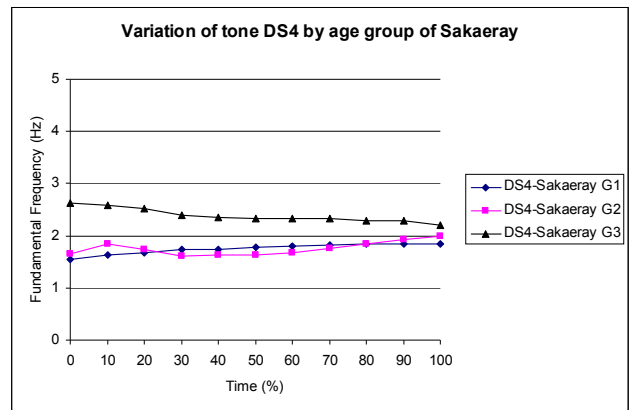


Figure 21. Variation of tone DS4 by age group (Sakaeray)