Tonal evolution induced by language contact: A case study of the T'in (Lua') language of Nan province, northern Thailand[1]

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Abstract

T'in is a Mon-Khmer language; generally, Mon-Khmer languages are non-tonal. The T'in (Lua') language of Bo Kluea District, Nan Province, comprises two major dialects, Mal and Pray. Pray is the more conservative and has fewer speakers, due to its geography and communist infiltration in the past. The data on Mal, Pray and Tai Yuan (language of the majority) was collected in 2005 for the research project on "Linguistic Diversity in Nan Province: A Foundation for Tourism Development".

Although different pitches can be heard in both Mal and Pray, there are no consistent patterns in Pray, even in the speech of a single speaker. In Mal, two pitches [high-falling] and [low-rising] have been found to be distinctive. It can be concluded that the Mal variety of Bo Kluea District has acquired two tones, /falling/ vs. /rising/ or /high/ vs. /low/. The falling tone occurs mostly in native words, whereas the rising tone mostly occurs in Tai loanwords. However, a few native words can have the rising tone and a few Tai loanwords can have the falling tone. Acoustical measurements were done to confirm the characteristics of Mal and Thai Yuan tones.

Filbeck (1972) pointed out the fact that a sub-dialect of Mal had two tones, i.e. rising and non-rising, and that the emergence of the rising tone appeared to be the result of independent innovation. The results of our present study indicate that the two rising tones in Tai Yuan, namely, the /low-rising/ (A1-2) and /mid-rising/ (A3-4), seem to induce tone birth in Mal, especially, the rising tone. In Tai Yuan, a six-tone language, words having the two rising tones (A1-2 and A3-4) outnumber the rest and are, thus, frequently heard and borrowed by Mal people, almost all of whom are bilingual. Perhaps, the auditory factor could have inspired and induced tonal evolution in some Mal sub-dialects.

1. Introduction

The T'in or Lua' live in Nan Province, Thailand and in the adjacent Sayabouri Province of Lao PDR. The T'in language comprises two major dialects, Mal and Pray, and each dialect consists of a few sub-dialects or varieties. T'in belongs to the Khmuic branch of the Mon-Khmer language family. In Nan Province, northern Thailand, there are about 34,600 speakers of

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the T'in language. Ten districts (Amphoes) are inhabited by the T'in: Bo Kluea, Pua, Chaloem Pra Kiat, Chiang Klang, Thung Chang, Santi Suk, Mueang Nan, Mae Charim, Wiang Sa and Song Khwae. See further details in Table 1.

Table 1. The number of T'in or Lua' (Mal-Pray) speakers in Nan Province (a survey conducted by the research project on "Linguistic Diversity in Nan Province: A Foundation for Tourism Development, 2004-2006")

District	No. of sub-districts	No. of villages	No. of speakers
Bo Kluea	4	31	10,808
Pua	3	20	8,483
Chaloem Pra Kiat	3	14	5,848
Chiang Klang	4	14	3,987
Thung Chang	4	7	2,398
Santi Suk	1	2	1,504
Mueang Nan	2	3	777
Mae Charim	1	1	370
Wiang Sa	1	1	347
Song Khwae	2	5	78
Total	*25*	*98*	*34,600*

Linguists who have worked on T'in do not agree on the number of sub-dialects or varieties of the Mal and Pray dialects. Filbeck (1978) says that Mal has three sub-dialects while Pray has only two. Jirananthanaporn (1993) who did a lexical study of Mal and Pray claims that Mal comprises three sub-dialects, the same analysis as Filbeck (1978), but Pray has five instead of two. The difference between their analyses is caused by the different criteria used by them, i.e. phonological criteria by Filbeck and lexical by Jirananthanaporn. Based on our Village Database (GIS) and a supplement questionnaire devised for a survey of the Mal-Pray language in 2006, the Mal-Pray language can be classified approximately into five intricate groups as illustrated in Figure 1.
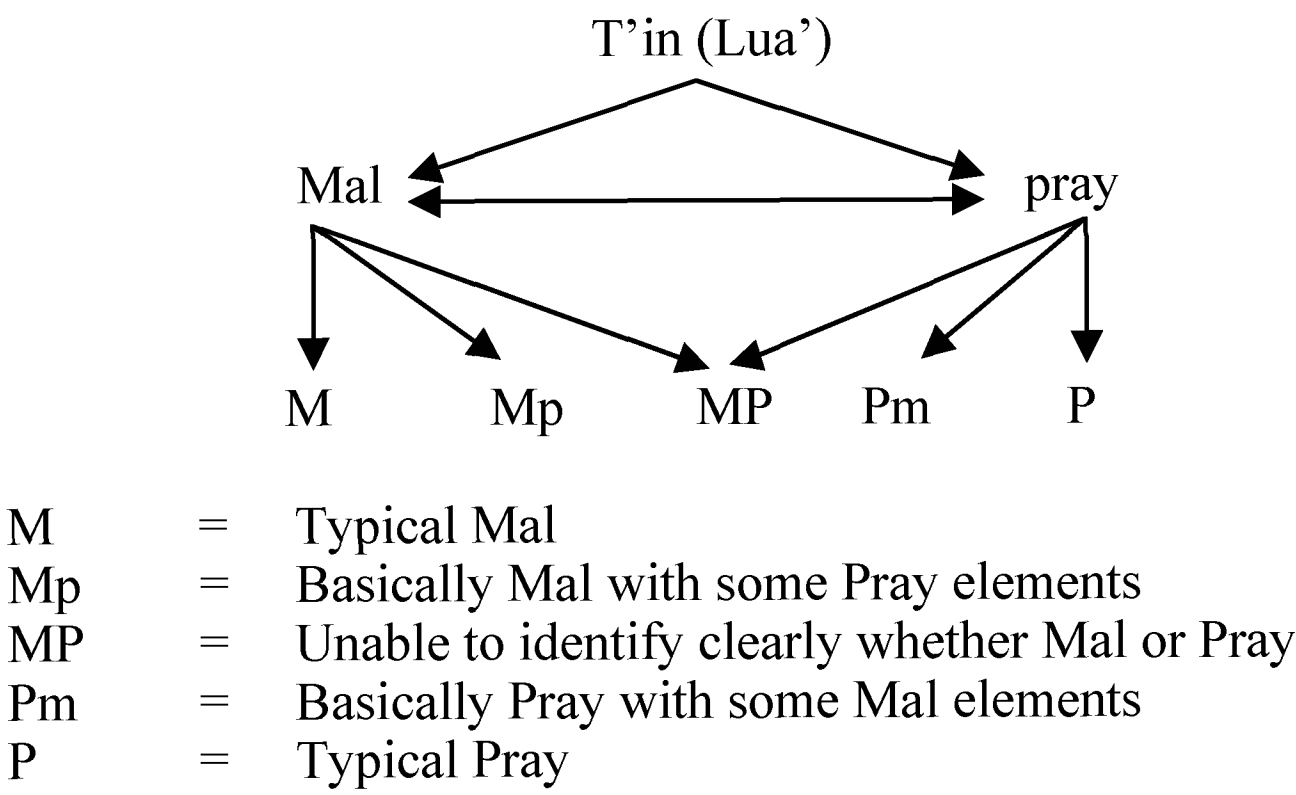
T'in (Lua')

Mal ⟷ pray

M   Mp   MP   Pm   P

M	=	Typical Mal
Mp	=	Basically Mal with some Pray elements
MP	=	Unable to identify clearly whether Mal or Pray
Pm	=	Basically Pray with some Mal elements
P	=	Typical Pray

Figure 1. A synchronic classification of the T'in (Mal-Pray) language

Proto T'in which was reconstructed by Filbeck (1978) had no tones (non-tonal). However, two tones, namely, the non-rising (or level) and rising tones have been developed in some of the modern Mal sub-dialects. He concludes that the development of tones in Mal is an independent innovation due to language contact with Thai. In this paper, we would like to argue and suggest that the two rising tones, /23/ and /35/, in the Kham Mueang dialect of Nan Province have induced tonal evolution in Mal. An acoustic study of the Kham Mueang and Mal tones was done to confirm their tonal characteristics; and the Tai-Thai loanwords in Mal spoken at Yot Doi Watthana Village in Bo Kluea Tai Sub-district, Bo Kluea District were compared with the original Tai-Thai words.

2. Language scenario of Nan Province

Nan is a small northern province of mostly mountainous areas (85%) and a population of 478,080 (Department of Provincial Administration, Ministry of Interior, 2005). The population of Nan comprises thirteen ethnic groups: Khon Mueang (Tai Yuan), Lue, Khuen, Lao, Phuan, Haw' (speaking Kham Mueang), Hakka Chinese, Mpi (Kaw), Hmong, Mien (Yao), Khmu', T'in (Mal-Pray) and Mlabri (Tong Lueang). The population of each ethnic group can be found in Table 2.

Table 2. The languages and population of the 13 ethnic groups of Nan Province (a survey conducted by the research project on "Linguistic Diversity in Nan Province: A Foundation for Tourism Development, 2004-2006")

Language family	Ethnic group	Population	Percentage
Tai	Khon Mueang (Tai Yuan)	315,382	65.97
	Lue	54,400	11.38
	Lao	9,672	2.02
	Phuan	2,296	0.48
	Haw'	1,047	0.22
	Khuen	807	0.17
Sino-Tibetan	Hakka Chinese	2,135	0.45
	Mpi (Kaw)	508	0.11
Hmong-Mien	Hmong	22,037	4.16
	Mien (Yao)	11,415	2.39
Mon-Khmer	T'in/Lua' (Mal-Pray)	34,600	7.24
	Khmu'	7,708	1.61
	Mlabri	148	0.03
Unable to identify	Miscellaneous	15,925	3.33
Total		*478,080*	*100*

From Table 2 as shown above, one can see clearly that Nan is a multilingual society. Kham Mueang (Tai Yuan or Northern Thai dialect) is the lingua franca of the province. Most Nan people can understand Standard Thai, which is the national language of Thailand. At home and in the village where the whole or majority of the villagers belong to the same ethnic group, they speak their own mother tongue. Kham Mueang is used by the members of all ethnic groups at the markets and with outsiders. Standard Thai is used as the medium of instruction in all schools and also as the language of mass media. School children speak Standard Thai with their teachers and Kham Mueang or their own mother tongue with their schoolmates. With officials, strangers and tourists, Standard Thai seems to be their preferred choice. When the minority groups want to hide their ethnic identity, Kham Mueang is spoken.

So far as language selection is concerned, T'in people behave in the same way as the other ethnic or ethnolinguistic groups in Nan Province. Generally, ethnicity consists of life style, culture, language, identity and so on. For the T'in, language seems to be the most important ethnic component and unlike the Hmong, Mien and Lue, their cultural aspects, e.g. clothing, have no role to play in the tourism business of Nan Province. T'in people are bilingual, i.e. they can speak Kham Mueang as well as their own mother tongue. Some of them, especially the well-educated ones, can speak Standard Thai quite well.

In a language-contact situation as stated above, linguistic borrowings, especially, lexical borrowing cannot be avoided. As a result, T'in (recipient language) has a lot of Tai-Thai loanwords. This means that Kham Mueang or Tai Yuan, Standard Thai and probably Lao are the source languages or donor languages. Tai-Thai words have been loaned to T'in at different periods of time for many reasons and in various circumstances. The T'in can be regarded as the local inhabitants of the highland areas of Nan Province. They have lived in the remote mountainous areas of many districts of Nan for a long time. However, forty years ago during the Indo-China war and the Communist infiltration, a large number of the T'in were moved down to resettlement camps in the lowlands and those who joined the Communist Party of Thailand stayed on in the mountains. Later, when the base of the Communist Party in Nan was destroyed and the areas became peaceful, some of the T'in returned to their mountain homeland. The so-called "modernization" and "rural development" schemes of Thai governments and the private sector have reinforced both language and cultural borrowings. As viewed by the functionalists, "languages are primarily complex tools for referring to the world and for communication, and these tools easily adapt to new communicative and referential needs" (Appel and Muysken, 1988:154).

3.   Tai-Thai loanwords

Filbeck (1972) points out the fact that some Mal sub-dialects have developed prosodic features to the point that a tonal analysis is necessary (p.111); "the non-contrastive intonation pitches would form the contrastive unit to the rising tone" (p.112). He lists a few Tai-Thai loanwords in Mal

which have the rising tone. In 1997, Filbeck wrote another paper entitled "Thai loanwords in the Lua Language of Muang Nan" (unpublished) to bring attention to some of the implications for historical study.

Using the wordlist devised by our research project, the first author in 2005 collected 2,452 Mal lexical items at Yot Doi Watthana Village. Although our major aim is to compile a basic vocabulary used in everyday life, a lot of Tai-Thai loanwords with the rising tone were found. The following are some examples:

Standard Thai	Kham Mueang (Nan)	Mal	Gloss
(ηaw^{24})	$\eta \text{ɔɔm}^{31}$	$\eta \check{\text{ɔ}} \text{ɔm}$	'lonely'
$phaan^{21}$	$(kaay^{23})$	$ph\check{a}an$	'to pass'
tun^{21}	tun^{33}	$t\check{u}un$	'bamboo rat'
$kl\text{ɔɔ}\eta^{33}$	$k\text{ɔɔ}\eta^{23}$	$k\check{\text{ɔ}}\text{ɔ}\eta$	'drum'
$kliip^{21}$	$kiip^{33}$	$kl\check{\text{i}}ip$	'segment (of an orange)'
$k\text{ɔɔt}^{21}$	(wan^{23})	$k\check{\text{ɔ}}\text{ɔt}$	'to embrace'
$k\text{ə}\text{ə}n^{33}$	(lam^{43})	$k\check{\text{ə}}\text{ə}n$	'too much'
$khluy^{21}$	$khuy^{33}$	$kh\check{u}y$	'flute'
$khaam^{42}$	$khaam^{44}$	$kh\check{a}am$	'to cross over'
$khaaw^{21}$	$khaaw^{33}$	$kh\check{a}aw$	'news'
ηaam^{42}	ηaam^{31}	$\eta \check{a}am$	'fork (of a tree)'
$caan^{33}$	$caan^{23}$	$c\check{a}an$	'plate, dish'
$ch\varepsilon\varepsilon^{42}$	$c\varepsilon\varepsilon^{31}$	$c\check{e}e$	'to soak'
$(din^{33}\ p\text{ɨ}\text{ɨ}n^{33})$	faw^{33}	$ph\check{a}w$	'gunpowder'
$daap^{21}$	$daap^{33}$	$d\check{a}ap$	'sword'
$(du\text{ʔ}^{21}\ raay^{45})$	$su\text{ə}k^{33}$	$s\check{u}\text{ə}k$	'fierce'
$taku\text{ə}^{21}$	$(c\text{ɨ}\text{ɨ}n^{35})$	$tak\check{u}\text{ə}$	'lead (metal)'
$faay^{24}$	$faay^{23}$	$phw\check{a}ay$	'dam'
$ru\text{ə}m^{42}$	$hu\text{ə}m^{31}$	$y\check{u}\text{ə}m$	'to join in'
$yaak^{42}$	$\text{ɲ}aak^{31}$	$\text{ɲ}\check{a}ak$	'difficult'

From the above examples, it looks as if the low-rising pitch has been assigned to Tai-Thai loanwords. However, instead of the low-rising pitch, some Tai-Thai loanwords have received a falling tone like most of the native words, for example,

Standard Thai	Kham Mueang (Nan)	Mal	Gloss
khəəy^{33}	kəəy^{35}	kə̂əy	'used to'
leŋ^{33}	leŋ^{35}	lêeŋ	'to take aim'
loon^{45}	loon^{43}	lôon	'hairless'
woŋ^{33}	woŋ^{35}	wôŋ	'circle'
suu^{42}	suu^{44}	sûu	'to fight'
mɔɔŋ^{24}	(saw^{44})	hmɔ̂ɔŋ	'gloomy'
maay^{24}	maay^{23}	hm̂aay	'to mark'
buəŋ^{21}	buəŋ^{33}	bûəŋ	'loop, noose'
hɔŋ^{42}	hɔŋ^{44}	hɔ̂ɔŋ	'room'
rien^{33}	hiən^{35}	lîən	'to study'
maa^{45}	maa^{43}	mâa	'horse'
yɔɔm^{45}	ɲɔɔm^{43}	ɲɔ̂ɔm	'to dye'
yay^{33}	ɲay^{35}	ɲây	'fiber'
fɔɔn^{45}	fɔɔn^{43}	phɔ̂ɔn	'to dance'
than^{33}	tan^{35}	tân	'in time'
faay^{42}	faay^{44}	phwâay	'cotton'
looŋ^{33}	looŋ^{35}	lôoŋ	'coffin'
siəŋ^{24}	siəŋ^{23}	sîəŋ	'sound, voice, noise'
tiəŋ^{33}	tiəŋ^{23}	tîəŋ	'bed'
hɛɛp^{21}	hɛɛp^{33}	hêɛp	'hoarse, rasping'

Regarding consonants and vowels, Mal does not need serious adaptation because the Mal consonant and vowel systems are more complex than those of the Tai-Thai languages. However it is worth pointing out that some Tai-Thai sounds can be a problem to Mon-Khmer speaking people, for example, the voiceless labio-dental fricative /f/ does not exist in the Mal phonological system, therefore, when Tai-Thai words having the initial /f/ are loaned to Mal, /f/ changes to /ph/. Since all of the Tai-Thai languages are tonal, adaptation is needed for a non-tonal language like Mal. In fact, Mal native words have different pitches--levels or contours--depending upon syllable structures and consonant types in the syllable. More details can be found in Filbeck (1972) and Singnoi (1988). We have tried to construct some rules for the adjustment of tones in Tai-Thai loanwords but our attempts have always failed. Perhaps, the present Tai-Thai loanwords with the falling tone are early loans whose tones were adapted to suit the pitch patterns of Mal. To avoid homophones which can cause lexical-meaning confusion, the rising tone has been assigned to recent loanwords.

4.   Contact-induced tonal evolution

Filbeck (1972) says that the tonal system of a Mon-Khmer language can develop from some internal factors or by means of contact with a tonal language such as Thai (p.111). He postulates two contrastive tones, namely, the rising tone and the non-rising or level tone. The non-rising tone is

described as "intonation" or "speech rhythm" (p.113). The Mal variety which he studied comprises three degrees of stress and three types of pitch which can be summarized as three units. See figure 2.
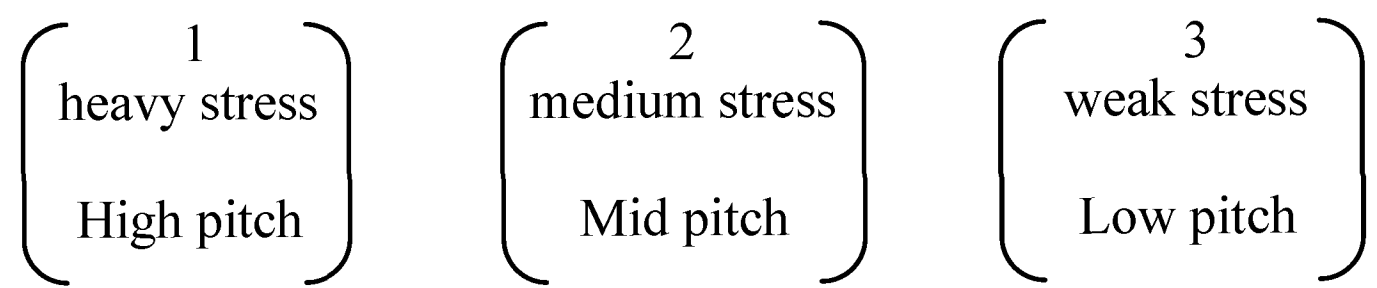
$$\begin{pmatrix} 1 \\ \text{heavy stress} \\ \\ \text{High pitch} \end{pmatrix} \quad \begin{pmatrix} 2 \\ \text{medium stress} \\ \\ \text{Mid pitch} \end{pmatrix} \quad \begin{pmatrix} 3 \\ \text{weak stress} \\ \\ \text{Low pitch} \end{pmatrix}$$

Figure 2. Interaction between stress and pitch in Mal

The rising tone stands in contrast to the above three allotones of the non-rising or level tone. He concludes that the Mal two tones have emerged through contact with Thai. Because of the difference in tone between the source language (Thai) and the recipient language (Mal), the emergence of the rising tone appears to have been the result of some independent development which is called "independent innovation" by Filbeck (p.115).

Singnoi (1988) makes a synchronic comparison of pitches occurring in different environments in Mal and Pray. However she does not conclude whether pitches in these two dialects of the T'in language are distinctive or not.

Based on the Mal data collected by the first author at Yot Doi Watthana Village in Bo Kluea Tai Sub-district, we must conclude that this Mal variety has two distinctive pitches or two tones, i.e. /FALLING/ vs. /RISING/ or /HIGH/ vs. /LOW/. An acoustic study was done to confirm our analysis of the Mal tones. In this study, two female speakers, age 56 and 38, were asked to pronounce 20 minimal pairs. (See the Appendix.) The language data used for our acoustical measurements was recorded on a computer notebook and the acoustic analysis of pitches (fundamental frequencies) was done using the PRAAT program, version 4.5.06. The result of our acoustic study is shown in figure 3.

Suspecting that the two rising tones of Kham Mueang might be the inspiration or source of the rising tone in Mal, Kham Mueang data was also collected using the same wordlist. It has been found that the Kham Mueang or Northern Thai dialect spoken in Nan Province has six tones:

Tone 1	Low-rising	[23]	(A1-2)
Tone 2	Mid-rising	[35]	(A3-4, DS 1-2-3)
Tone 3	Mid-level	[33]	(B1-2-3, DL1-2-3)
Tone 4	Mid-falling	[31]	(B4, DL4)
Tone 5	High-level	[44']	(C1-2-3), [44] (DS4)
Tone 6	High-falling	[43]	(C4)

The acoustic characteristics of these six tones can be found in figure 4.

It is noticeable that in the Kham Mueang dialect of Nan, words having the two rising tones (T1 and T2) outnumber the rest. Making a survey using the Matisoff's 200-wordlist for SEA languages, 57% of Kham Mueang words bear the two rising tones. Frequently hearing and using these two rising tones in everyday life, the Mal-Kham Mueang bilinguals have borrowed the rising contour and assigned it to the more recent Tai-Thai loanwords no matter what the original tones of those words, since the old Tai-Thai loanwords have obtained typical native pitches. At a later stage, to avoid homophones and to make lexical distinctions, not only the Tai-Thai loanwords but also some of the native words can have the rising tone, and some of the loanwords can have the falling tone.
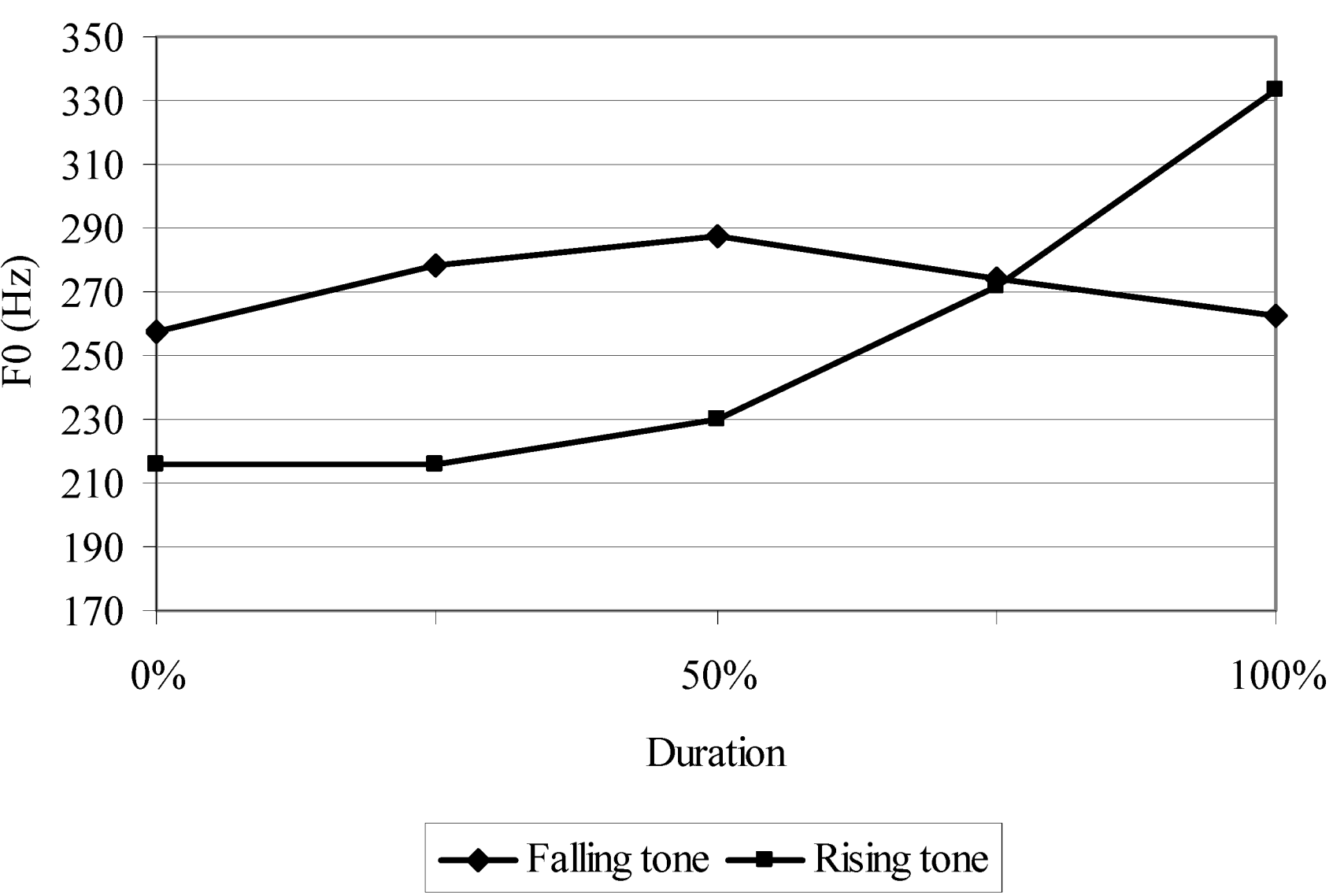

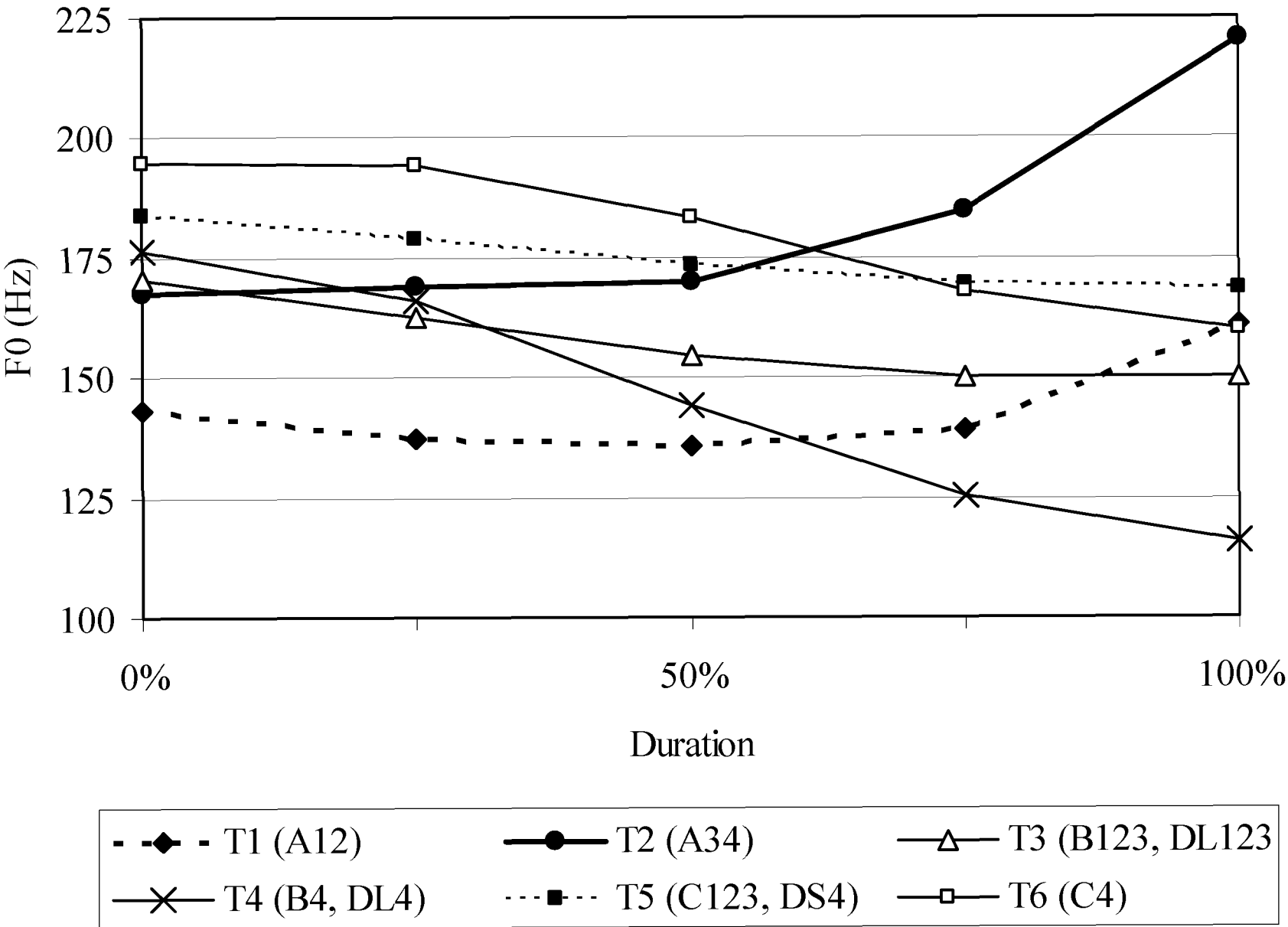*Figure 3.* The acoustic characteristics of the two tones in Mal

Figure 4. The acoustic characteristics of the six tones in Kham Mueang

The borrowing and adaptation processes could be a cause of the tonal distinctions in Mal. Consequently, several minimal pairs bearing the falling tone vs. the rising tone can be found in some Mal varieties. Some examples of the minimal pairs in the Yot Doi Watthana variety are given in the Appendix. Although the falling tone in the other Mal varieties has a few variants, due to syllable-structure types, there is always a two-way tonal distinction, i.e. /Falling/ vs. /Rising/ or /High/ vs. /Low/.

5. Discussion and conclusion

An evidence of contact-induced tonogenesis or tonal evolution in Southern Qiang (Tibeto-Burman languages) has been presented by Evans (2001). He says that some of the SQ dialects become tone-prone due to lexical borrowings from Sichuanese Mandarin and some dialects, e.g. Longxi, Taoping, etc. have developed tonal systems. Our findings presented in this paper confirm the possibility of non-tonal languages becoming tonal due to language contact. Tone borrowing seems to be quite common in SEA language areas. A case study of the tonal evolution of Mal helps prove the hypothesis of contact-induced tonogenesis. The results of our present study indicate that the two rising tones of Kham Mueang, i.e. the low-rising tone (A1-2) and the mid-rising tone (A3-4), are the inspiration or inducement of tonogenesis in the Mal variety spoken in Yot Doi Watthana Village. Although different pitches can be heard in both Mal and Pray, the two major dialects of the T'in language, there

are no consistent pitch patterns in Pray, even in the speech of a single speaker. Some varieties of modern Mal have become tonal with two-way distinction or two tones: /Falling/ vs. /Rising/ or /High/ vs. /Low/, depending upon the interpretation of each analyst.

Moreover, language contact can also induce tonal variation and change in SEA languages (L-Thongkum, 1997; Akharawatthanakun, 2002).

Acknowledgements

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Appendix

1. yâa   'cigarette'
    yǎa   'cholera'

2. hâa   'five'
    hǎa   'clf. for heavy rain'

3. lâayh   'to stir steamed
               sticky rice'
    lǎayh   'lawn'

4. sɔ̂ɔt   'sticky'
    sɔ̌ɔt   'to travel for
               pleasure'

5. wâaŋ   'year'
    wǎaŋ   'to have free time'

6. mân   'female-in-law'
    mǎn   'sterile'

7. kâw   'first, oldest
               (child)'
    kǎw   'equal (e.g. length)'

8. môoŋ   'o'clock (e.g. 6 ~)'
    mǒoŋ   'to hit (a ball) with
               the forehand'

9. pîi   'Job's tears (plant)'
    pǐi   'oboe'

10. ʔâan   'saddle'
    ʔǎan   'to read'

11. lôoŋ   'coffin'
    lǒoŋ   'clear and clean'

12. sîət   'odd (~ people)'
    sǐət   'kind of tree'

13. sîəŋ   'tooth'
    sǐəŋ   'to take a risk'

14. sây   'to pinch off (e.g.
               small leaves)'
    sǎy   'to saw'

15. khêɛp   'to pick up with
               pincers'
    khěɛp   'kind of creeping
               plant'

16. hêɛp   'dry (of the throat)'
    hěɛp   'tweezers'

17. pûut   'liquor, wine'
    pǔut   'kind of bird'

18. yâaŋ   'flower'
    yǎaŋ   'deserted'

19. thɔ̂ɔt   'to stab'
    thɔ̌ɔt   'to fry (e.g. a fish)'

20. kûut   'to enter'
    kǔut   'quail'