Article

Contrastive Analysis in Phonetic Characteristics of Thai and Vietnamese Tones

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Abstract

This paper is a contrastive analysis of phonetic characteristics of Thai and Vietnamese tones using the phonetic characteristics based on the methodologies from the analyses of Arthur S. (1962), Hoàng Thị Châu (2009), Đoàn Thiện Thuật (2016) and Nguyễn Thị Hai, (2017). This analysis finds that, aside from the difference of quantity of toneme, there are additional differences including fundamental frequency, length, tone shape, pitch, and voice quality. Tho in the Thai tonal system does not occur in the Vietnamese tonal system. Conversely, hỏi, ngã and nặng in the Vietnamese tonal system do not occur in the Thai tonal system.

Introduction

Monosyllabic languages are prevalent in Southeast Asia (Henderson, 1982; Matisoff, 1973; Turgood, 1999 cited by Teeranon Ph., 2013). The structure of monosyllable languages becomes significant in describing variation between non-tonal and tonal language. As such, the variation in tone level distinguishes the meaning of the word. Tone is described as the changing of pitch in speech sounds, that is, the value in Herz of fundamental frequency (F0) or pitch of a syllable determines the distinction the meaning of a word. Examples of this include: ma /ma:1/ (ghost), mà /ma:2/ (but, which), má /ma:3/ (mother), mả /ma:4/ (tomb), mã /ma:5/ (horse), mạ /ma:6/ (rise seeding) in Vietnamese, as well as the Thai examples of: มา /ma:1/ (come), หม่า /ma:2/, ม่า

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/ma:3/, ม้า /ma:4/ (horse), หมา /ma:5/ (dog).

Tones in Vietnamese and Thai assist to articulate functionally distinct words, though it can be difficult to determine where tones are located in syllables. Tones determine the meaning of units in language and occur across whole syllables. As such, tones define segmental phonemes which become unique characteristics of suprasegmental units.

This paper presents a contrastive analysis of phonetics characteristics of Thai and Vietnamese Tones. The paper employs phonetic characteristics from the documentary analysis of Abramson, Arthur S. (1962), Hoàng Thị Châu (2009), Đoàn Thiện Thuật (2016) and Nguyễn Thị Hai, (2017) as its methodology.

Thai Tonal System

Thai language belongs to the Tai-Kadai language family, which is the largest language family in Asia, where most of its users reside in Southeast Asia. The Tai-Kadai language family is used in eight countries: China, Myanmar, India, Vietnam, Cambodia, Laos, Thailand and Malaysia. In written language, each tone name contains its corresponding diacritic. There is a total of five tones, one of which, sa-man (mid tone), does not have a diacritic. The other four with diacritics are aek (low tone), tho (falling tone), tri (high tone), chat-ta-va (rising tone).
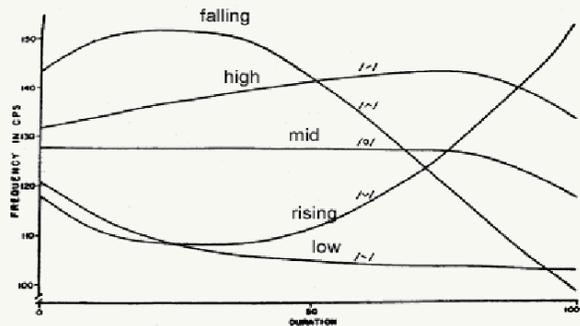

Figure 1. Fundamental frequency (F0) shapes of Standard Thai tones in the second period (Abramson A., 1962)

Three categories in Thai tones exist, namely the level tone, the contour tone and the intensifying tone.

Level tone. There are three Thai tones in this category: aek (low tone), sa-man (mid tone) and tri (high tone).

Contour tone. There are two Thai tones in this category: tho (high-falling tone), chat- ta-va (low-rising tone).

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Intensifying tone. This tone usually occurs in reduplicated words. The role of this tone is to emphasize the first syllable of a word so as to express the specific meaning of the word, for example: /dii6-dii1/ (good), /ruu6-ruu4/ (know), /khaaw6- khaaw5/ (white) etc. It could be said that this specific tone absolutely differs from the other five tones above which are not diacritic.

Vietnamese Tones System

Vietnamese belongs to the Viet-Muong branch of the Mon-Khmer language group within the Austro-Asiatic language family. Some current languages that belong to this family include Mon, Khmer and Vietnamese languages. In written language, each tone name contains its corresponding diacritic. There is a total of six tones, one of which, ngang (high-even tone) or không dấu (non-symbol tone), does not have a diacritic. The other five tones with diacritics are as follows; huyền (mid-falling tone), ngã (high-rising broken tone), hỏi (low-falling rising tone), sắc (high-rising tone), and nặng (low-dropping tone).
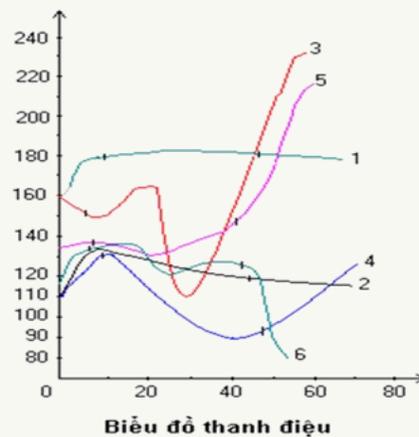

Figure 2. The characteristics of Vietnamese Tones

In summary, there are 3 categories to be distinguished in Vietnamese tones, namely

Pitch (âm vực): There are three tones that have a high pitch, namely ngang, ngã, and sắc. There are three tones that haev a low pitch, namely huyền (mid-falling tone), hỏi (low-falling tone) and nặng (low-falling broken tone).

Even/uneven (bằng/trắc) tones: There are two tones which have even contours. These are ngang and huyền. There are four tones that have uneven contours; ngã (high- rising broken tone), sắc (high-rising tone), hỏi (low-falling rising tone), and nặng (low-dropping broken).

Broken/unbroken (gãy/không gãy) tones: There are two broken tones which are ngã (high-rising broken tone) and hỏi (low-falling rising tone). There are two unbroken tones which are sắc (high-rising tone) and nặng.
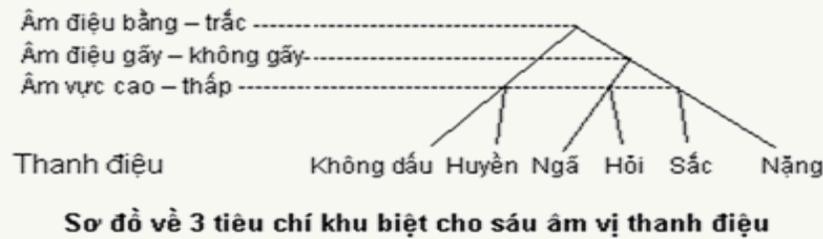
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Figure 3. Tree diagram of three categories to distinguish the Vietnamese tones

Contrastive Analysis of Thai Tones and Vietnamese Tones

Both Thai and Vietnamese are both monosyllabic and tonal languages, suggesting that the tones have low to high pitch, and each pronunciation embodies a unique meaning. As tone changes, so does meaning. Panthumetha (1976) and Hoàng Thị Châu (2009, 201) describe that pitch in Southeast Asia distinguishes meaning in the same way as a segmental phoneme. Đoàn Thiện Thuật (1999, 100) describes that pitch represents a suprasegmental phoneme that occurs in each syllable. The sound in one syllable includes the initial consonant, the prevocalic, nuclear section, and the final consonant. Despite that both Thai and Vietnamese are tonal languages, there are differences regarding the number of tones and phonetic characteristics, thus causing difficulty for Thai and Vietnamese language learners. Moreover, in the Vietnamese tonal system, there are specific characteristics in voice quality that determine the difference in each tone. This differs in the Thai tonal system, which is determined by low and high pitch, tone shape, and effects from the initial consonant, as well as variation in tonal shape (Buarapha 2007, 3). The same effects of pitch occur in each type of syllable in both Thai and Vietnamese. Those also cause errors in tone pronunciation in language learners (Bunchavalit 2010).

Owing to contact between Vietnamese and Thai languages, Vietnamese exhibits a closed syllable structure. Vietnamese gradually traverses a monosyllabic path of simplified syllables that causes the syllable to gradually have a fixed length. The syllables are gradually closed and become a tight block. The syllables gradually lose their independence and their function in new words, which are no longer used as a sub-element. As A.G Haudricourt explained in 1954, Vietnamese was influenced by the Thai language, especially in phonetics, in its lexis and word formation. Even though Vietnamese tonogenesis relates directly to Thai tones, both still have unique characteristics, such as in quantity and in other features. With relevance to quantity, the Thai language has five tones, while Vietnamese has six. Both of these two tonal systems have the function of distinguishing the meaning of words. Although in the examples of ngang and sa- man neither is diacritic, they still contain tone. For other special features, there are three criteria that are distinct in Vietnamese tones; pitch (âm vực), the even/uneven tone (bằng phẳng/không bằng phẳng) and the broken/unbroken tone (gãy/không gãy). One remarkable feature is that not a single tone in Vietnamese combines the even contour tone with the broken

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feature. There are three distinct criteria in Thai tones; the level tone (âm vực), the contour tone (âm điệu) and the intensifying tone (âm mạnh). There are some similarities between two of these criteria, the level tone and the contour tone. Thai tones are also distinguished by low-high pitch and even- uneven tone, as in Vietnamese, but the broken/unbroken tone characteristic does not occur in the Thai tone system. There exists no intensifying tone in Vietnamese. To illustrate this more clearly, the criteria used to distinguish Thai and Vietnamese tones are shown in Figure 4.

Criteria Tones	Contour tone		pitch		voice quality	
	even	uneven	low	high	broken	unbroken
Thai Tones						
sa-man	+	-	+	-	-	-
aek	+	-	+	-	-	-
tho	-	+	-	+	-	-
tri	+	-	-	+	-	-
chat-ta-va	-	+	+	-	-	-
Vietnamese Tones						
ngang	+	-	-	+	-	+
huyền	+	-	+	-	-	+
hỏi	-	+	+	-	+	-
ngã	-	+	-	+	+	-
sắc	-	+	-	+	-	+
nặng	-	+	+	-	-	+

Notes: + present   - absent

Figure 4. Distinct characteristics of Thai and Vietnamese tones

As Figure 4. shows, there are some pair similarities between Thai and Vietnamese tonal characteristics:

Sa-man (mid-level tone) and ngang (high-even tone): Sa-man starts and ends at a lower pitch than ngang. Sa-man has a lower pitch than ngang, but both of these are even tones.

Aek (low-level tone) and huyền (low-even tone), nặng (low-dropping tone): aek starts at a higher pitch than huyền. Aek is also equivalent to nặng in tone shape but nặng starts at a much lower pitch than aek. Additionally, aek has no independent phonetic value, as in nặng, because aek only occurs as a closed syllable (finished by plosive consonants:

/p/, /t/, /k/), for example: /haap2/ (to carry), /kaat2/ (torn), /pak2/ (to plant), as well as in a half-

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opened syllable (finished by glottal stop sound /ʔ/), for example: /cuʔ2/ (filled with), /phliʔ2/ (grow). Particularly in glottal stop sounds that display a stronger level of throat stress, only short vowels are able to contain tones that finish quickly and lower than in closed syllables. This case is almost similar to when nặng occurs in open syllables in Vietnamese. This can be seen more clearly in the comparison of these two words: / caʔ2/ in Thai and /ca2/ in Vietnamese. The tone shape of aek will finish more quickly than nặng; therefore, if one compares huyền and nặng, aek will be more equivalent with huyền than nặng in nature and tone shape, as explained above.

Tho (high-falling tone); this tone characteristic is unique to tones in Vietnamese as well as the characteristics of ngã (high-rising broken tone) which do not occur in the Thai tonal system.

Tri (high-rising tone) and sắc (high-rising tone); tri starts at a lower pitch than sắc, but sắc ends at higher pitch than tri. Tri occurs in half-opened syllables, for example: /luʔ4/

= achieved, /laʔ4/ = let go, /khaʔ4/ = yes. The glottal stop phoneme causes tri in half- opened syllables to have a stronger throat stress level, so only short vowels can have this. Therefore, tri is similar to sắc because of the tone shape, but the level of throat stress is stronger, depending on the sound of the final consonant. This kind of syllable and this tone characteristics does not exist in Vietnamese.

Chat-ta-va (low-rising tone) and hỏi (low-falling rising broken tone): Both of these are similar in character, as they start from a low pitch with rising trajectory but chat-ta-va ends at a higher pitch than hỏi and no falling trajectory nor broken tone.

Vietnamese Tones	Đoàn Thiện Thuật (1999)	Thai Tones	Abramson (1962)
ngang	high-even	sa-man	mid-level
huyền	low-even	aek	low-level
sắc	high-rising	tri	high-rising
hỏi	low-falling rising broken	chat-ta-va	low-rising
ngã	high-rising broken		
nặng	low-dropping		
		tho	high-falling

Figure 5. Comaprison of characteristics of Thai tone and Vietnamese tones

The appearance of ngã with a broken tone in the middle of a syllable is difficult for Thai people to pronounce, including Vietnamese teenagers who often pronounce this tone by using

more simple unbroken versions of this tone. Simplifying the shape of this tone causes specific characteristics of ngã to disappear. In contrast to ngã, sắc is the most familiar and easy item to pronounce (Đoạn Thiện Thuật 2016, 787); therefore, sắc is commonly used instead of ngã by

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Vietnamese teenagers. Examples here include: ngã /ŋa:5/ à ngá /ŋa:3/, lỗi /lo:j5/ à lối /lo:j3/, cuỗi /kuəj5/à cuối /kuəj3/, etc.

For the pronunciation of hỏi, most people who speak dialect languages in the North Central region of Vietnam, including teenagers, who pronounce a tone shape that does not rise.

Normally, pronunciation of hỏi will be longer than ngã, and this is one of the factors restraining teenagers from correctly pronouncing this, more so due to shortness of breath and unfamiliarly adjusted energy adaptation in differences in pronunciation of short or long syllables. Therefore, when teenagers pronounce hỏi, they simplify the pronunciation from two directions down to one direction. They commonly use an unbroken tone instead of broken tone, and this affects misrecognition in hỏi speech of Vietnamese teenagers, yet hỏi is almost identical with nặng. To understand the characteristic of hỏi, we must concentrate on pharyngalization, which is a significant phenomenon in the pronunciation of hỏi, but does not occur at the beginning of a pronunciation.

The distribution of Thai tones in each type of syllable in the Thai language is not only very closely related to the three groups of initial consonant types, high, mid and low, but also depends on vowels and final consonants. At the same time, the distribution of Vietnamese tones is rarely related to initial consonants and prevocalic items which rarely affect the distribution of Thai tones. However, Thai tones significantly correlate with final consonant and vowel forms as these are usually combined to create the sonority of the syllable. Pitch in the Thai language is the same as that of the Chinese language and other monosyllabic languages, where the pitch is indicated in each syllable. Incorrect pronunciation results in incorrect pitch and changes meaning of the words (Panthumetha 1976). Kanchana Naksakul (1981) gives a description of the toneme, which distinguishes the meaning of two words that have the same initial consonant, vowel and final consonant.

Conclusion

Due to contact between Thai and Vietnamese, both of these languages are monosyllabic languages, and both have a closed syllable structure. Vietnamese gradually traverses the path of use of monosyllable and simplified syllables that causes the syllable to gradually develop a fixed length. The syllables gradually close and become a tight block, where the syllables gradually lose their independence and their function of new words, which is no longer used as a sub- element. Therefore, both of these languages have similarities with specific characteristics. The differences of quantity of toneme, and specific characteristics of tones are significant causes of language interference. Most learners use a mother language system in the target language (Armstrong and Ward, 1976 cited by Wairojjanawong 1983). In both languages, there are some similarities. For example, in the aek tone of Central Thai and the huyền tone in Northern

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Vietnamese both have a mid tone (Abramson, Arthur 1962; Hoàng Thị Châu 1989, 214) that has led to positive interference to both learners of both countries. However, there are also great differences. For example, the ngã and nặng tones do not occur in the Thai tonal system, and they therefore cause pronunciation problems. The tonal systems of these two languages differ in quantity, fundamental frequency, length, tone shape, pitch and voice quality (Buarapha 2007, 3). Moreover, all Vietnamese tones have the ability to occur in non-final consonant syllables or non-voiceless final consonant syllables. In a closed syllable system (with /p, t, k/ final consonants) only sắc and nặng occur. Tones are non-segmental units but have a tone shape and pitch that exist in syllables, being two major characteristics that distinguish the tones. Both tone shape and pitch are major causes for Thai and Vietnamese people having difficulty in learning both languages. The learners also may err in using tones that do not occur in their mother languages, for example, tho (low-falling tone) is a common problem for Vietnamese learners of Thai language, and the high-falling tone of tho does not occur in the Vietnamese tonal system. Conversely, the Vietnamese tones hỏi (low-falling rising tone), ngã (high-rising broken tone) and nặng (low-falling broken tone) are a problem for Thai learners of the Vietnamese language as the unbronken tone of ngã does not occur in the Thai tonal system. Even still, ngang (high-even tone) has an even tone, which is the same as sa-man (mid-level tone), yet sa-man has a lower pitch than ngang. Thai speakers are not able to pronounce ngang correctly. Therefore, the result of contrastive analysis of Thai and Vietnamese tones not only has benefits for teachers who teach Thai language to Vietnamese learners, or teach Vietnamese language to Thai learners, but also assists the learners to improve their learning and competencies in those languages.

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