THE RELATIVE FREQUENCY OF TONES IN THAI[1]

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0. INTRODUCTION

The purpose of this study is to analyse the relative frequency of occurrence of tones in a representative sample of (Standard) Thai. Such quantitative data about Thai tones is of special importance for questions concerning tone acquisition, tonal inventories, historical development of tonal systems, errors in production ('slips of the tongue') and perception ('slips of the ear') of spontaneous speech, diagnostic procedures and therapy programs for aphasics and other speech-hearing impaired populations, and problems of pronunciation faced in the teaching of Thai as a foreign language. No previous statistical analyses of Thai tones (consonants and vowels) exist, in marked contrast, for example, to the numerous phoneme frequency studies which have been conducted on English (Dewey 1923, Hayden 1950, Tobias 1959, Wang and Crawford 1960). The study herein is a beginning attempt toward filling this void in Thai phonetics and phonology.

1. METHOD

The material selected for investigation consisted of 25,000+ entries from the Haas (1964) *Thai-English Students' Dictionary*. These entries were gleaned primarily from the context of modern periodicals, novels, short stories, newspapers, government reports, and advanced textbooks on literature, history, and the sciences. For each entry, the Thai pronunciation is shown in a phonemic transcription. All entries except examples (preceded by an open circle in the dictionary) were included in the analysis.

Five phonemic tones are posited for Thai in the Haas transcription: (1) Mid /khaa/ *'cogon, a species of grass'*, (2) Low /khàa/ *'galangal'*,

a rhizome' (3) Falling /khâa/ *'slave, servant'*, (4) High /khá̋a/ *'to engage in trade'*, (5) Rising /khǎa/ *'leg'*. The pitch contours on syllables ending in stop consonants are assigned to the low, falling, and high tones: /phèd/ *'to be hot (peppery)'*, /khìid/ *'line'*, /phûud/ *'to speak'*, /phéd/ *'diamond'*. The pitch on unstressed CV syllables with short /a/ is assigned to the mid tone: /thahaǎn/ *'soldier'*, /thanàd/ *'skillful'*. This phonemic analysis of the Thai tones was followed without exception in tabulating their frequency of occurrence.

From the phonemic transcriptions, the tones occurring on each syllable were counted, and the raw totals of the five Thai tones in all the entries were calculated in terms of their percentages of the grand total of tones.

2. RESULTS AND DISCUSSION

The number of occurrences and frequency percentage of each of the five Thai tones is shown in Table 1. The tones ranked in order of frequency of occurrence are (1) mid, (2) low, (3) falling, (4) high, and (5) rising. The mid tone is clearly predominant; it outnumbers the second-ranked low tone by nearly two-to-one. The statistical predominance of the mid tone may be partly attributed to the Haas transcription, in which short CV syllables with short /a/ are assigned to the mid tone.

TABLE 1

RELATIVE FREQUENCY OF OCCURRENCE OF THAI TONES BASED ON HAAS DICTIONARY ENTRIES

Tone	Number of Occurrences	Frequency Percentage
(1) MID	24,479	39.98
(2) LOW	12,683	20.72
(3) FALLING	10,612	17.33
(4) HIGH	7,231	11.81
(5) RISING	6,217	10.16
Grand Total	61,222	

The distribution of tones in the adult language is an important factor to keep in mind in trying to make generalisations about the acquisition of tones in child language. As Li and Thompson (1978) pointed out, "A statistical survey of tone distribution in both the adult language and in the lexicons of the children's language may be

relevant in explaining the order of acquisition of tones in a particular language." Tuaycharoen's (1977, 1979) findings in the acquisition of Thai; however, cannot be fully explained on the basis of the distribution of tones in the adult language. Although she found that her subject acquired the mid and low tones first, the falling and high tones were acquired last. The rising tone was acquired earlier than the falling and high tones. In terms of the chronological order in which the tones were acquired, the rising tone came **before** either the falling or high tones; in terms of tonal distribution in the adult language based on the results of this study, the rising tone comes **after** both the falling and high tones.

Finally, we wish to point out possible directions for future research on the relative frequency of occurrence of Thai phonemes. First, a similar frequency study of Thai consonants and vowels, again based on the Haas dictionary entries, would be a logical extension of the current study. Second, a frequency study of Thai phonemes within 'smooth' syllables (Proto-Tai tonal categories A, B, C) and 'checked' syllables (Proto-Tai tonal category D) should provide valuable quantitative information for both diachronic and synchronic investigations. Third, a frequency study of Thai phonemes based on a representative sample of spoken materials should enable us to determine to what extent the results of the current study, based on a sample of printed materials, are comparable. Fourth, a frequency study of Thai tones in connected speech, following an alternative method of transcription in which certain unstressed CV syllables with short /a/ (perhaps /i, u/) are treated as 'toneless' (cf. Abramson 1979), would probably yield a slightly different picture of the relative frequency of occurrence of the mid tone in comparison to the other four tones. These various possible extensions of the current study further indicate the need for one to take the following factors into consideration when interpreting the results of frequency studies: the size of the sample, the nature and content of the sample, and the method of transcription of the sample.

NOTES

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