

# AN INSTRUMENTAL STUDY OF CHONG REGISTERS<sup>1</sup>

Theraphan L. Thongkum

## 0. *Introduction*

The Chong language belongs to the Pearic branch of the Mon-Khmer language family (Thomas & Headley 1970; Diffloth 1974; Huffman 1976, 1985; Headley 1977, 1978, 1985). Both amateur and professional linguists who have worked on Chong (eg. Baradat 1941; Martin 1974; Huffman 1985; Gainey (personal communication); Suphanphaiboon 1982) seem to recognize the 'glottal feature' or 'glottalization' which occurs in some Chong words. Some of them (Huffman, Gainey, and Suphanphaiboon) hear phonation types—normal voice vs. breathy voice, etc.—and pitches. On the basis of linguistic descriptions, there is no doubt that Chong is a register (R) language.

In 1983, Gérard Diffloth and I made several linguistic field trips to Chong communities in Makham District, Chanthaburi Province; we also visited Chong villages in Pong Nam Ron district, Chanthaburi Province, in Bo Rai District, Trat Province. During 1983-85, two female Chong informants from Krathing Village, Phluang Sub-district, Makham District, were brought to Bangkok many times for the purpose of checking language data and making high quality recordings and instrumental studies.<sup>2</sup>

In spite of my training as a phonetician and my knowledge of Mon-Khmer languages such as Bru, Nyah Kur (Chao Bon), Mon, Kui (Suai), and Mla Bri, I still think that Chong is very exotic. In my opinion, the cause of the complexity lies in the process of Chong becoming a tone language. In fact, some dialects of Chong, such as the one spoken in Chamkhlo' Village, Takhianthong Sub-district, Makham District, have already become tonal: presyllables are dropped; phonation types are less prominent and in some cases disappear; and pitch differences can be heard clearly, especially in slow speech. Our Chong informants also describe their language as having high, higher, mid and low tones.

The instrumental analysis presented in this paper is based on the speech of four Chong informants from Krathing Village. For the sake of convenience, they will be addressed as MA (first male speaker), MB (second male speaker), FA (first female speaker), and FB (second female

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1. This report is part of my research project on 'Registers in Chong, Mon and Kui (Suai): a phonetic study'. I should like to express my gratitude to Chulalongkorn University for providing the research funds and to thank Professor Arthur S. Abramson for his valuable advice. Many thanks go to Jerry W. Gainey, Suraphon Wongthongwattana and Sitthichai Sisukhon for their assistance in many different ways.

2. Gérard Diffloth and I have made an agreement that he will be responsible for the comparative and historical aspects of Chong whereas the phonetics will be my responsibility.

speaker). The Krathing dialect was chosen because its register phenomena suit my major interest—the acoustical measurements of the register complexes which involve several phonetic parameters. Moreover, the place where it is spoken is easy to reach, and the villagers are also very co-operative.

The phonetic instruments used in the study are as follows:

- Kay Sono-Graph 6061-B;
- Fundamental Frequency Meter, type FFM 650 (F-J);
- Intensity Meter, type IM 360 (F-J);
- Electro-glottograph, type EG 830 (F-J);
- Electro-aerometer, type EA 510/4 (F-J);
- Mingograf 34 T (Siemens AB).

1. *Definitions of ‘register’*

The term ‘register’ has been used in many different ways. As a result, many definitions can be found in the literature depending upon who uses it—music and voice specialists, phoneticians, linguists, or language teachers.

1.1. *Voice register*

Music and voice specialists describe the rate of vocal-fold vibration in terms of registers. Garcia (1855) recognises three voice registers or ranges of pitch: the chest register, the mixed or middle register, and the head register. More often, only the chest and head registers are used. Others have tried to clarify the problems of voice-register terminology: ‘The terminology with regard to voice pitch level, i.e. “registers”, suffers from the existence of an abundance of terms and an ambiguity of their use.’ (Mörner, Fransson & Fant 1963: 18). They therefore define a register by means of its range on the musical scale, suggesting five basic registers, namely: deepest range, deep level, mid level, high level, and highest level. The approximate ranges and boundary limits of these registers are illustrated, and some synonyms are listed, for example:

<i>Deepest range</i>	<i>Deep level</i>	<i>Mid level</i>	<i>High level</i>	<i>Highest range</i>
Rayon profond	Chest register	Falsetto I	Falsetto II	Pipe register
	Chest voice	Medium	Falsetto voice	Flute
	Long-reed	Mid voice	Short-reed	Whistle
	Site grave	Site moyen	Site aigu	Rayon élevé

A particular mode of vocal-fold vibration is usually confined within a pitch range. Zemlin says that when an individual reaches the upper limits of his normal pitch range, the mode of vocal-fold vibration may be modified. He states:

This modification of the mode of vocal-fold vibration may be regarded as an operational definition of voice register. Thus, as a person transcends the limits of a particular vocal register, the voice may undergo an abrupt modification of quality. This vocal quality is often the primary characteristic of voice register. (Zemlin 1968: 193)

Also, according to Zemlin (op.cit.: 206-9), besides normal or acceptable vocal quality, there are three types of unacceptable vocal-quality: breathiness (incomplete blockage during the closed phase results in a continuous flow of air during the entire vibratory cycle), harshness (irregular vocal-fold vibration), and hoarseness (combination of the features harshness and breathiness).

### 1.2. Register vs. Contour

When Pike discusses the types of tone languages, he defines registers as contrastive level phonemes. A language can have two, three, or four registers. The labels for two-, three-, and four-register systems are as follows:

<i>Language A</i>	<i>Language B</i>	<i>Language C</i>
high —	high —	high —
		mid —
	mid —	norm —
low —	low —	low —

Thus, a register tone language is a tonal language that has a register-tone system, and a contour tone language is the one in which gliding tonemes are basic to the system (Pike 1948: 5-9).

### 1.3. Designative register

Register can also be regarded as part of tone of voice. In some languages, changes of register may be used to express different emotional states and attitudes of the speaker. The same register might not carry the same affective indices in different cultures (Abercrombie 1967: 101). This is a paralinguistic use of register.

### 1.4. Register vs. Tone

Register as used by Henderson (1952) is a phonological concept. It is a cover term not only for laryngeal activity but also for a cluster of activities in the vocal tract. She states:

The Cambodian 'registers' differ from tones in that pitch is not the primary relevant feature. The pitch ranges of the two registers may sometimes overlap, though what I shall call the *Second Register* tends to be accompanied by lower pitch than the *First Register*.

The characteristics of the first register are a 'normal' or 'head' voice quality, usually accompanied by a relatively high pitch.

The characteristics of the second register are a deep rather breathy or 'sepulchral' voice, pronounced with lowering of the larynx, and frequently accompanied by a certain dilation of the nostrils. Pitch is usually lower than that of the first register in similar contexts.

The register of a syllable is closely bound up with the vowel nucleus of that syllable, the two being mutually interdependent in a way that will be shown hereafter.

In sentences the word registers are modified according to intonation and by emotional factors. Register may be used, as in many other languages, to express emotion, and when this happens the emotional register may overlie the lexical register, much as in many tone-languages intonation may overlie lexical tone. (Henderson 1952: 151-2).

This new concept of register which was introduced into the field of South-East Asian linguistics by Henderson was adopted by Shorto (1966) and also by linguists of later generations, including myself. Abercrombie established the term. In his book *Elements of general phonetics*, besides mentioning Henderson’s work on Cambodian, he also points out (1967: 101-20) that Gujerati, Danish, some dialects of Scots Gaelic, and various West African languages make use of register contrast. He finally concludes: ‘It is to be expected that future research will disclose many more examples of the linguistic use of register.’ (op. cit., 102). In this sense, a register language may be defined as a language that has a lexically contrastive register complex (a combination of vowel quality, pitch, phonation type, etc.), whereas a tone language has lexically contrastive pitch.<sup>3</sup>

2. Brief sketch of Chong phonology

Consonant system

<i>Initial consonants</i>	p t c k ʔ ph th ch kh b d m n ɲ ŋ s h w r l j
<i>Consonant clusters</i>	pr tr kr phr khr pl kl phl khl ml mr kw
<i>Final consonants</i>	p t c k ʔ h m n ɲ ŋ w j

Vowel system

<i>Monophthongs</i>	i e ε ʊ ɤ a u o ɔ
	ii ee εε ʊʊ ɤɤ aa uu oo ɔɔ
<i>Diphthongs</i>	iə uə ʊə

Register system

<i>Static registers</i>	R <sub>1</sub> (clear voice, higher pitch, more open or on-gliding vowel) R <sub>3</sub> (breathy voice, lower pitch, raised vowel)
<i>Dynamic registers</i>	R <sub>2</sub> (clear-creaky voice, high-falling pitch, more open vowel) R <sub>4</sub> (breath-creaky voice, low-falling pitch, raised vowel)

The co-occurrences of registers with initial consonants, final consonants and vowels are given in Charts 1, 2 and 3 below.

3. Diffloth does not like this definition. He thinks that a register language should be defined as ‘a language that has contrastive phonation type’ (personal communication). Certainly, this definition is more specific. In my view it is also problematic. Both pitch and phonation type can be heard clearly in all register languages that I have come across. Without doing perception testing, I do not think that we can make a definite claim. Native speakers of register languages might hear both or more phonetic features at the same time.