

ANOTHER LOOK AT THE REGISTER DISTINCTION IN MON

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1. INTRODUCTION

Lee (1983) investigated the acoustical parameters governing the register distinction in Mon and the relative significance of these parameters. Four parameters were looked at : vowel duration, frequencies of the first two formants, fundamental frequency, and distribution of spectral energy. He concluded that for citation forms, only two of these parameters indicated that significant differences exist between the two registers. The second register vowels had longer duration and lower pitch level. No consistent difference could be found between the two registers with respect to vowel quality or phonation type. He ended his paper by saying :

Further, our findings suggest that the most significant parameter of the register distinction is that of pitch, in particular the onset F₀ and the overall pitch level. Indeed, as Shorto (1962) suggests, Mon is a quasi-tonal language.

(Lee 1983 : 95)

Diffloth (1985) disagreed with Lee's experimental findings. He did not believe that numerical acoustic coefficients could tell us that one phonetic parameter is more important than the other. He commented :

An answer to Lee's question does not come from acoustical measurements alone ; it would have required the use of a speech synthesizer able to imitate a wide spectrum of phonation types, as well as pitches, and the computation of recognition and error responses from native speakers of Mon.

(Diffloth 1985 : 56)

He confirmed what he thought he had heard by citing Shorto (1967), Haswell (1874), Blagden (1910), Halliday (1922), Huffman (1976), and Sakamoto (1974) : "For Mon, head register is characterized by clear voice and chest register by breathy voice".

It is possible to end the argument by saying that the problem has been caused by dialect variations which Lee forgot to mention in his article. Diffloth had worked on Burmese Mon for a few years, and he was the one who prepared the wordlist and lined up Mon informants for Ladefoged when the recordings were made in a Buddhist temple in Bangkok. I witnessed the whole procedure. Later, the recordings were used by Lee for his acoustical measurements of "Mon register distinction". From the above account, we might be able to point out the following weaknesses, if there have been any :

1. The so-called "register distinction" in Mon as has been reported in the literature is only a myth. In fact, Mon is a two-register tone language (as defined by Pike 1948).

2. Influenced by the literature of Mon language studies, Diffloth was inclined to hear what he did not really hear while collecting field data. He happened to work on Mon dialects that do have tone instead of register contrast. As a result, the wordlist prepared by him and which the Mon informants used was not suitable for an acoustical study of a register language, which always involves phonation types.

3. The Mon monks who acted as informants were not familiar with the situation, i.e. three foreigners and a Thai woman directing them to say some words and sentences in order to make good tape -

recordings. Thus, their, speech could have been unnatural. In general, the Mon, at least Thai Mon, are ashamed of "speaking with their mouth," as described by themselves and the Thai. Perhaps, the informants could control their laryngeal setting so well that phonation differences did not occur when the recordings were being made.

4. Different phonation types do exist, but Lee failed to prove it to us because the technique of measuring used in his study was not adequate. However, the editor of **UCLA Working Papers in Phonetics 60** notes at the end of Diffloth's paper (1985 : 57) that "*although some other technique might reveal a difference in laryngeal setting for the registers in Mon, careful listening by several persons with 'trained ears' in the UCLA Phonetics Laboratory does not suggest that breathiness is at all a consistent feature of 'chest register' in the tape recordings we have, whereas an observable and statistically reliable pitch height difference does occur*".

I must admit that I am not satisfied with the explanation given above. I have worked on tone languages of Southeast Asia that have phonation type as a property of tone, and also on Mon - Khmer register languages. My intuition and experience tell me that something has gone wrong, and that I should help settle the matter. Let us examine carefully what the scholars of Mon - Khmer language have said about the registers in Mon.

Haswell (1901) points out that the Peguan (Mon) alphabet consists of twelve vowels, and that "the vowels are mostly in pairs, the first is light, the second is heavy sound, of what might properly be called the same vowels" (p. 1). It is very interesting that Haswell describes Mon vowels in terms of light vs. heavy. He could have heard some kinds of voice quality. At present, the Mon in Thailand also describe their language as having light words vs. heavy words. We can not tell whether Haswell really heard phonation - type differences or he was influenced by the traditional way of explaining Mon sounds.

Blagden (1910) associates "glottal activity" with the initial consonants in Mon. He notices that the so - called "voiced and voiced aspirated stops" are in fact "voiceless and voiceless aspirated stops" accompanied by glottal activity which also influences the following vowel. He says :

.....the consonants : g, gh, j, ḡh (only used in Pāli words), d, dh, b, bh called "voiced" are actually pronounced voiceless : k, kh etc. ... but their pronunciation is accompanied by glottal activity which distinguishes them fairly clearly from the consonants of the first series ; this (glottal activity) profoundly modifies the vowel which follows in a way which is difficult to describe, but seems in certain cases to be a rather guttural quality pertaining to the posterior part of the oral cavity. ...

(Blagden 1910 : 479)

Neither Haswell nor Blagden mention pitch differences at all.

Shorto (1962) uses the term "register" as defined by Henderson (1952) to describe the tenseness vs. laxness in Mon speech. He says :

The quasi - tonal register distinction, ..., is inherent in all Mon words. Chest register, characterized by breathy voice quality in association with a general laxness of speech organs, and somewhat centralized articulation of vowels, ..., head register, characterized by clear voice quality, ...

(Shorto 1962 : x)

Shorto (1967) gives more phonetic details on the register distinction in Mon. He points out the differences of vowel quality, consonant articulation and voice quality, but not pitch differences. The tense-lax distinction affects not only single consonants or vowels, but the whole complex of the word. He states :

The exponents of register are diverse in character, comprising a difference of voice quality ; differences of vowel quality, slight in some cases but in others considerable ; and in some cases differences in consonant articulation. ... Contrastive voice quality is always present and is probably the feature most readily perceived.

Head register is characterized by clear voice throughout the word or equivalent segment, Chest register is characterized by a breathy voice with lowering of the glottis and a relatively centralized articulation of vowels, ...

Pitch difference as an exponent of register is lacking. ...

A unitary formulation of the diverse exponents of Mon register — the differences of

voice quality, of vowel articulation, and of consonant articulation — may be sought in terms of a tense - lax opposition affecting not merely single phonemes but the whole complex of the word or equivalent segment. Thus in chest register laxness results not only in the voicing of prevocalic consonants, but also in less vigorous movements of the tongue towards the periphery, leading to the relative centralization of vowels noted above.

(Shorto 1967 : 246)

Huffman (1976) recognized a similar type of register phenomenon in a Thai Mon dialect spoken in Ban Bang Kradi. Briefly he says :

The register distinction in Mon is relatively subtle ; 2nd register vowels are mildly lax and breathy, and are slightly lower in quality (more open) than their 1st register counterparts. The distinction is particularly difficult to hear in the low front /ɛ/ ≠ /ɛ̃/ position.

(Huffman 1976 : 585)

Diffloth (1984) uses the field data collected by himself at three Thai Mon villages : Ban Nong Du, Ban Bang Khan Mak and Ban Nakhon Chum, and at many Burmese Mon villages, together with the language data gathered from Shorto (1962) and Sakamoto (1974) for reconstructing Proto - Mon and Proto - Monic. Regarding the register distinction in Mon, he says that “ Mon has a contrast between vowels pronounced with a clear voice and vowels with a breathy voice, and that there are actually important differences in the phonetic features which accompany these two registers in Mon, notably in pitch patterns ” (p. 52).

It is important to note that every scholar of Mon - Khmer languages has talked about voice quality and phonation type in Mon, but only a few of them mention pitch. In his book which appeared in 1962, Shorto used the term “ quasi - tonal register distinction ”, and later on in 1967, in his article on “ The

register distinctions in Mon - Khmer languages, ” Shorto pointed out “ the lack of pitch difference ” in Mon. Even though Diffloth disagrees with Lee’s conclusion that Mon is “ a quasi - tonal language ” because the pitch differences in Mon are statistically significant, he himself mentions “ pitch patterns ” in his book (Diffloth 1984).

2. LANGUAGE DATA

The number of Mon in Thailand is estimated at 200,000. Hundreds of Mon villages are scattered in the central region of Thailand. In 1981, I visited many Mon villages to collect language materials for a dialect survey of Mon. I noticed that the Mon inhabiting different areas spoke differently. My informants often pointed out to me that the Mon living in a nearby village or across the river spoke Mon with a different accent. This was due to the fact that the Mon population in Thailand migrated from different regions of Burma, and that they entered the country at different periods. In November 1986, I stayed about a week in a Mon village located in Nakhon Chum Sub - District, Ban Pong District, Rajaburi Province. About 1,000 words were collected during this field trip. After examining the data obtained carefully, I selected about 116 word pairs for good quality recordings. The pronunciation of these 116 minimal or nearly minimal pairs was carefully checked. Eight Mon speakers from Ban Nakhon Chum volunteered to come to our recording studio in Bangkok. Most speakers of Thai Mon are literate in Thai ; they cannot read Mon script. Writing Mon with Thai script is not an easy task either. The only thing I could do was to elicit the word pairs I wanted by means of interviewing them. During the interviews, the Thai glosses were used as clues. It took quite a long time to obtain the data from eight speakers. The tapes were edited later. However, only 16 word pairs were used for acoustic analysis, the results of which are being submitted in this paper. They are as follows :

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|--------|---------|----------------------------|
| 1. a) | /hərip/ | “ to blink ” |
| b) | /həɾip/ | “ to snatch and run away ” |
| 2. a) | /βi/ | “ river ” |
| b) | /βĩ/ | “ you (vulgar) ” |
| 3. a) | /təp/ | “ a kind of bamboo trap ” |
| b) | /təp̃/ | “ woman who has a lover ” |

Due to bad editing of the tapes, the word pair /tɛp/ and /tɛp/ had to be replaced by /cɛp/ "to taste" and /cɛp/ "to seep" for S6 (speaker 6) and S8 (speaker 8).

4. a) /hətɛ/ ~ /tɛ/ "to forge iron"
- b) /hətɛ/ ~ /tɛ/ "mercury"
5. a) /wɛk/ "slightly torn (of cloth)"
- b) /wɛk/ "to tuck behind the ear (as a flower)"
6. a) /phɛŋ/ "split bamboo"
- b) /phɛŋ/ "marijuana"
7. a) /cək/ "to gore"
- b) /cək/ "rope, cord"
8. a) /cə/ "to shield"
- b) /cə/ "to bump into"
9. a) /pat/ "to smooth and level off"
- b) /pat/ "Mon orchestra"
10. a) /dʌŋ/ "expensive"
- b) /dʌŋ/ "king posts (which support the ridge - pole)"
11. a) /put/ "to carve"
- b) /put/ "to rub across (as when making a fire)"
12. a) /cu/ "steep"
- b) /cu/ "to stop (in order to rest)"
13. a) /pot/ "to polish"
- b) /pot/ "pot"
14. a) /ətɔ/ "ear"
- b) /ətɔ/ "jujube"
15. a) /thɔt/ "forcefully"
- b) /thɔt/ "to deepfry"
16. a) /bɔŋ/ "to give birth"
- b) /bɔŋ/ "bamboo tube for smoking marijuana"

The above 16 word pairs were chosen for the acoustic analysis of Mon vowels because of the three following reasons : a) they are minimal pairs ; b) they all contain pure vowels : i i̇ e ė ɛ ɛ̇ ə ə̇ a ȧ u u̇ o ȯ ɔ̇ and ɔ̇; and c) they represent two types of syllable structure, namely dead or checked syllable (CVC̥) and live or ordinary syllable (CV, CVC). During my field trip, I had noticed that syllable structure had some influence on the phonetic characteristics of vowel length, vowel quality and pitch.

3. WIDEBAND SPECTROGRAMS

Wideband spectrograms can provide good displays of the acoustics of different phonation types. During the creaky voice vowels, the vertical striations (i.e. glottal pulses) occur at irregularly spaced intervals. The formants are fairly clear during the modal voice vowels and are less well - defined for breathy voice vowels. (Kirk et al. 1984).

After investigating all the wideband spectrograms of the test words that I made in the Phonetics Laboratory of the Linguistics Department at UCLA, I decided to discard the labels "modal voice vowels" vs. "breathy voice vowels". The choice of the labels "tense vowels" vs. "lax vowels" as suggested by Maddieson and Ladefoged (1985) seems to be more appropriate. Although most speakers pronounced first register vowels with modal (clear or normal) voice and second register vowels with breathy voice (see Figure 1), some speakers do not make this type of phonation distinction. For example, S5 (female) makes a distinction between two different degrees of breathiness, less breathy voice for first register vowels and more breathy voice for second register vowels, as shown in Figure 2. In comparison with the other subjects, S8 (male) has a very low voice. He seems to make three types of phonation distinction : modal voice vs. breathy voice, creaky voice vs. breathy voice, and creaky voice (in the