

The raising and lowering of pitch caused by a voicing distinction in sonorants (nasals and approximants) : an epidemic disease in SEA languages

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Introduction

Hundred of languages spoken in the mainland of Southeast Asia and Southern China can be classified according to their genetic relationship into 5 major language families : Tibeto-Burman, Tai-Kadai, Hmong-Mien (Miao-Yao), Mon-Khmer, and Austronesian. All Languages in the Tai-Kadai, Hmong-Mien language families are tonal, and some Tibeto-Burman, Mon-Khmer and Austronesian⁽¹⁾ languages have tone.

Consonantal perturbation of Fo associated with obstruents have been well attested in many languages. (A brief survey can be found in Maddieson, 1984.) It has been known among SEA language specialists that voiced sonorants normally have the same effect on pitch of the vowels as do voiced obstruents, and voiceless sonorants go together with voiceless obstruents in raising pitch. Maddieson (1984) did some spectrographic measurements of the effect of voiceless and voiced nasal and lateral sonorants on Fo of the following vowel in five pairs of Burmese words spoken by three speakers. According to his findings, there was a general difference in Fo at vowel onset between pairs of words which contrast in sonorant voicing, i.e., the voiced sonorants lower the pitch and the voiceless ones raise the pitch of following vowel as expected. Finally, he concluded : "Our findings only lead us as far as the conclusion that different supra glottal configurations may have relatively little importance in explaining consonant effects on pitch...It seems probable that a better understanding of the details of laryngeal settings for voicing and voicelessness will have to precede the formulation of a new theory accounting for such effects." (Maddieson, 1984: 14).

The role of pitch raising and lowering of sonorants in SEA languages

In this section, some examples of pitch raising and lowering of nasals and approximants will be drawn from the four language families of SEA : Mon-Khmer, Tibeto-Burman, Tai-Kadai, and Hmong-Mien.

The Monic branch of the Mon-Khmer language family comprises only two languages : Mon and Nyah Kur or Chao Bon (Diffloth, 1984). Both of them are register languages⁽²⁾; pitch differences in Mon and Nyah Kur can be regarded as a component of the two contrastive register complexes (L-Thongkum, 1982 and 1988). There are three types of nasals and approximants occur in normal-voice syllables and the breathy-voice ones occur only in breathy-voice syllables. Regarding pitch differences, three pitches can be heard : high, mid, and low, in syllables having voiceless sonorant+clear vowel, voiced sonorant+clear vowel, and murmured sonorant+murmured vowel, respectively (L-Thongkum, 1990). In Nyah Kur, voiceless sonorants affect pitch of the following vowel the same way as voiceless aspirated obstruents. As a result, three different pitches can be heard clearly in the Ban Tha Pong dialect of Nyah Kur; for example, high pitch : [chamum 342 ~ mum 453] 'a bear', [chalə:ŋ 342 ~ lo:ŋ 453] 'high, tall' [thuər 453] 'a wasp'; mid pitch : [ma: 342] 'up to (such and such point)', [luŋ 342] 'to shrink (of cloth)', [tɔ 342] 'till, until'; and low pitch : [mə:m 231] 'father's younger brother', [lɔ: 231] 'to howl', [tʰuɰl 231] 'thigh', etc. (L-Thongkum, 1982 and 1984).

Although the majority of Mon-Khmer languages are non-tonal, some Waic languages, Kawa and Samtao (Plang), have two tones : high vs. low (Diffloth, 1980), and some Angkuic languages, U and Man Met, have four-tone and six-tone systems (Diffloth, 1991). In tonal Mon-Khmer languages, words having voiceless sonorant initials always have high tone; for example, Kawa : /hláʔ/ 'leaf', /hléʔ/ 'rain', /hlát/ 'to fear', /hláŋ/ 'high', /hmáin/ 'male', /hmáj/ 'to ask', /hmón/ 'to hear', /hnám/ 'blood', /hjáp/ 'difficult', /hróʔ/ 'to yawn', /hwiak/ 'dark', /hyáak/ 'ear', etc; Samtao : /lʰéʔ/ 'rain', /lʰáʔ/ 'leaf', /lʰóʔ/ 'tree bark', /lʰét/ 'iron', /lʰún/ 'high', /mʰón/ 'to hear', /mʰín/ 'male', /mʰũʔ/ 'rope', /mʰál/ 'dry field', /mʰúy/ 'axe', /nʰăp/ 'difficult', /nʰám/ 'blood', /yʰúk/ 'ear', etc. Words with voiced sonorant initials can have high or low tone, depending

upon their phonological history, i.e. $*\text{mV} > \text{m}\check{\text{V}}$, and $*\text{mV} > \text{m}\hat{\text{V}}$ (Diffloth, 1980).

Burmese, a Tibeto-Burman language, has four contrastive tones (U Thien Tun, 1982). In the speech of my Burmese informant, Mr. Wen Go, the phonetic characteristics of these four tones are: Tone 1 = breathy tone [32~], Tone 2 = clear tone [453], Tone 3 = creaky tone [51~], and Tone 4 = glottal tone [42'] or high-falling tone with abrupt end. Each of these four tones has two allotones, i.e., high [H] vs. low [L]. The high allotones only occur in syllables begun with voiceless aspirated obstruents and voiceless sonorants; for example, / na^1 /[1H] 'nose' vs. / na^1 /[1L] 'ill', / ja^2 /[2H] 'to borrow, to hire' vs. / ja^2 /[2L] 'fish, five', / ji^3 /[3H] 'to ignite' vs. / ji^3 /[3L] 'be caught as by fire', / me^4 /[4H] 'gad fly' vs. / me^4 /[4L] 'dream', / lou^1 /[1H] 'to warm one's self' vs. / lou^1 /[1L] 'secure, safe', / lwe^2 /[2H] 'go out of way' vs. / lwe^2 /[2L] 'vary', / la^3 /[3H] 'handsome, pretty' vs. / la^3 /[3L] 'moon, lunar month', / lai^4 /[4H] 'seriously' vs. / lai^4 /[4L] 'to flow'.

In general, Tai-Kadai languages have fully-developed tone systems. Lakkja, a Tai-Kadai language spoken in Jinxiu Autonomous Yao County, Guangxi Province, China, has six tones. These six tones can be divided into two tone categories: the high series tones (Tone 1 = [453], Tone 3 = [45], Tone 5 = [33]) and the low series tones (Tone 2 = [231], Tone 4 = [214], Tone 6 = [221]). Words with voiceless sonorant initials always have one of the three high series tones or odd-numbered tones (L-Thongkum, 1990); for example, / paŋ^1 / 'outside', / la^3 / 'after', / loŋ^1 / 'to extinguish', / wa:i^5 / 'quick, fast', / ja:u^3 / 'dry', etc. This type of tonal behavior is also predictable in lexical items having voiceless sibilant and voiceless aspirated obstruent initials. In Kjang E, Shangnan Maonan, and Sui, the high series tones also occur in words with voiceless sonorant initials, whereas words with voiced sonorant initials can have tones in both categories; for instance, E: / paŋ^1 / 'bamboo shoot', / pok^7 / 'bird', / paŋ^3 / 'water', / hwi^1 / 'fire', / hjeŋ^1 / 'teeth', / lek^7 / 'steal'; Shangnan Maonan: / ma^1 / 'dog', / mai^5 / 'new', / mat^7 / 'flea', / mu^5 / 'pig', / pɔ^3 / 'rat', / hja^1 / 'two', / lam^1 / 'wind', / lap^7 / 'dark', / van^1 / 'day, sun', / vin^3 / 'to fly', and so forth (Edmondson, 1991).

In the Miao-Yao language family, the Mien dialects of the Yao branch have six tones. The dichotomy, high series (Tone1 = [33], Tone3 = [354], Tone5 = [13] and low series (Tone2 = [31], Tone4 = [231], Tone6 = [11]) tones, is also applicable to the Mien dialects. Like Lakkja, words having voiceless sonorants and voiceless aspirated obstruents as initials always carry the high series tones; for example, /mei¹/ 'fat,lard', /nɔi¹/ 'day,sun', /jaŋ⁵/ 'year', /win¹/ 'to turn one's head', /la⁵/ 'moon', etc. (L-Thongkum,1991).(3) This type of phenomenon also exists in Hmong Daw or White Miao; for example, /mu³⁵/ 'spear', /nu⁵⁵/ 'day,sun', /nia³⁵/ 'tooth', /ju³⁵ (mẽ³³)/ 'intestines', /lu⁵⁵/ 'brain', /lua³³/ 'rope', etc. In Hmong Daw, eight tones occur in non-checked syllables : /55/, /33/, /35/, /51/ (the high set), /22/, /21(glottalized)/, and /31(breathy)/ (the low set). Like Mien, words having voiceless sonorant initials can carry only tones in the high set (the author's field notes).

The evidence from Mon-Khmer, Tibeto-Burman, Tai-Kadai, and Hmong-Mien languages as shown above confirms very well that the "birth" and "death" of voiceless sonorants do have effect on the pitch of the following vowel, i.e. they are pitch raisers.

Flaws in phonetic theories

The knowledge obtained from working on a large number of SEA languages of many linguists and phoneticians specializing in SEA languages and linguistics tells us that there are still flaws in phonetic theories that should be reviewed and revised.

Firstly, sonorants (nasal, lateral, and semi-vowel) in SEA languages are equal to obstruents in many phonetic and phonological aspects, such as their status and distribution in phonological inventories, effect on Fo or pitch of the following vowel, history of phonological development, and so on. In the "International Phonetic Alphabet Chart" revised in 1989, there are no separate symbols for voiceless sonorants; only a diacritic placed under a voiced sonorant symbol (e.g.ŋ̤) is provided, whereas there are seven separate symbols for voiceless plosives : p, t, c, k, q, and ʔ. This fact seems to hint that phoneticians, especially in the Western world, have viewed voiceless sonorants as "illgitimate children" of "secondary importance". In my opinion, the diacritic provided for voiceless sonorants and devoiced obstruents (e.g.ḍ̤) is not inclusive enough