

TONES AND ENDING CONSONANTS IN MONOSYLLABIC LANGUAGES

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1. As the leading linguist in the field of Tai and Mon-Khmer linguistics, Eugénie J. A. Henderson has never hesitated to be innovative in analysing numerous phonetic/phonological phenomena unique to the monosyllabic languages of Southeast Asia. The present paper is a modest token of her spirit, inherited by one of her followers.

Students of Southeast Asian languages witness a very conspicuous parallelism of occurrence between syllable-ending nasals and homorganic stops. For instance, the syllable structure of Fukienese (Amoy), Vietnamese and Thai can be formulated as follows:

$$(C)V \left\{ \begin{array}{l} m / p \\ n / t \\ \eta / k \\ \sim / ? \end{array} \right\}$$

Fukienese

$$(C)V \left\{ \begin{array}{l} m / p \\ n / t \\ \eta / c \\ \eta / k \\ \widehat{\eta m} / \widehat{k p} \end{array} \right\}$$

Vietnamese

$$(C)V \left\{ \begin{array}{l} m / p \\ n / t \\ \eta / k \end{array} \right\}$$

Thai

The same tendency to parallelism extends among primarily monosyllabic languages of East Asia as far north to the Chinese dialects of Shansi,¹ despite the greater simplification of their syllable structures:

$$(C)V \left\{ \begin{array}{l} n / t \\ \eta / k \\ \sim / ? \end{array} \right\}$$

Ch'ao-chou

$$(C)V \left\{ \begin{array}{l} n / t \\ \eta / k \end{array} \right\}$$

Nan-ch'ang

$$(C)V \{ \eta / k \}$$

Foochow

$$C(V) \{ \sim / ? \}$$

T'ai-yüan

Since this parallelism is so striking, the fact itself demands a formal account of the phenomenon from linguists.

2. Since the late 1950's, the present author has been promoting the idea that the parallelism can be best accounted for by interpreting the stop endings as tonal variants of their corresponding homorganic nasals since the late 1950s.² The idea is based, in short, on the following two observations:

- 1) Syllables having the stop endings are normally pronounced with a length half or a quarter of those having homorganic nasal endings.
- 2) Both stops and their homorganic nasal counterparts share exactly identical points and manners of articulation, except for the denasalization on the part of the stop series; both series are lenis sounds and normally the on-glides of these sounds appear in the ending position.

If we count the "performance feature" as one of the "tonal" features of monosyllabic languages, we can set up the feature staccato vs. legato to determine the phonetic difference between stop and homorganic nasal syllables. The occlusion between the velum and the pharyngeal wall constitutes the most natural and economical way of producing these short (our staccato) syllables, while keeping the points and other manners of articulations unchanged. While they never elaborated on the theoretical background, the traditional phonologists of pre-modern China treated those stop and homorganic nasal syllables in exactly the same way as we propose here; namely what are described as stop syllables by modern linguists are the "entering-tone" counterparts of the homorganic nasal syllables of other tones, the "level," "rising," or "departing" tones.

Recently, this view was challenged by linguists from both sides of the Pacific Ocean.³ Tatsuo Nishida "thinks" that this analysis is a case of "over-application" of the principle of complementary distribution and of "over-emphasis" on our performance feature. Nishida "thinks" that the distinction between nasals and their homorganic stops holds priority (over the performance feature) in the analysis not merely of Chinese dialects but also of Sino-Tibetan in general. As a parallel case to the Hakka alternation [k'ɛm⁴] 'boxes with lids' vs. [k'ɛp⁵] 'to cover with a lid' (which we regard as a case of derivation by tonal alternation⁴), he presents the Written Tibetan sgam 'box' vs. sgab-pa 'to cover' for which we can assume no tonal derivation. What is behind this Nishida's view is naturally the convenience of maintaining those ending nasals on the phonological level for a comparative study of Sino-Tibetan languages.

Teng Shou-hsin's challenge is less well motivated. He incorrectly suspects some underlying "similar inclinations in early transformational syntax" in our analysis, while the present author had presented this view before he was exposed to "early transformational syntax" in the early 1960s. Teng merely wonders "what is really gained by this seeming systematisation."

Preference for treating stop endings as tonal variants of homorganic nasal endings in terms of the "simplicity measure" has already been well discussed elsewhere.⁵ We would like to demonstrate in this paper that our interpretation is not a matter of convenience for a comparative study of Sino-Tibetan, of "seeming systematisation," or of anything of that

sort, but stems from a deeply motivated analysis of the syllable structures found in the Southeast Asian languages.

3. Cantonese has nine tones, the relative pitch-contours of which can be approximately described by Arabic figures 1 through 5, each standing for the pitch of the beginning and end of the syllable:

Tone 1: [53] or [55]	Tone 2: [21]	Tone 3: [35]
Tone 4: [23]	Tone 5: [33]	Tone 6: [22]
Tone 7: [5]	Tone 8: [33]	Tone 9: [2] or [22]

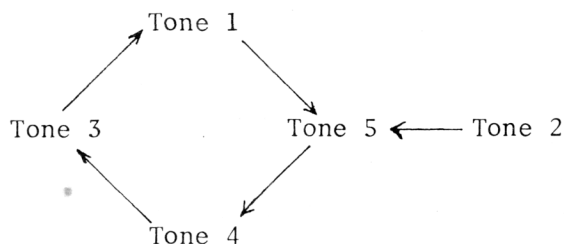
Among these nine, the latter three (Tones 7 through 9) co-occur only with syllables having stop endings, while the rest co-occur with those having other endings. Y. R. Chao thus suggested the identification of Tone 7 with Tone 1, Tone 8 with Tone 5, and Tone 9 with Tone 6.⁶ Tone 1 has a variant of falling type, while Tone 7 does not. But this can be explained in the following way: "the shortness and the sudden ending of the syllable (having stop endings) allow no time for the falling pitch of" Tone 1.⁷ Thus everything looks happy as far as the tonal identification of Cantonese is concerned, except that one fails, by this interpretation, to account for the fact that practically no syllables having long vowels and stop endings co-occur with Tone 1, and no syllables having short vowels and stop endings with Tone 5, while syllables having both long and short vowels and stop endings can freely co-occur with Tone 6. This is because the distinction between our Tones 7 and 8 is determined by the length of vowels of the syllables that carry these tones, while no such division was made, in the development of Cantonese tones, in the case of Tone 9.

However, cases of other languages or dialects are not that happy. One will find numerous dialects of southern Chinese in which it is often difficult to find the appropriate non-stop-final counterparts of the stop final syllables when trying to combine to tones of these two different types of syllables. Thus, for instance, Amoy has the following seven tones:

Tone 1: [55]	Tone 2: [24]	Tone 3: [51]
Tone 4: [11]	Tone 5: [33]	Tone 6: [<u>32</u>]
Tone 7: [5]		

among which Tones 6 and 7 co-occur with syllables having stop endings (the underlined Arabic figures means that the tone is short, though it has a clear pitch contour). One would easily notice that Tone 6 has middle-falling pitch contour, carried by stop ending syllables, while there are no non-stop ending syllables that carry such a tone. It is not impossible to identify Tone 6 with Tone 5, though the falling pitch contour of Tone 6 remains unexplained. But then, to make the situation worse, Fukienese (including Amoy) has some very elaborate tone-

sandhi which marks syntagma boundaries.⁸ In short, any syllable that occurs in a non-final position of a syntagma in Amoy undergoes the following "tone substitution":⁹



Now, Tones 6 and 7 do not participate in this tone substitution "circuit." Tone 6 is substituted only for Tone 7, and vice versa, in the said positions of the syntagma. Thus, if one identifies Tone 6 with Tone 5, and Tone 7 with Tone 1, he has to make a totally unmotivated exception of tone-sandhi for those syllables (not tones!) having stop endings.

4. Identification of tones between those carried by stop ending syllables and by non-stop ending syllables will cause even greater difficulty in handling the "defective occurrence" of consonants in the syllable initial and the syllable ending positions in many languages spoken in Mainland Southeast Asia. The Hainan dialects of Chinese, Vietnamese, and Ong-Be for instance, have [k] and [ŋ] in both initial and ending positions, and also have [m] in both positions, but an implosive voiced [ɓ] in the initial position but an ordinary [p] in the ending position; [ŋ] is alveolar in these languages in both initial and ending positions, but although [t̪] is dental in the initial position, it is alveolar in the ending position, as shown below:

<u>Initial</u>	<u>Ending</u>
k-	-k
ŋ-	-ŋ
m-	-m
(p-)	-p
ɓ-	-ŋ
(t̪-)	-t

Nobody can find any very good reason that [-p] has to be confined to the ending position only; no good reason, either, that [t̪-] has to be dental while both [-ŋ] and [-t] are alveolar in the ending position. Consequently, the most reasonable way to explain these "defective occurrence" of initial and ending stops is to regard the ending [-p] and [-t] as the tonal variants of endings [-m] and [-ŋ] respectively.

One can naturally argue that both [p] and [t] in these languages underwent a change, and went to implosive [ɓ] and [ɗ] respectively; affricates and fricatives underwent "plosivization" and thus the contemporary [t̪] is from the old dental affricate or fricative, hence this "defective" distribution.¹⁰ But this is purely a diachronic matter. Even if we accept the introduction of some diachronic information into what is primarily a synchronic description, we can still ask why the change took place with respect to the initials only, not with the endings.

5. An even stronger piece of evidence to support our analysis can be found in the Ong-Be language. The reduplicated verbs in Ong-Be take the shape of the following type regardless of the tones carried by the verb stem: Tone 2 + original tone of the stem. Thus:

Tone 1: [12]
 ɕiaŋ [12] 'to smell good' -- ɕiaŋ [55]-ɕiaŋ [12]

Tone 2: [55]
 maŋ [55] 'to be afraid' -- maŋ [55]-maŋ [55]

Tone 3: [33]
 dʰi [33] 'to resemble' -- dʰi [55]-dʰi [33]

Tone 4: [21]
 ma [21] 'to hull (grains)'-- ma [55]-ma [21]

Tones 5 and 6 are carried by syllables having stop endings. When verb stems having these tones are reduplicated, the tones of the first syllable are substituted for Tone 2 and the syllable loses the ending stops:

Tone 5: [5]
 ɓaʔ [5] 'to slap' -- ɓa [55]-ɓaʔ [5]

Tone 6: [3]
 maʔ [3] 'to suck' -- ma [55]-maʔ [5]

Therefore, we have a very good reason to assume that the stop endings which appear in the syllables having Tones 5 and 6 are part of the "tonal" features of these two staccato tones.

NOTES

¹ M. J. Hashimoto 1976-1977.

² M. J. Hashimoto 1957, 1958, 1959a, 1959b. 1960a, 1961a, 1972b and 1976.

- 3 T. Nishida 1973, S. H. Teng 1975, T. K. Wen 1974 and P. F-M. Yang 1974.
- 4 M. J. Hashimoto 1973, p. 94.
- 5 M. J. Hashimoto 1965, Vol. II, p. 470 ff. and A. Y. Hashimoto 1972, p. 174 ff.
- 6 Y. R. Chao 1947, pp. 23-24
- 7 Y. R. Chao 1947, p. 24.
- 8 M. J. Hashimoto 1972a, pp. 11-14.
- 9 N. C. Bodman 1955, p. 41.
- 10 M. J. Hashimoto 1960b, 1960c, 1961b, 1961c and 1962.

REFERENCES

- Bodman, Nicholas C. 1955. *Spoken Amoy Hokkien*. Vol. I. Kuala Lumpur: Government, Federation of Malaya.
- Chao, Yuen R. 1947. *Cantonese Primer*. Cambridge: Harvard University Press.
- Hashimoto, Anne Y. 1972. *Studies in Yue Dialects 1: Phonology of Cantonese*. London & New York: Cambridge University Press.
- Hashimoto, Mantaro J. 1957. "Hakkago shiken hoogen no on'in taikai ni tsuite." (On the phonological system of the Shi-yen dialect of Hakka). *Chuugoku Gogaku Kenkyukai Dai 8-Kai Zenkoku Taikai Annai* (A Guide to the 8th Annual Meeting of the Chinese Linguistic Society of Japan). 7.
- _____. 1958. "Hakkago on'inron--baiken hookoo hoogen no onso taikai ni tsuite." (Hakka phonology--on the phonemic system of the Pohang, Moi-yan dialect of Hakka). *Chuugoku Gogaku* (Chinese Linguistics) 79: 8-9.
- _____. 1959a. "Hakkago kairiku hoogen--sono onso no bunseki," (The Hoiliuk dialect of Hakka--an analysis of its phonemes). *Chuugoku Gogaku* (Chinese Linguistics) 83: 3-11, 18.
- _____. 1959b. "Hakka phonemics--the phonetics of Moi-yan dialect and its phonemic system." *Journal of the Linguistic Society of Japan* 35: 52-85.

- _____. 1960a. "The phonemic structure of the Bon-shio dialect of Hainan (Chinese)." *Journal of the Linguistic Society of Japan* 38: 154-157.
- _____. 1960b. "A contribution to the study of Chinese phonology." *Transactions of the International Conference of Orientalists in Japan* 5: 25-32.
- _____. 1960c. "Annan kanjion no ichi tokushitsu." (A characteristic of the phonological system of Sino-Vietnamese). *Chuugoku Gogaku* (Chinese Linguistics) 100: 21-33.
- _____. 1961a. "Kainango no seichoo taikai." (The tonal system of Hainanese). *Tokyo Shinagaku Hoo* (Bulletin of the Sinological Society of Tokyo) 7: 35-52.
- _____. 1961b. "Etsugo no sokumen masatsuon." (Voiceless lateral fricatives in a Cantonese dialect). *Chuugoku Gogaku* (Chinese Linguistics) 107: 10-13.
- _____. 1961c. "Daku sai seishion no tooko: nitoo zembo no kasetu." (Position of voiced palatal fricative initial in rime tables: a hypothesis of the voiced retroflex fricative initial in Ancient Chinese). *Chuugoku Gogaku* (Chinese Linguistics) 114: 13-15.
- _____. 1962. "Chuugokugo no sokumen masatsuon." (Voiceless lateral fricative in Chinese). *Onsei no Kenkyuu* (Study of Sounds) 10: 319-336.
- _____. 1965. *Phonology of Ancient Chinese*. Vols. I & II. Ann Arbor: University Microfilms, Inc. Order number: 66-6265.
- _____. 1972a. "The linguistic mechanism of flip flop." *Unicorn* 10: 1-19.
- _____. 1972b. *Hakkago Kiso Goishuu* (A Classified Lexicon of Three Hakka Dialects). Tokyo: National Inter-University Research Institute of Asian & African Languages & Cultures.
- _____. 1973. *Hakka Dialect--A Linguistic Study of Its Phonology, Syntax and Lexicon*. London & New York: Cambridge University Press.
- _____. 1976. "Kainango bunshoo hoogen." (The Wen-ch'ang dialect of the Hainanese language). *Ajia Afurika Gengo Bunka Kenkyuu* (Journal of Asian & African Studies) 11: 65-86.

- _____. 1976-1977. "Shingo shohoogen no hikaku kenkyuu." (A comparative study of the Chin dialect of Chinese). *Ajia Afurika Gengo Bunka Kenkyuu* (Journal of Asian & African Studies). 12: 11-58; 13: 77-127; 14: 72-132.
- Hashimoto, Mantaro J. & Jerry L. Norman. 1971. *A Guide to the Wen-ch'ang and Ting-an Dialects*. Arlington: ERIC Clearing House on Languages and Linguistics. Order number: 061854.
- Nishida, Tatsuo. 1973. "Review of M. J. Hashimoto: the Hakka dialect." *Toonan Ajia Kenkyuu* (South East Asian Studies) 11-3: 433-438.
- Teng, Shou-hsin. 1975. "Review of M. J. Hashimoto: the Hakka dialect." *Journal of the Chinese Language Teachers Association*. 28-30.
- Wen, Tai-kuei. 1974. "Ch'iao-pen Wan-t'ai-lang shih chu K'o-chia Fang-yen tu-hou kan." (After reading M. J. Hashimoto: The Hakka dialect). *Chuugoku Gogaku* (Chinese Linguistics) 218: 30-32.
- Yang, Paul F-M. 1974. "Review of M. J. Hashimoto: the Hakka dialect." *Ajia Afurika Gengo Bunka Kenkyuu* (Journal of Asian & African Studies) 9: 213-214.