

Compensatory lengthening is not specific to segments

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Phenomenon: Yue dialects, i.e. Cantonese, Bobai and Xinyi, have a process whereby a rising tone replaces the lexical tone of the head noun to derive diminutive forms, referred to as *Pinjam* (changed tones) in the literature. Examples are given in (1). Note that occlusive codas change to their homorganic nasal counterparts in the diminutive form in Bobai. Previous accounts regarding Cantonese posit a floating high tone attaching to the host syllable (Chen 2000, Yip 1980, 2002). A rule banning complex contour tones in Cantonese triggers the loss of a tonal segment. This is illustrated in (2).

Problem: The above account predicts that the derived rising tone has the same duration as the lexical rising tone. However, Chao (1947) and Benedict (1942) noticed that, in Cantonese, the derived rising tone has a slightly longer duration than the lexical rising tone. The same phenomenon is observed in Bobai and Xinyi, where the derived rising tones are longer than the lexical rising tone (Wang 1932, Yu&Shen 1987). Establishing a correspondence between the Mandarin diminutive suffix [-ɿ] and the Cantonese high rising *Pinjam*, Chao used *mora* to describe this additional length, suggesting that the Cantonese mora is a suffix taking the form of a high tone rather than sound segments. This conjecture, capable of explaining the additional length associated with the *Pinjam*, is contrary to current theories according to which tones, being suprasegmental objects, have no temporal basis of their own. How to solve this paradox?

An alternative analysis: Following O'Melia (1939) and Whitaker (1956) according to whom the additional length is to compensate the elided diminutive suffix [jin25] in Bobai, a more conservative dialect compared to Cantonese, we claim that there is *tonal compensatory lengthening* in Yue dialects. This phenomenon can be explained by assuming that tones are *intrinsically positional objects*, and, more specifically, that they make up a universal periodic skeleton HLHL (Carvalho 2002). The interaction between tones and temporal positions is proposed in (3), where the register is represented by the spreading of a tonal segment to an adjacent position. On this basis, we propose a formal representation to account for the mechanism of *Pinjam*, illustrated in (4). The tone of the diminutive suffix [jin25] replacing that of the head noun, the second tonal segment of the rising contour, H, expands to fill the vacuum left by the elision of the neighboring syllable.

The additional duration of changed tones is also attested in Daye, a Mandarin dialect, where the diminutive suffix, 553, is purely tonal (Wang 1996). Interestingly, there are two ways of expressing the diminutivization: prefixation of the morpheme [sai 35] “little” to the head noun, or substitution of the lexical tone with the tonal morpheme 553. We argue that the Daye case can be explained in the same fashion as in Yue dialects, viz tonal compensatory lengthening, here to the *preceding* temporal position released by the elided diminutive prefix.

Further implications: It has been shown that tones cannot be treated as pure melodies in Chinese dialects: they do have a temporal basis. Furthermore, they are hierarchically closer to the temporal skeleton than segmental primes. A conjecture based on the segmental compensatory lengthening will encounter one problem: if the additional tonal duration had to be explained by the compensatory lengthening of vowels, no change in length would be expected to occur in closed syllables. Now, the additional length is observed in both open and closed syllables in *Pinjam*. Consequently, it is tone that lengthens under syllable elision, not vowel. In other words, the vowel lengthens under the pressure of the tone, not the tone under the pressure of the vowel.

- (1) a. Bobai
 mat32 “thing” → man25 “little thing”
 hɔp4 “box” → hɔm25 “little box”
- b. Cantonese
 t^hɔŋ21 “sugar” → t^hɔŋ35 “candy”
 nɔy23 “female” → nɔy35 “daughter, girl”
 ɔp3 “duck” ~ ɔp35
 kɔt2 tsɔt2 “cockroach” ~ kɔt2 tsɔt 35
 kɔp3 “pigeon” ~ kɔp35

- (2) a. t^hɔŋ “sugar” b. t^hɔŋ c. t^hɔŋ “candy”
 3ɔ 3i) 3ɔ
 M L H M L H M H

- (3) a. falling contour tone b. level tones c. rising contour tone
- | | | | | | | | | | | | | | | |
|------|---|--|------|---|--|-----|---|--|-----|---|--|------|---|------|
| H | L | | H | L | | H | L | | L | H | | L | H | |
| ɣ | ɣ | | ⊙ | ɣ | | ɣ | | | ⊙ | ɣ | | ɣ | ɣ | |
| x | x | | x | x | | x | x | | x | x | | x | x | |
| [Hl] | | | [hL] | | | [H] | | | [L] | | | [IH] | | [Lh] |

⇒ The capital letter indicates the register.

- (4) a. mat32 + jin25 b. man25: “little thing”
- | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| H | L | | L | H | | L | H | | | |
| ⊙ | h | | h | h | | h | h | | | |
| x | x | + | x | x | ⇒ | x | x | | | |
| ⊙ | ⊙ | h | | | | ⊙ | ⊙ | h | | |
| C | V | C | C | V | C | C | V | C | | |
| ɣ | ɣ | ɣ | ɣ | ɣ | ɣ | ɣ | ɣ | ɣ | | |
| m | a | t | ɲ | i | n | m | a | ɲ | i | n |

⇒ the nasal feature left by the elided diminutive suffix [jin25] nasalizes the coda of the host syllable.

Selected references:

Benedict, Paul K. (1942). *Cantonese Phonology*, ms. Carvalho, J. Brandão de (2002). *De la syllabation en termes de contour CV*, Habilitation thesis, Ecole des Hautes Etudes en Sciences Sociales, Paris. Chao, Yuan Ren (1947). *Cantonese Primer*. Mass: Havard. O’Melia, Thomas (1939). *First Year Cantonese*. Hong Kong Maryknoll House, Hong Kong. Whitaker, K. P. K. (1956) A study on the modified tones in spoken Cantonese. *Asia Major* 184-207. Wang, Guosheng (1996). Hubei Daye hua de qingyi biandiao (Emotive tone sandhi in the dialect of Daye, Hubei). *Zhongguo Yuwen* 355-360