

Gemination in Taiwanese diminutives: A typological anomaly?

Feng-fan Hsieh and Yueh-chin Chang (National Tsing Hua University)

Introduction: In this talk, we show that the well-formedness of geminates may not be thoroughly grounded in perceptibility (e.g. Kawahara 2007, Podesva 2000). The evidence comes from Taiwanese diminutives. Some representative data are summarized below (acoustic data will be included in presentation). Note that geminates are *not* phonemic in Taiwanese and we assume that the underlying form for the diminutive suffix is /a/.

/kim-a/ → [kim.ma] ‘gold’	/laj-a/ → [laj.a] ‘pear’	/ap-a/ → [ab.ba] ‘box’
/qin-a/ → [qin.na] ‘child’	/aw-a/ → [aw.a] ‘cup’	/ts ^h at-a/ → [ts ^h ar.ra] ‘thief’
/aŋ-a/ → [aŋ.ŋa] ‘doll’	/hi-a/ → [hi.a] ‘fish’	/lok-a/ → [log.ga] ‘deer’

Gemination is obligatory for a stem ending with a nasal coda, e.g. /kim-a/ → [kim.ma] ‘gold-DIM’ (*[kim.a] or *[ki.ma]; 1st column), whereas glide geminates are blocked in diminutives, e.g. *[laj.ja] ‘pear-DIM’ (2nd column). This asymmetry basically confirms Podesva’s 2000 implicational hierarchy for geminates: glides > laterals > nasals > obstruents (> = ‘imply’), which was in turn formalized as this fixed ranking: *GG » *LL » *NN (» *OBSGEM).

Puzzles: Some unusual patterns are found in stems ending with a stop coda, however. As seen in the 3rd column, i) geminate voicing is attested when the stem’s final stop coda is labial or velar (i.e. *[ap.a], *[a.pa] and *[ap.pa] are ungrammatical); ii) flapping occurs when there is a stem-final /-t/ (i.e. *[ts^had.da], *[ts^hat.ta], etc.). I.e., voiceless stop geminates are blocked in derived environments (cf. Hall 2006). It is well known that voiced obstruent geminates are more “marked” than their singleton counterparts and hence are not preferred. For example, voiced obstruent geminates are devoiced in English loanwords into Japanese. Perceptually speaking, voicing in geminates is more confusable, while voiced obstruent geminates may be produced with more aerodynamic difficulty (Kawahara 2006). Therefore, geminate voicing here poses a problem for this ranking: IDENT(+voi)_{Sing} » *VOIOBS » IDENT(+voi)_{Gem} (b/c Taiwanese has a three-way contrast in onset: {b, p, p^h} and voiced stop geminates are NDEB-ed), while a constraint against voiced obstruent geminates (Nishimura’s 2003 *VOIOBSGEM, *i.a.*) has been shown to be analytically problematic (Kawahara 2006). On the other hand, flapping in gemination also challenges Podesva’s hierarchy because sonorant geminates should be more subject to elimination (i.e. /ts^hat-a/ → [ts^har.ra] ‘thief-DIM’). So it is puzzling why a more “unmarked” form, e.g. [ts^hat.ta], is not attested.

Analysis: We argue that the Taiwanese diminutive data are better analyzed as a “prosodic by-product.” That is, the phenomena in question are reminiscent of the environments for the flapping rule in English. More specifically, the diminutive suffix -a is “unstressed,” because i) this suffix is “weak” in that it is durationally shorter and ii) this suffix triggers specific tone sandhi rules that do not apply in stressed/full-toned syllables. We propose that voicing and flapping in geminates are motivated by a large amount of overlap between neighboring (vowel) gestures, which is particularly evidenced in unstressed syllables (e.g. de Jong et al. 1993, Klatt 1976, Krakow 1993, Munhall & Löfqvist 1992, Turk 1992, *i.a.*). This great coarticulation between a stressed and an unstressed syllable induces geminate voicing and flapping. Furthermore, this account also explains yet another asymmetry. Consider this minimal pair: /ts^hit-a/ → [ts^hir.ra] (*[ts^hit.ta]) ‘eraser (wipe-DIM)’ vs. /ts^hit ta/ → [ts^hit.ta] (*[ts^hir.ra], *[ts^had.da]) ‘seven dozens.’ It follows from our analysis that “fake geminates” between two full-toned/stressed syllables will be intact.

Conclusion: This work contributes to a more fine-grained understanding of the relationship between sonority/voicing and geminate markedness. Prosodic structures may play a role, too.

Selected References: Kawahara, S. 2006. A faithfulness ranking projected from a perceptibility scale: The case of [+voice] in Japanese. *Lg* 82.3: 536-574. de Jong, K., Beckman, M. E. & Edwards, J. R. 1993. The interplay between prosodic structure and coarticulation. *Language & Speech* 36, pp. 197-212. Podesva, R. 2000. Constraints on geminates in Burmese and Selayarese. In *Proceedings of WCCFL 19*, pp. 343–356.