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Geminate plosives in Japanese and Ryukyuan – A phonological perspective on a phonetic difference

Both Japanese and Ryukyuan have word-medial geminate plosives, but whereas Japanese geminate plosives differ from singleton consonants only in length, geminate plosives in the Ryukyuan languages are pronounced with glottal tension and are unaspirated. The Ryukyuan situation brings to mind Korean, where the traditional, but still controversial, view is that the glottalised (tense) consonants (濃音) are underlyingly geminates. A recent statement of this view states “[t]he special quality of Korean tense consonants ... is that they are phonological geminates phonetically augmented with the laryngeal dimension of Glottal Width, which implicates a gesture of glottal constriction” (Ahn & Iverson 2004: 345). A similar analysis is independently suggested for Tashlhiyt Berber geminates (Ridouane 2010).

Similar to Japanese, on the other hand, are Italian and Finnish, where detailed research on geminates in these languages does not suggest that glottalisation is a factor relevant in distinguishing singletons from geminates.

Why is it that Ryukyuan, Korean and Berber geminates are augmented with a laryngeal feature, whereas Japanese, Italian and Finnish geminates are not? I propose that the reason for this difference in the phonetic realisation of geminates lies in whether the language has a phonetic distinction between singletons and geminates in word-initial position or not.

It is well-known that Berber has word-initial geminates, and Korean tense consonants also occur word-initially. One historical source of Korean word-initial tense consonants is the reduction of word-initial syllables.

*pɔsɔr > psɔr > ssar ‘white rice’

*pɔtɔr > ptɔr > ttɔr > ttar ‘daughter’

*sitɔk > *stɔk > ttɔk ‘rice cake’ (cf. Japanese *sitogi* 糰 from c.900)

Ryukyuan also has a small number of words beginning with geminate obstruents, similarly due to the reduction of word-initial syllable (a), or due to compensatory lengthening (b).

(a) *pito > *picju > ccju ‘person’

*puta- > tta- ‘two’

(b) *kura (?) > *kua > kkwa ‘child’

In the case of utterance-initial voiceless stops, closure duration alone cannot distinguish segment length, so if a phonetic distinction is to be maintained, the length will have to be enhanced by some other feature. Some languages increase VOT of geminates in order to be able to make the distinction, but others use constricted glottis to make the distinction.

Italian does have underlying word-initial geminates (all palatals), but these are not realised unless preceded by a vowel. A similar situation is reported for Thurgovian (Swiss German), where underlying utterance-initial geminates, and post-obstruent word-initial geminates are phonetically indistinguishable from singletons, and length (closure duration) is the only distinguishing feature (Kraehenmann 2001).

References

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