

The phonetics and phonology of geminate consonants

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This talk deals with the phonetic implementation and the phonological representation of different types of geminate consonants in Tashlhiyt Berber (Morocco). It continues a rich history of research on the structure and phonetic implementation of geminate consonants, including the acoustic and perceptual cues to gemination (Abramson 1986, Lahiri and Hankamer 1988), the phonetics and phonology of gemination resulting from assimilation (Ohala 1990), the articulatory gestures differentiating singleton and geminate consonants (Smith 1995), and the acoustic correlates of lexical and derived geminates (Ladd and Scobbie 2003). Tashlhiyt Berber is an excellent test case to deal with these issues since, most unusually, it has contrastive lexical geminates initially and finally as well as medially, and presents two types of phonologically derived geminates: concatenated and assimilated ones.

We first examine the acoustic, articulatory and perceptual correlates of gemination within monomorphemic lexical items. The acoustic study examines the effect of gemination on various temporal and non-temporal parameters for voiced and voiceless obstruents in different prosodic positions. The articulatory and perceptual studies deal with the specific case of utterance-initial singleton and geminate voiceless stops (e.g. [ks] ‘feed on’ *vs.* [kks] ‘take off’), and examines whether the length contrast is encoded articulatorily (based on electropalatographic data) and whether listeners perceive the distinction for these voiceless stops in this position. We further consider how lexical geminates differ from concatenated and assimilated geminates based on acoustic data.

Implications of the results for the general issue of geminate representation and geminate behavior will be discussed, with particular attention to ambiguity and inalterability effects.

- Abramson, S. Arthur. 1986. The perception of word-initial consonant length: Pattani Malay. *Journal of the International Phonetics Association* 16, 8–16.
- Ladd, Robert and James M. Scobbie. 2003. External sandhi as gestural overlap? Counter-evidence from Sardinian. In Local, J., Ogden, R. and Temple, R. (eds.), *Papers in Laboratory Phonology VI: Phonetic Interpretation*. Cambridge: Cambridge University Press, 164–182.
- Lahiri, Aditi and Jorge Hankamer. 1988. The timing of geminate consonants. *Journal of Phonetics* 16, 327–338.
- Ohala, John. 1990. The phonetics and phonology of aspects of assimilation. In: John Kingston and Mary E. Beckman (eds.), *Papers in Laboratory Phonology 1: Between the Grammar and Physics of Speech*, 258–275. Cambridge: Cambridge University Press.
- Smith, L. Caroline. 1995. Prosodic patterns in the coordination of vowel and consonant gestures. In: Bruce Connell and Amalia Arvaniti (eds.), *Papers in Laboratory Phonology IV: Phonology and Phonetic Evidence*, 205–222. Cambridge: Cambridge University Press.