
Simulating language change in Tswana

Jagoda Bruni
 Universität Stuttgart
 jagoda.bruni@ims.uni-
 stuttgart.de

Daniel Duran
 Universität Stuttgart
 daniel.duran@ims.uni-
 stuttgart.de

Grzegorz Dogil
 Universität Stuttgart
 grzegorz.dogil@ims.uni-
 stuttgart.de

Mittwoch
 08.03.2017
 15:45 – 16:30
 B4 1, Foyer

This study describes the influence of socio-political changes in the South African phylum on the current shape of Tswana, a Bantu language of the Sotho group. Tswana has phonetically marked post-nasal devoicing which has been described in detail by Zsiga et al. (2006) and Coetzee & Pretorius (2010). It has been well-documented that post-nasal devoicing (/mb/ → [mp]) is a phonetically unintuitive phenomenon which costs more articulatory effort than producing sequences of nasals followed by voiced stops (Wesbury & Keating, 1984). We use simulations based on Social Impact Theory (Nettle, 1999). In particular, we model social dynamics of Tswana speakers by assigning them either to *small world* (parochial) communication networks or *whole world* intensive code switching networks typical of the present linguistic situation in SA. With our in-house instantiation of Wedel's (2004) exemplar model, we examine the behavior of contrasting voicing realizations across speakers. The model simulates emergence and maintenance of contrast in the context of speaker/hearer interactions. Exemplar-based categories compete for assignment and storage of incoming percepts and the production process is biased towards gesture reuse. By employing this model, we can ascertain, via simulation, how the contrasting realizations can emerge and stabilize within a generation, inspect the selection processes which yield these realizations, and examine the acoustic changes which bring about the contrast.

References: • Coetzee, A.W. and Pretorius, R. (2010): Phonetically grounded phonology and sound change: The case of Tswana labial plosives. *J. of Phonetics*, 38(3), 404–421. • Nettle, D. (1999): Using Social Impact Theory to simulate language change. *Lingua*, 108(2–3), 95–117. • Wedel, A. (2004): Category competition drives contrast maintenance within an exemplar-based production/perception loop. In: *Proc. of ACL Special Interest Group in Computational Phonology*. 1–10. • Westbury, J.R. and Keating, P.A. (1986): On the naturalness of stop consonant voicing. *J. of Linguistics*, 22(1), 145. • Zsiga, E., Gouskova, M. and Tlale, O. (2006): On the status of voiced stops in Tswana: Against *ND. In: *The Proc. of NELS 36*. 721–734.