Some effects of prosodic structure on the production of */u/* in French.

Marija Tabain, Pascal Perrier and Christophe Savariaux

In this paper we present formant data and EMA (Carstens) data from one female speaker of French who produced */u/* in domain-final position at
four different prosodic boundaries (in hierarchical order: Utterance, Intonational phrase, Accentual phrase and Word boundaries). The prosodic boundaries are used in order to control the acoustic duration of the */u/*, with greatest duration at the strongest boundary (Utterance) and shortest duration at the weakest boundary (Word). We present results on lip protrusion and tongue body targets with respect to these prosodically-induced differences in duration, and compare these articulatory results with measurements of F1 and F2-F0 in Bark. We examine trade-offs between lip and tongue targets as duration is reduced; and speculate as to whether the speaker may have been aiming for an articulatory target or an acoustic target for */u/* at the stronger prosodic boundaries. This work combines our previous work on articulatory prosody of */a/* [Tabain, JASA, 113, 516-531, (2003)] with our previous work on perturbation of */u/* [Savariaux et al., JASA, 98, 2428-2442, (1995)].

Work supported by an Australian Research Council fellowship to the first author.