

## **Articulatory phonetics and prosody**

*Jelena Krivokapic*

7 September, 11:00-12:30

The first part of this lecture examines prosodic structure as manifested in articulation. We start with an overview of studies on the temporal properties of prosodic boundaries and prominence (e.g., Beckman et al. 1992, Beckman & Edwards 1994, Fougeron & Keating 1997, Byrd & Saltzman 1998, Fougeron 2001, Keating et al. 2004, Cho 2006, Cho & Keating 2009, Mücke & Grice 2014, Katsika 2016). We also cover the instrumentation used in these studies (e.g., electropalatography and articulatory magnetometry) and more broadly discuss how articulatory studies contribute to our understanding of prosodic structure and the advantages and disadvantages in comparison to acoustic studies. We then turn to the question of how prosodic structure is accounted for within the framework of Articulatory Phonology (e.g., Browman & Goldstein 1992, 1995, Goldstein & Fowler 2003), starting with the  $\pi$ -gesture model of prosodic boundaries (Byrd & Saltzman 2003), followed by an examination of tone gestures within this model (Gao 2008, Mücke et al. 2012). Finally, we turn to recent kinematic studies investigating the interaction of prosodic boundaries and prominence (Byrd & Riggs 2008, Katsika et al. 2014), the articulatory properties of pauses and their role in prosodic boundaries (Ramanarayanan et al. 2010, 2013, Katsika et al. 2014) and prosodic structure in manual gestures in (Rochet-Capelan et al. 2008, Krivokapić et al. 2015, 2016).

### **References:**

- Beckman, M.E., J. Edwards, & J. Fletcher. (1992). Prosodic structure and tempo in a sonority model of articulatory dynamics. In: G. Docherty & D.R. Ladd (Eds.), *Papers in Laboratory Phonology II: Gesture, Segment, Prosody*. Cambridge: Cambridge University Press, pp. 68-86.
- Beckman, M. E., & Edwards, J. (1994). Articulatory evidence for differentiating stress categories. In P. Keating (Ed.), *Papers in laboratory phonology III: Phonological structure and phonetic form*. Cambridge, United Kingdom: Cambridge University Press, pp. 7-33.
- Browman, C. P., & Goldstein, L. M. (1992). Articulatory Phonology: An overview. *Phonetica*, 49, 155-180.

- Browman, C. P., & Goldstein, L. (1995). Dynamics and Articulatory Phonology. In R. F. Port & T. Van Gelder (Eds.), *Mind as Motion: Explorations in the Dynamics of Cognition*. Cambridge, MA: The MIT Press, pp. 175-193.
- Byrd, D., & Riggs, D. (2008). Locality interactions with prominence in determining the scope of phrasal lengthening. *Journal of the International Phonetic Association*, 38, 187-202.
- Byrd, D., & Saltzman, E. (1998). Intragestural dynamics of multiple phrasal boundaries. *Journal of Phonetics*, 26, 173-199.
- Byrd, D., & Saltzman, E. (2003). The elastic phrase: Modeling the dynamics of boundary-adjacent lengthening. *Journal of Phonetics*, 31, 149-180.
- Cho, T. (2006). Manifestation of prosodic structure in articulation: Evidence from lip kinematics in English. In L. Goldstein (Ed.), *Laboratory Phonology 8: Varieties of phonological competence*. New York, NY: Walter De Gruyter, pp. 519-548
- Cho, T., & Keating, P. (2009). Effects of initial position versus prominence in English. *Journal of Phonetics*, 37, 466-485.
- Fougeron, C. (2001). Articulatory properties of initial segments in several prosodic constituents in French. *Journal of Phonetics*, 29, 109–135.
- Fougeron, C., & Keating, P. (1997). Articulatory strengthening at edges of prosodic domains. *Journal of the Acoustical Society of America*, 101, 3728-3740.
- Gao, M. (2008). *Mandarin Tones: an Articulatory Phonology Account*. Unpublished Ph.D. dissertation, Yale University.
- Goldstein, L. M., & Fowler, C. (2003). Articulatory phonology: a phonology for public language use." In A. S. Meyer & N. O. Schiller (Eds.). *Phonetics and Phonology in Language Comprehension and Production: Differences and Similarities*, Mouton de Gruyter, pp. 159-207.
- Katsika, A. (2016). The role of prominence in determining the scope of boundary related lengthening. *Journal of Phonetics*, 55, 149–181.
- Katsika, A., Krivokapić, J., Mooshammer, C., Tiede, M., & Goldstein, L. (2014). The coordination of boundary tones and their interaction with prominence. *Journal of Phonetics*, 44, 62-82.
- Keating, P., Cho, T., Fougeron, C., & Hsu, C. (2004). Domain-initial articulatory strengthening in four languages. In J. Local, R. Ogden & R. Temple (Eds.), *Phonetic Interpretation (Papers in Laboratory Phonology VI)*. Cambridge, UK: Cambridge University Press, pp. 143-161.
- Krivokapić, J., Tiede, M., & Tyrone, M. (2015). A kinematic analysis of prosodic structure in speech and manual gestures. *Proceedings of ICPHS 2015*, Glasgow, United Kingdom, August 10th-14th.
- Krivokapić, J., Tiede, M., Tyrone, M., & Goldenberg, D. (2016). Speech and manual gesture coordination in a pointing task. *Proceedings of Speech Prosody 2016*.
- Mücke, D., & Grice, M. (2014). The effect of focus marking on supralaryngeal articulation – Is it mediated by accentuation? *Journal of Phonetics*, 44, 47-61.
- Mücke, D., Nam, H., Hermes, A., & Goldstein, L. (2012). Coupling of tone and constriction gestures in pitch accents. In P. Hoole, M. Pouplier, L. Bombien, Ch. Mooshammer & B. Kühnert (Eds.), *Consonant Clusters and Structural Complexity*. Mouton de Gruyter. 205-230.

- Ramanarayanan, V., Byrd, D., Goldstein, L., & Narayanan, S. (2010). Investigating articulatory setting - pauses, ready position and rest - using real-time MRI, In: *Proceedings of Interspeech 2010*, Makuhari, Japan, Sept 2010
- Ramanarayanan, V., Goldstein, L., Byrd, D., & Narayanan, S. (2013). A real-time MRI investigation of articulatory setting across different speaking styles, *Journal of the Acoustical Society of America*, 134, 510-519.
- Rochet-Capellan, A., Laboissière, R., Galván, A., & Schwartz, J. L. (2008). The speech focus position effect on jaw-finger coordination in a pointing task. *Journal of Speech, Language and Hearing Research*, 51, 1507-1521.