

TOPICS IN SPEECH DYNAMICS
ARTICULATORY PHONOLOGY AND THE SYLLABLE

These lectures explore dynamic representations in phonology, primarily (but not exclusively) in the model of Articulatory Phonology. The focus is on the syllable as an essential unit underlying both the temporal complexity of speech and phonological organization. The case studies discussed, from several languages and phenomena, illustrate phonological analyses that make use of symbolic dynamic representations.

Lecture 1. Introduction to Articulatory Phonology

- Browman, C. & L. Goldstein. 1995a. Dynamics and articulatory phonology. In Port & van Gelder (eds.) *Mind as Motion: Explorations in the Dynamics of Cognition*. 175-193. Cambridge, MA: MIT Press
- Goldstein, L. & C. Fowler. 2003. Articulatory Phonology: A phonology for public language use. In Schiller & Meyer (eds.) *Phonetics and Phonology in Language Comprehension and Production*. Mouton de Gruyter. 159-207.
- Goldstein, L., Pouplier, M., Chen, L., Saltzman, E., Byrd, D. 2006. Dynamic action units slip in speech production errors. *Cognition*, 103. 386-412
- Goldstein, L., D. Byrd, E. Saltzman. 2006. The role of vocal tract gestural action units in understanding the evolution of phonology. In M. Arbib (Ed.) *From Action to Language: The Mirror Neuron System*. Cambridge: Cambridge University Press. 215-249.

Lecture 2. The syllable in Articulatory Phonology – the coupled oscillator model

- Lindblom, B., J.H. Davis, S.A. Brownlee, S-J Moon, Z. Simpson. 1999. Energetics in phonetics: A preliminary look. In O. Fujimura et al. (eds.) *Proceedings of LP'98*. Charles University: Prague. 401-415.
- MacNeilage, P.F. 1998. The frame/content theory of evolution of speech production. *Behavioral and Brain Sciences* 21. 499-511.
- Nam, H., L. Goldstein, E. Saltzman. 2009. Self-organization of syllable structure: A coupled oscillator model. In F. Pellegrino et al. (eds.) *Approaches to Phonological Complexity*. Mouton de Gruyter.
- Nam, H. 2007. A competitive, coupled oscillator model of moraic structure: Split gesture dynamics focusing on positional asymmetry. *Laboratory phonology 9*
- Goldstein, L., I. Chitoran, E. Selkirk. 2007. Syllable structure as coupled oscillator modes: Evidence from Georgian vs. Tashlihyt Berber. *ICPhS* 16. 2153-2156
- Goldstein, L., H. Nam, E. Saltzman, I. Chitoran. In press. Coupled oscillator planning model of speech timing and syllable structure. *Chinese Journal of Phonetics*
- Pouplier, M. and Marin, S. (in press) Temporal organization of complex onsets and codas in American English: Testing the predictions of a gestural coupling model. *Journal of Motor Behavior*.

CASE STUDIES

Lecture 3. Vowel dynamics. Romanian diphthongs and hiatus sequences

- Iskarous K. 2005. Patterns of tongue movement. *Journal of Phonetics* 33. 363-381.
- Iskarous, K., H. Nam, D.H. Whalen. submitted. Perception of articulatory dynamics from acoustic signatures.
- Carré, R. 2009. Dynamic properties of an acoustic tube: Prediction of vowel systems. *Speech Communication* 51. 26-41.

- Cavalcante Albano, E. 1999. A gestural solution for some glide epenthesis problems. *Proceedings of ICPHS 14*. 1785-1788.
- Marin, S. 2009. submitted. Temporal organization of vowel sequences: Romanian diphthongs
- Chitoran, I. 2003. Gestural timing and the glide percept in Romanian. *ICPhS 15*. 3013-3016
- Chitoran, I. and J.I. Hualde. 2007. From hiatus to diphthong: The evolution of vowel sequences in Romance. *Phonology 24*:1. 37-75

Lecture 4. Dynamics and grammar. Consonant clusters

- Gafos, A. 2002. A grammar of gestural coordination. *Natural Language and Linguistic Theory 20*. 269-337
- Gafos, A. and S. Benus. 2006. Dynamics of Phonological Cognition. *Cognitive Science 30*. 1-39
- Chitoran, I., L. Goldstein, D. Byrd. 2002. Gestural overlap and recoverability: Articulatory evidence from Georgian. In N. Warner and C. Gussenhoven (eds.) *Laboratory Phonology 7*. Mouton de Gruyter. 419-447.

Lecture 5. Lezgi consonantal voicing alternations

- Haspelmath, M. 1993. *A Grammar of Lezgian*. Mouton de Gruyter. Chapter 4 – Phonotactics, section 4.1 – Vowel syncope. Chapter 5 – Phonological and morphophonemic alternations (5.1-5.6; 5.9-5.11)
- I. Chitoran and K. Iskarous. 2008. Acoustic evidence for high vowel devoicing in Lezgi. *Proceedings of ISSP 8*. 93-96.