On three notions of time in phonology

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As the study of phonological knowledge becomes increasingly informed by experimental methods, theories of phonology come closer to a major challenge of present day cognitive science: the development of formalisms for expressing the relation between the qualitative and the quantitative aspects of cognitive systems. In his talk, I address the relation between linguistic theory and experimental data in three different areas, corresponding to the three time scales over which phonological form unfolds. A) In the relation between phonology & phonetics, we will consider the link between syllable structure and inter-segmental timing patterns (this latter dimension corresponds to Catford's 'macrochronic' dimension in the study of speech), with data collected using 3-D Electromagnetic Articulometry. B) In the second area, phonology & lexical access, we aim to build an explicit formal bridge between theories of phonological representations and the process of accessing the lexicon to assemble the phonological form of intended words (Catford's 'microchronic' dimension). C) In the third area, diachrony and phonological change, we extend the last model to handle cases where phonological representations change at much slower time scales than in synchronic word production-perception loops. The specific aim in this last domain is a generative theory of "rich memory" representations that can account for results currently claimed to be achieved by (only) a certain class of models.