

September
16th

Yale Linguistic
Friday Lunch Talk
12pm Dow 201
light lunches provided

The Objects of Speech Perception: Evidence from Multimodal Integration

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What are the objects of speech perception? This question has occupied phoneticians and phonologists for decades. Three main answers have been suggested to this question: from an ecological or direct perception point of view, represented in the field of speech by Direct Realism (e.g., Fowler, 1981, 1984, 1996), these objects are physical events in the actual world - vocal tract gestures. From the point of view of Motor Theory (Liberman et al., 1967; Liberman & Mattingly, 1985) and Articulatory Phonology (Browman & Goldstein, 1986, 1989, 1992) the objects of speech perception are abstract representations of vocal tract gestures rather than physical events as such. From a general auditory point of view (e.g., Klatt, 1979; Stevens, 1981, 1989; Massaro, 1987; Diehl & Kluender, 1989) the objects of speech perception are sounds in an acoustic space.

Important evidence bearing on the debate over the objects of speech perception comes from research on multimodal integration in speech perception. Multimodal perception involves the integration of sensory cues from different modalities, such as auditory, visual and somatosensory, into a single unified percept. Evidence for multimodal integration in speech perception has been used to support the claim that sounds cannot be (at least exclusively) the objects of speech perception, since those are multimodally accessible while sounds are neither visible or tactile nor multimodally accessible.

Much of the evidence for multisensory integration in speech perception arises from audio visual integration and its occasional failure (e.g. McGurk & MacDonald, 1976. See Rosenblum, 2005 for survey and discussion). In recent years, evidence for audio-tactile integration has also been accumulating (e.g., Gick & Derrick, 2009; Ito et al., 2009; Derrick & Gick, 2013). Building on this work, this dissertation addresses the question what are the objects of speech perception. It seeks to extend the findings from the studies cited above in order to achieve two main goals. First, to gain further insight into the nature of the objects of speech perception by understanding how they are represented in the human perceptual system and what is the relationship between the objects of speech perception and the building blocks of the phonological system. Second, to provide additional evidence for multimodal speech perception. These goals will be achieved by replicating and expanding the findings from Gick & Derrick (2009) and Derrick & Gick (2013), and by conducting a series of experiments on phonological contrasts and languages that have not been previously investigated. Since the different approaches to the objects of speech perception make different predictions regarding the outcomes of the suggested experiments, the results will allow us to identify which approaches best account for these objects, and thus gain a better understanding of the objects of speech perception and their representational status.