The organization of speech movements: Specification of units and modes of control. Björn Lindblom, Dept. of Linguistics, Stockholm University, Stockholm, Sweden, Dept. of Linguistics, University of Texas at Austin, Texas, USA. [Full Paper Available on CD]

In the present paper we will address two issues. First, are the units of speech static targets or dynamically specified gestures? The available evidence favors the conclusion that dynamic signal attributes play an important role in speech perception. However, the perceptual significance of speech dynamics does not compel us to conclude that the input to the speech production system is dynamic (gestural). Parsimony would seem to dictate that dynamic motor commands be put on hold until physiological and biomechanical response characteristics of the speech production system are better understood. Second, are speech units articulatory or perceptual? This is a question that derives from much quoted programmatic statements by Stetson and Jakobson. Evidence was reviewed showing that speech movements, like non-speech actions, are adaptively organized and can be planned so as to facilitate the listener’s task by enhancing the perceptual correlates of phonetic categories. However, there is also data indicating that these categories have a strong isomorphism with articulatory processes. The implication of this conclusion is that the question of where in the speech chain units are best defined may be a spurious one.