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Stress, focus, and the roots of segmental variation

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de Jong (JASA, 1995) proposed a definition of linguistic stress as variation in the articulation of segmental material; stress is variation on the hypo- to hyper-articulation dimension (Lindblom, 1990) localized to the syllable. This definition has suggested that the interaction of stress and segmental articulation will involve 1) linguistic conventionalization, since stress is a property of particular linguistic systems, 2) the structure of segmental contrasts, since hyper-articulation is driven by contrast enhancement, and 3) propensities in articulation, since hypo-articulation is driven by motor considerations. This paper reviews evidence for effects of linguistic conventionalization of stress. It further examines and compares the results of a number of experiments in segmental variation related to focus. Some dimensions of acoustic contrast, vowel quality, transition dynamics, and glottal timing, exhibit readily detectable and gradient variation as expected by a hyperarticulation model, and such variation is specific to the language's contrastive structure. Not all contrastive dimensions, however, are so affected, for example, noise associated with obstruent consonants. These patterns of results together suggest a functional interaction between the various speech gestures which may define a unit of speech at about the level of the syllable; the level which is the domain of expression of stress.