A spectrographic study of allophonic variation and vowel reduction in West Greenlandic Eskimo

Abstract

West Greenlandic Eskimo vowel spectra were investigated in carefully pronounced words and in continuous speech, and spectral differences were observed between the two situations. Spectra were compared in two consonantal environments - pharyngeal (uvular) and non-pharyngeal. In order to reconstruct vowel articulations, spectra were referred to nomograms from the three-parameter model of vowel articulation. It is inferred from this that stressed vowels in non-pharyngeal environments would require pharyngeal constrictions for /a/, velar constrictions for /u/ and palatal constrictions for /i/. For the allophones in pharyngeal environments, the necessary constrictions would be low pharyngeal for /a/, and upper pharyngeal (uvular) for /i/ and /u/. Fully reduced vowels in non-pharyngeal environments would have uvular to velar articulations with fairly narrow degrees of constriction, and in pharyngeal environments low-pharyngeal to uvular articulations with a narrower degree of constriction. In both cases the mouth opening would have been less than moderate. The regression of vowel spectra from target to reduced is apparently mainly associated with a narrowing of the range of mouth openings, while there can be some shift of constriction locations towards the velar region. An approximation to the uniform tube does not seem to have been a likely configuration for this informant’s weak vowels. Articulatory features are proposed for vowels based on how tongue movement creates a constriction at one of four regions in the vocal tract, velar, upper pharyngeal and lower pharyngeal. Articulations traditionally described as uvular appear to constrict the upper pharynx, i.e. just below the uvula. These features are then used in a set of rules that generates the vowel allophones by assimilation to the uvular consonants.