Vowel synthesis

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II. SPEECH SYNTHESIS AND SPEECH PERCEPTION

A. VOWEL SYNTHESIS

A set of 754 synthetic vowels have been recorded for future use in experiments on perceptual mapping of the vowel stimuli domain. Our standard procedure for series synthesis was followed: (1) This system is based on formants F1 F2 F3 F4 and a higher pole correction. Our present voice source has a zero at \( p = 2\pi \cdot 800 \) c/s in addition to poles at \( p = 2\pi \cdot 100, p = 2\pi \cdot 200, \) and \( p = 2\pi \cdot 3000 \) c/s. Formant bandwidths are held at the constant value of 70 c/s up to 1500 and constant \( Q = 25 \) above 1750 c/s.

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(1) Fant, G.: "Acoustic analysis and synthesis of speech with applications to Swedish", Ericsson Technics, 12, No. 1, 3-108 (1959)

B. CONFUSIONS AMONG VOWELS FOLLOWING LOW-PASS AND HIGH-PASS FILTERING

A project directed to the study of the basis for perception of vowels has been started. Prolonged vowels from several speakers have been isolated and shaped uniformly with regard to their time duration and envelope by means of electronic gating techniques (developed by Möller). Confusion tests of the effects of low-pass and high-pass filtering on selected Swedish vowels and synthetic copies of these are planned.

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