SYNTHESIS OF ESTONIAN LANGUAGE

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The work described here presents results of synthesizing Estonian by means of a terminal synthesizer with serial and parallel connection of filters. The synthesizer has two branches: one with a buzz generator to synthesize vowels, and the other with a hiss generator to synthesize unvoiced consonants. To synthesize voiced consonants both branches are used at the same time. A low-frequency generator of complex-form tension, elaborated for this purpose, acts as the buzz source. It is possible to generate pulses of any form. A special digital control system was created to control the analog circuits of the synthesizer. There are 12 controllable parameters, which were not all constantly used. This system allows to observe and alter the tracks of all control parameters during the experiments. The transitions of parameters are chosen linear.

In Estonian 32 phonemes, including 9 vowels, are distinguished. Voiceless plosives /p,t,k/ have three cues: 1) the burst of noise, 2) the silence, and 3) the transition of the formant of vowels preceding or following them. The semi-voiced counterparts /b,d,g/ have the same cues, only they have a tone impulse in the initial phase of their production, their noise burst is weaker and longer and silence shorter. The duration of all plosives in the initial position of syllables is shorter than in the final position. The fricatives /s,h,f/ were synthesized only by means of the noise components. The lower cutoff frequency of noise, when forming /s/, depends on the phoneme, which stands before it. The consonants /l,n,s,t/ and conventionally /d/ have both palatalized and unpalatalized forms, not distinguished in a written text. The palatalization is performed by means of /i/-like transitions. When the palatalized consonant occurs in the final position of a syllable, the i-like transition is attached to the formants of the unpalatalized counterpart of the phoneme, producing a syllable with a very weak initial /i/.