

## KAZAKH VOCAL SPEECH AND SPECTRAL CHARACTERISTICS OF VOWELS

S.S. Tatubaev, Alma-Ata, USSR

The work aims at investigating the spectra of vowels in speech and singing. For this purpose we developed a method of analysis, namely the syllabic-matrix system with statistical distributions of vowels and consonants.

The formant characteristics of the vowels in speech and singing were determined. The vowels were sung in different singing registers. In singing there is a change in the vocal tract, whereas in speech this change is less pronounced.

The analysis of the vowels in singing shows that the vowel consists of two timbres: the general timbre, which characterizes this given vowel and whose frequency is below 2500 Hz, and the second timbre which is above 2500 Hz and which is called the "singing formant" part. The singing formant part is connected with such important qualities of the voice as brightness and flight which has different width and different amplitude characteristics.

The presence of the singing formant in our investigated spectra of kazakh-singers shows that the singing formant is characteristic of singing in Kazakh as well and probably depends mainly upon the technology of voice formation. The singing formant does not depend on the type of the voice.