Geometrical Display of Speech Spectra as an Aid to Lipreading

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ABSTRACT

A geometrical display of speech spectra intended as an adjunct to lipreading was developed. Spectra were calculated at 5-ms intervals from speech sound pairs ambiguous to lipreaders. The spectra were displayed as sequences of irregular decagons. Human subjects were

asked to discriminate between pairs of spectral decagon sequences derived from pairs of ambiguous speech sounds. Subjects were able to discriminate between most of the visual spectral patterns derived from ambiguous sounds. However, spectral patterns associated with the voiced/unvoiced contrast in some stop pairs were not discriminated consistently.