Figural After-Effect Phenomena for Speech and Non-Speech Stimuli.

Between sensory adaptation and perceptual learning exist a number of phenomena, generally called after-effects, in which stimuli on a continuum are subjectively displaced from a locus of prolonged stimulation on that continuum. If these effects are accompanied by an increase in discrimination in the region of stimulation, they may be classified as perceptual adjustments, rather than response biases. Because after-effects have proven useful in exploring the psychophysiology of vision and audition, we thought they might prove useful in mapping simularities and differences in perception of speech and non-speech stimuli.

Some years ago, the writer did a pilot experiment with John D.M.H. Laver in which phoneticians were used as subjects. A perceptual displacement-type after-effect was found for isolated synthesized vowels after repeated exposure in the /ɛ/ region. Vowels slightly above the exposure region were shifted further upwards towards the /e/ region, but as was expected, other vowels were not.

An experiment is under way to see if this effect can be replicated in a different vowel region, whether it occurs for pure tone stimuli of the same frequency as the relevant vowel formant, and whether or not transfer of any effect occurs from vowel to tone and vice versa. Some behavioral experiments involving discrimination and labelling, and dichotic lateralization tests show that vowels have more in common with non-speech stimuli than with stop-consonants. The transfer design with

after-effects should be able either to distinguish further the vowels from the stop consonants or, alternatively, oppose the vowels to non-speech stimuli in this respect.

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