

PERCEPTUAL CENTRES (P-CENTRES)

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The generation of perceptually regular sequences from a set of naturally spoken digits stored on a computer poses some fundamental problems in the timing of speech sounds (Morton et al., 1976). It is immediately clear that perceptual regularity does not correspond to regularity of acoustic onsets. In order to investigate what is regular in a "regular" sequence, the PERCEPTUAL CENTRE (P-centre) of a sound is defined as its psychological moment of occurrence. "Regularity" is then, by definition, regularity of P-centres.

It is hypothesized that P-centres are determined only by the acoustic nature of each stimulus, invariant of the context provided by adjacent stimuli. This hypothesis is tested and a paradigm described for the determination of P-centre locations of isolated speech stimuli relative to one another.

The relationship is considered between the results of these experiments and those of Rapp (1971) and Allen (1972). It is concluded that a large component of the variance in their tasks involves individual differences in temporal coordination of speech and non-speech or motor tasks; these differences were absent in this paradigm involving relative timing of speech sounds. Rapp's model of P-centre location is evaluated with data from this paradigm. It is found that although she employs the most important parameter, that of consonant duration preceding the nuclear vowel, vowel and final consonant duration must also be considered as important secondary parameters. Experiments investigating P-centre shifts produced by selective modifications of digitized stimulus waveforms (Marcus, 1976) also show that P-centre location is principally a function of stimulus duration and not of stimulus energy.

References

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