Trading Relationship Between Burst and Transition in Kannada Stop Consonants

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Speech perception is an area studied since several decades and still remains an unresolved issue. The advancement in the technology and refinement in the approach statergies have helped in gaining more knowledge in this field.

Speech signal consist of multi - dimensional cues. This distinct aspect of the speech enables the listeners to distinguish between the speech sounds. Whenever two acoustic cues contribute to the same phonetic distinction/unitary percept, they can be traded off against each otner, with in certain range ie, in the absence of one cue, the other cue takes over and contribute to the perception of the phoneme. This is termed trading relationship.

The present study is aimed at investigating the trading relationship between the burst and transition for the voiceless stop consonants in Kannada.

Six pairs of meaningful Kannada words (Tiru/iru, Pari/ari, Pidi/idi, Kale/ale, Kiru/iru, Tale/ale) were chosen for the experiment. The test stimuli were synthesized by cut & splice method. Alteration in the signal were made to form five stimuli of each word.

1. Original CVCV word.
2. Removal of burst from the initial consonant of the word.
3. Addition of burst to the initial part of the word VCV.
4. Removing transition from the initial consonant of CVCV word.
5. Addition of transition to the initial part of the VCV word.

This procedure was followed for all the six word pairs. Each stimuli was iterated ten times which were randomly arranged. A total of three hundred such stimuli with inter iteration interval of one second and inter stimulus interval of five seconds was presei tea.

Twenty normal Kannada speakers (ten males and ten females) served as judges for a perceptual task. They were to listen to the audio-presented stimulus and respond to a forced-choice format. These responses were tabulated and discriminant analysis and ANOVA were performed.

The results of the present study indicates that there was no trading relationship between burst and transition. Also, it appears that Transition served as a better cue than the burst for the perception of stop consonants. However there was a low corelation for all the six words, except for the word pair Pidi/idi Further, there existed no significant difference between males and females, except for word pair Tiru/iru. Vowel *hi* contributed more to the perception of stop consonants than vowel /a/.

It appears that there is no trading relationship between burst and transition. This is not in consonance with the results of previous study by Dorman et al (1977).

Thus it appears that the burst and transition are not equivalent with each other. The differences in the results might be due to'language differences.