

ACOUSTICS2008/2859

A comparison of coarticulation in conversational and clear speech

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Coarticulation may either hinder speech perception by increasing variability and altering the distinctive features of speech sounds, or enhance speech perception by providing additional cues to nearby sounds and spreading these cues out over time. This study examines the clear and conversational speech of 16 English speakers (8 females and 8 males) to compare the amount of coarticulation in clear and conversational speech when distinctive features are changed, as opposed to when non-distinctive features are changed. Devoicing of voiced fricatives and voicing of /t/ are investigated as examples of distinctive feature changes. Vowel nasalization and lip rounding in /s/ and /z/ are examined as examples of non-distinctive feature changes. Percentage of voicing during frication noise is used as a measure of fricative devoicing; voice onset time and percentage of voicing during the closure are used as measures of voicing in /t/; amplitude of the nasal formant and nasal formant onset time are used as measures of vowel nasalization; and center of gravity of the final 50% of the frication noise is used as a measure of lip rounding in /s/ and /z/. Results are compared across clear and conversational speech and across speaker gender. Individual speaker differences are also examined.