Cross categorical temporal feedback in English voicing contrasts

Takashi Mitsuya, Ewen MacDonald and Kevin Munhall

Abstract

To maintain accuracy and precision, the speech motor control system is adaptive and incorporates both auditory and somatosensory feedback. This has been demonstrated in several studies in which auditory feedback of a talker's own voice was perturbed in real-time. For example, when the fundamental frequency or vowel formants are shifted up or down in frequency, subjects compensate by changing the corresponding acoustic parameters in the direction opposite to the perturbation. In the present study, we examine the role auditory feedback plays in the maintenance of the temporal characteristics of consonants. In particular, we examine if acoustic feedback plays a role in the control of voice-onset time (VOT).

Fourteen female undergraduate students whose native language is Canadian English participated in two experimental sessions. The first session had two phases. In one phase, talkers produced either 100 utterances of the word 'tipper'. In the other phase, they produced 100 utterances of the word 'dipper'. In both phases, talkers received normal auditory feedback. These

the vowel by a similar amount. This suggests that motor planning is based on a syllabic unit, which is in agreement with the previous studies of compensatory shortening. Taken together, the results imply that talkers compensate for errors in articulatory timing by planning changes at the syllable level, rather than altering the VOT independently.