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Auditory and somatosensory goals for sibilants

Joseph Perkell^a, Melanie Matthies^a, Satrajit Ghosh^a, Edwin Maas^a, Alexandra Hanson^a, Frank Guenther^b,
Harlan Lane^a, Lucie Ménard^c and Mark Tiede^a

^aMassachusetts Institute of Technology, Research Laboratory of Electronics, Room 36-511, 50 Vassar St.,
Cambridge, MA 02139-4307, USA

^bBoston University, 677 Beacon Street, Boston, MA 02215, USA

^cDépartement de linguistique et de didactique des langues, Université du Québec à Montréal, Case postale
8888, succursale Centre-ville, Montréal, QC, Canada H3C 3P8

In prior studies [JSLHR 47, 1259-69, 2004; JASA 116, 2338-44, 2004], we found that speakers' auditory acuity for synthetic sibilant (/s/, /sh/) and vowel stimuli was correlated with the degree of acoustic contrast they produced. This outcome is consistent with the view that the articulatory movements underlying phonemic contrasts have auditory goals. There was also a cross-speaker relation between sibilant contrast and use of contact between the tongue tip and lower alveolar ridge for /s/ (but not /sh), indicating that such contact is a somatosensory goal for /s/. In the current study, another, larger group of subjects also showed relations between measures of auditory acuity and acoustic contrast for sibilants and vowels. To determine whether the idea of a somatosensory goal for /s/ would also be supported by a relation between acuity and contrast, we made measurements of somatosensory discrimination. Small plastic (JVP) domes with grooves of different spacing were pressed against each subject's tongue tip and the subject was asked to identify one of four possible orientations of the grooves. A wide range of individual performance was observed with a bias-corrected sensitivity measure. Correlations with produced sibilant contrast and further analyses will be reported. [Research supported by NIDCD, NIH.]