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Comparison of the brain regions for consonant processing in
Japanese and English subjects

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A recent fMRI study on speech-sound processing by Uppenkamp et al. [Neuroimage, 31(3), 1284-1296 (2006)] revealed that regions of the left and right, superior temporal gyri (STG) and anterior, superior temporal sulci (STS) respond preferentially to speech-like stimuli. Hervais-Adelman et al. [BSA London (2007)] extended this research to investigate the processing of consonant-vowel (CV) and vowel-consonant (VC) syllables and determine the locus of consonant-processing in the brain of English speakers. This paper reports an experiment with the same stimuli but with Japanese subjects for whom VC syllables are a novelty. In both the English and Japanese subjects, there was enhanced activity in left STS for vowels over non-speech sounds, as in Uppenkamp et al. (2006). A significant difference was observed between the responses to CV and VC syllables in left STS and planum temporale (PT). There was almost no CV-VC difference in the English subjects. The activity regions for VC syllables were larger than for CV syllables in Japanese subjects, probably because the Japanese subjects would have heard the VCs as two syllable speech sounds. Research supported by JSPS Grant-in-Aid [B18300060] and the UK-MRC [G0500221, G9900369].