LETTER

Response to McGettigan et al.: Task-based accounts are not sufficiently coherent to explain articulatory effects in speech perception

McGettigan et al. (1) argue that the articulatory interference effects observed by Yuen et al. (2) may have arisen as a result of the strategic demands of the secondary phoneme monitoring task employed in our study and, as such, may say little about the basic processes underlying normal speech perception. This is a valid criticism following an increasing awareness that the results of speech perception experiments must be interpreted in the context of the task used to measure speech perception (3). If articulatory information is activated automatically in speech perception, our interference effects should be revealed, irrespective of the secondary task, so long as the distractor speech is perceived. We are currently testing whether this is the case.

However, we believe that it is important for those who favor task-based explanations of motor activation in speech perception to go beyond the wholesale rejection of "active" tasks and to delineate precisely which aspects of the various speech perception tasks would be expected to result in the strategic recruitment of motor systems and why. In the absence of this careful analytical work, it will not be possible in future studies to agree on what counts as evidence for motor involvement in speech perception (as opposed to the task used to measure speech perception).

It is widely accepted, for example, that many speech perception tasks require a short-term memory component underpinned by articulatory rehearsal processes. Because the phoneme monitoring task employed in our experiment was likely to have engaged these processes, we designed a visual control experiment likely to have engaged the same processes. Indeed, the evidence suggests that, if anything, articulatory rehearsal should have been more prevalent under visual presentation conditions than under auditory presentation conditions (4). The articulatory interference effects that we observed went in the opposite direction, however.

McGettigan et al. (1) argue that another feature of some speech perception tasks that would be expected to engage motor systems is the "overt segmentation of heard speech into its constituent elements." Unfortunately, these researchers do not identify which speech perception tasks should involve this segmentation process or why. Clearly, they believe that our phoneme monitoring task (e.g., "Was there a /t/ sound in the syllable that you heard?") requires this process, and it is for this reason that we observed articulatory interference effects. However, McGettigan et al. (1) also seem to believe that the phoneme identification task in the article by Sato et al. (5) (which was unaffected by repetitive transcranial magnetic stimulation applied to premotor cortex) does not. This task required participants to make a decision about the identity of a single phoneme presented in the context of a syllable (e.g., "Was the first phoneme in the syllable that you heard a /t/ or /d/?"). It is not obvious to us why the former task should require an articulatory-demanding segmentation process, whereas the latter task would not. In the absence of this explanation, and given the differences between spoken and written distractors that we have reported, we continue to favor the conclusion that we reached in the article by Yuen et al. (2).

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The authors declare no conflict of interest.

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