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Cascading activation from phoneme to articulatory levels: Evidence from the picture-word interference task

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Abstract: Theories of spoken production differ in the way that activation may spread from one level of processing to the next. Discrete theories posit that only the selected item sends activation to the next level while cascading theories posit that activation may spread from all activated (even unselected) items.

This study investigated whether information may cascade from phoneme to articulatory levels using the picture-word interference task. Subjects were presented with target and distractor words with vowels differing in either height, backness or both. Phonetic analyses indicate that target vowels were pulled toward the distractor vowel, but only along the front-back dimension. For example, back vowels are articulated farther forward in the mouth in the context of a front distractor than when presented in isolation. This provides support for cascading theories and provides evidence that articulations may consist of blends of multiple phonemes.