

Phoneme restoration in interactive activation models: Yes they can!

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Abstract: Grossberg and Kazerounian (2011) present a novel model of sequence representation for spoken word recognition, cARTWORD. They claim cARTWORD can simulate key patterns of phoneme restoration in human perception (replacing phonemes with noise yields restoration, replacement with silence does not), but TRACE (McClelland & Elman, 1986) cannot. I show that their TRACE simulations used flawed stimuli. With proper analogs to noise-replaced stimuli, restoration occurs for noise replacement but not silence replacement in TRACE. I rebut other criticisms of TRACE, and argue cARTWORD is implausible because it cannot distinguish sequences with repeated elements (/tot/ "TOTE") from sequences with the same elements but no repetitions (/to/ "TOE"). Until this fundamental issue is resolved, and cARTWORD is tested on more phenomena than just phoneme restoration, the model is simply not comparable to TRACE or other models that have been tested on a wide variety of phenomena from human speech processing.