



Modelling regressive and progressive effects of assimilation in speech perception

*Gareth Gaskell, Department of Psychology, University of York, U.K.
g.gaskell@psych.york.ac.uk*

Models of the perception of phonologically variant speech differ in the extent to which contextual information is used predictively versus regressively. These temporal disparities reflect similar differences in the experimental literature on the perception of English place assimilation (in which for example the place of the /n/ in *lean bacon* takes on the bilabial place of articulation of the following consonant /b/). Here I present an updated version of a probabilistic connectionist model (Gaskell, Hare & Marslen-Wilson, 1995), which learns to compensate for assimilatory changes as a consequence of exposure to natural variation in speech. The effects of incorporating graded assimilation on the behaviour of the model are examined, with a pattern of strong predictive effects found for mild and moderate assimilation, and strong regressive effects for more complete assimilations. This behaviour provides a basis for explaining much of the existing experimental data, and provides an explicit profile of temporal effects for testing in further research.

Gaskell, M. G., Hare, M., & Marslen-Wilson, W. D. (1995) A connectionist model of phonological representation in speech perception. *Cognitive Science* 19, 407-439.