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**Modeling perception of breathy voice quality in vowels using data  
obtained in an adaptive matching task**

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A computational model of breathy voice quality has been developed based on perceptual judgments of synthetic /a/ vowels [Shrivastav, Camacho, & Patel, JASA 120(5), 3248]. This model is based on the ratio of the loudness of aspiration noise ("noise loudness"; NL) to the loudness of the periodic components of the vowel when masked by the aspiration noise ("partial loudness"; PL) [Shrivastav & Sapienza, 2005, JASA, 114(1), 2218-2224]. Results showed that the model accounted for a large amount of variance in perceptual ratings of training data (R-square = 0.92) but not for testing data (R-square = 0.59). It was hypothesized that this reduction was partly related to the use of a magnitude estimation task to obtain perceptual judgments, since magnitude estimates are biased by the range of the quantity measured and are prone to inconsistencies in how subjects assign numbers to items [Poulton, 1989; Guilford, 1954]. To minimize such biases, a matching task may be used to obtain ratio level estimates of breathiness [Patel, Shrivastav & Eddins, 2006, JASA, 119(5), 3340]. The present study describes a model to predict breathy voice quality derived from perceptual judgments obtained using a matching task.