Examining Intelligibility Deficits in ALS and Huntington's Disease

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We assert that different forms and severities of dysarthria present different perceptual challenges to listeners (Liss et al, 1998; 2000; 2002). This position is based on the premise that listeners have a standard set of perceptual strategies that they call upon when faced with any degraded speech signal. Sometimes the nature of the speech degradation prevents these strategies from being effectively applied. The current study offers additional evidence of this with the dysarthrias associated with ALS and Huntington's disease (HD). Using a lexical boundary error analysis (LBE) we show that listeners attend to prosodic information, particularly the juxtaposition of strong and weak syllables, to identify where words begin and end. However, the HD speech pattern is more detrimental to the application of this strategy than is the ALS speech. Moreover, a severity effect was seen for the ALS speech but not for the HD sample. An explanation for the difference is found in rhythm metrics obtained from acoustic analysis of the two sets of phrases, in which the ALS phrases, though produced slowly, maintained fairly normal stress contrasts in the duration domain. The HD phrases were highly variable on these metrics, thus perhaps, less reliable cues to syllabic stress.