

ACOUSTICS2008/570
**An effect of top-down processing on intensity discrimination in the
sensory-trace mode**

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A traditional measure of intensity discrimination presents a standard stimulus followed by a test. In one perceptual strategy, the subject compares the test to a coded version of the standard in long-term "context-coded memory" while, in another, the comparison is to a copy of the standard held in short-term "trace memory" [Durlach and Braida, *J. Acoust. Soc. Amer.*, 46, 372-383 (1969)]. Subjects can be induced to use trace memory by roving the level of the standard randomly from trial to trial. It is well known that roving lowers overall performance, but by parsing individual standards we find that the loss is not uniform. Rather, an inverse correlation with the roved levels shows a severe departure from Weber's Law, with slopes of about -6 dB over 20 dB of roving. This can be modeled in terms of an additive noise that, unlike the multiplicative noise implied by Weber's Law, is constant across levels. We believe this represents top-down processes involved in the use of stimuli held in rehearsal memory.