PERCEPTUAL BIASES AND LOUDNESS CHANGE: INVESTIGATING COGNITIVE SENSORY EXPLAINATION

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Two experiments investigate overestimation of perceived loudness change in response to continuous increases of acoustic intensity (up-ramps), relative to decreases (down-ramps). Experiment 1 investigated recency and an associated 'end-level' bias. Intensity direction (up-ramp, down-ramp), region (low 50-70dB, high 70-90dB), duration (1.8s, 3.6s), and timbre (vowel, violin) were manipulated within subjects (N=34). As hypothesised, perceived loudness change was significantly greater in response to up-ramps in both regions. From balanced end-level analyses (50-70dB up-ramps vs. 90-70dB down ramps), overestimation persisted in 3.6s conditions. Recency and an 'end-level' bias cannot explain this effect. Experiment 2 investigated a sensory explanation based on forward masking. Using dynamic vowel and white-noise maskers, three participants detected 10 ms 1.5 kHz pure tone signals presented at masker-signal delays of 0, 10, 20, 40, 80, 160 ms. Masking magnitude was greater and time-course of masked threshold decay longer in response to up-ramps. Cognitive and sensory mechanisms that explain perceived loudness change are discussed.