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# Effect of reverberation on loudness perception

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Stimuli with a slow-attack/fast-decay (S-F) envelope are judged to be louder than stimuli with a temporally-reversed, equal-energy version of the same envelope (fast-attack/slow-decay or F-S). It may be that the energy in the tails of F-S stimuli is discounted from loudness judgments because it is perceptually attributed to room reverberation. Here we examine the characteristics of real-room reverberation that affect loudness perception, particularly the way that reverberant tails tend to be de-correlated at the two ears. Our experiments used reverberation from real-room measurements of binaural room impulse responses (BRIRs). We ask if the perceived reduction in loudness of F-S stimuli relative to S-F stimuli is still apparent with dichotic sounds processed by the BRIRs.