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**Temporal weighting in loudness judgments of time-varying sounds**  
**containing a gradual change in level**

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Two experiments studied how listeners weight the level information from different portions of a noise consisting of ten temporal segments, the levels of which were sampled independently from a normal distribution. If a gradual increase in level ("fade-in") is imposed on the first few segments in such a sound, temporal weights in global loudness judgments in a one-interval paradigm show a delayed primacy effect [Oberfeld and Plank, *Fortschritte der Akustik - DAGA2005*, 227-228 (2005)]. The maximum weight is assigned to the first segment presented at the full level, while the weights assigned to the fade-in segments are close to zero. In Experiment 1, a similar pattern of weights was observed in a two-interval paradigm. Thus, listeners do not use intensity information from the fade-in segments even when making within-trial comparisons. In Experiment 2, the first three segments gradually decreased rather than increased in level (i.e., the first segment had the highest level). Listeners gave near exclusive weight to the first segment. The results are compatible with a tendency to assign greater weight to loud elements [Lutfi and Jesteadt, *J. Acoust. Soc. Am.* 120, 3853-3860 (2006)] rather than with segmentation of the noise into a "gradually changing" and a "stable" part.