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Lateralization of Simulated Sources and Echoes on the Basis of Interaural Differences of Level

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Abstract

This experiment assessed the relative weights given to source and echo pulses lateralized on the basis of interaural differences of level (IDLs). Separate conditions were run in which the to-be-judged target was the first (source) or second (echo) pulse. Each trial consisted of two intervals; the first presented a 3000-Hz diotic pulse that marked the intracranial midline and the pitch of the target frequency. The second presented the sequence of a source followed by an echo. Target frequency was always 3000 Hz, while the non-target pulse was presented at 1500, 3000, or 5000 Hz. Delays between the source and echo were varied from 8 to 128 ms. IDL's were chosen for both pulses from Gaussian distributions with $\mu = 0$ dB and $\sigma = 4$ dB. Dependent variables included normalized target weight, proportion correct, and the proportion of responses predicted from the weights. Although target weight and proportion correct generally increased with increasing non-target frequency and echo delay for both target conditions, the effects were always larger when the echo served as the target. The superiority of performance when judging echoes vs sources will be discussed in terms of recency effects in binaural hearing.

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