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Visual Stimuli Displacement in First-Order Apparent Motion

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ABSTRACT

First-order object motion is defined by spatiotemporal variations of luminance or color projected in the retina. We studied the reaction of the human visual system to a photopic two-bar apparent motion display using whole-cortex magnetoencephalography. Expanding the motion displacement we found that the peak visual evoked field amplitude increased with distance between stimuli logarithmically in accordance with the Fechner's law , while the peak latency didn't change significantly. We attribute these results to increasing spatial integration due increased velocity sensitivity parafoveally, as well as to enlarged cell receptive field sizes and declining cortical magnification factor with eccentricity. Our results support the hypothesis that first-order motion perception is determined by a single, spatially-integrating motion perception mechanism which manifests a strong advantage for parafoveal high velocities.