Judgements of object stationarity: egocentric vs Euclidian geometry

When viewing objects during self-motion, observers integrate retinal and non-retinal signals to distinguish environmental motion from displacements arising from the observer's own movement. Using the Immersive Virtual Reality Environment at York (IVY), we generated the visual components of self-motion in the absence of their vestibular corollaries by oscillating the visual world around a stationary observer in each of the cardinal directions. When asked to set an object stationary relative to this moving world, observers made consistent errors which suggested that the actual (Euclidean) relationship between the visual scene and the target were ignored. We found a complimentary, but smaller error for a stationarity task conducted during genuine self-motion. These findings will be discussed in terms of the perceptual representation of space.

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