Decay of Information in Spatial Mental Images

Don Lyon
L3 Communications at AFRL

Abstract: Why are mental images so fragile? Results using a new method for measuring mental image accuracy (Lyon, Gunzelmann & Gluck, Cognitive Psychology, 57, 2008) suggest that spatial interference – similar to lateral interference in vision – is an important factor, but not the only factor. We ask people to visualize a path through a 7x7 grid, indicating when the path revisits a location. Each path is described by spoken, segment-by-segment instructions (Right 1; Up 1; etc.). We define 'lag' as the number of path segments intervening between visits to a path location. Longer lags produce lower accuracy. This could be explained by either decay or associative interference (from additional path segments). Results indicate that, when lag is held constant, there is no effect of number of path segments, whereas when number of segments is held constant, the lag effect is undiminished. This suggests that decay is the more likely explanation.