Crowding in the Mental Image: Evidence for a Vision-Like Representation?

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Abstract: When people visualize a verbally-described path (e.g. Up 1 Unit; Left 1 Unit...), tight, crowded paths increase errors (Lyon, Gunzelmann & Gluck, Cognitive Psychology, 57, 2008). This result might arise from associative confusability effects in an abstract, proposition-like representation of the path, or from lateral interference in a vision-like spatial representation. When paths are presented using a sequence of briefly presented individual line segments instead of words, crowding is not abstract, but physically measurable. One can use either long or short lines, thus varying physical proximity, but not necessarily symbolic representation. If the path representation is propositional, then the absolute length of the line segments may be irrelevant, as long as they are easily visible. However if the representation is vision-like, and includes a process similar to lateral interference, then shorter line segments could produce more errors. Initial path visualization data suggest the latter. Subsequent experiments test other interpretations.