

◆ Perceptual grouping of dots in noise

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Observers were asked to report the orientation of alignment (horizontal vs vertical) of a group of target dots embedded in randomly placed noise dots. For this perceptual grouping task, sensitivity (the number of noise dots giving 75% correct performance) was measured as a function of the number of target dots. We report surprising tolerance to positional jitter of target dots, with far less tolerance exhibited to alignment jitter than separation jitter. In this respect, perceptual grouping in our task resemble line detection. In a further series of experiments the target was produced by positional shifts of an appropriate number of noise dots, rather than by addition of target dots to the noise dots (this procedure minimised density cues). The improvement in sensitivity with increasing number of target dots was found to be linear (when plotted on log-log axes) with a slope of 0.5, as opposed to bilinear [cf B Moulden, 1994, in *Higher-Order Processing in the Visual System* Eds G R Bock, J A Goode (Chichester: John Wiley) pp 170-192]. This linearity suggest that, over the range of target dot numbers tested, a single mechanism may be sufficient to explain performance.

[Supported by BBSRC GR/J71793 and Newton Trust.]