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  An analysis of global shape processing using radial frequency contours

  Under many circumstances, a description of an object's shape is, by itself, a sufficient cue to prompt recognition of the object. As such, it is important to understand how global shape processing mechanisms encode and represent local form information. One point of difference in the current shape literature concerns whether global shape mechanisms encode local form information by sampling along the contour path or, by encoding form information in relation to the center of the object. The results of our first study provide clear support for the latter. In a second study, the selectivity of global shape mechanisms for luminance- or contrast-defined form cues was investigated. Selectivity for these cues is found in earlier stages of cortical processing, and has also been shown for other types of global form, such as Glass patterns. Our results show that luminance and contrast cues are effectively combined at the processing level where global contour shapes are detected, suggesting that a common mechanism can account for the processing of both types of pattern. The results of both studies are discussed in relation to current models of global shape processing.

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