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Hemispheric Asymmetries in Categorical Perception of Orientation

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Abstract: A left hemisphere (LH) bias has been found for various types of categorical processing: for adult categorical spatial judgements; category prototype effects; category learning and categorical perception of colour. Here we investigate whether there is a LH bias in categorical perception of orientation. Various studies have established that orientation categories such as horizontal, oblique, vertical, steep and shallow affect accuracy and speed of orientation discrimination on memory and search tasks. The current study, using lateralised stimulus presentations of 200ms, found faster and more accurate discrimination of oriented lines from different categories than oriented lines from the same category, even when the degree of difference was equated across conditions. This effect was stronger for right-visual field than left-visual field discriminations, suggesting a LH bias in categorical processing of orientation in adults. Findings are related to theories on the role of the LH in visual categorisation.