

A labile representation of spatial information in the visual cortex

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Abstract

Classical ideas of space perception based on local sign (Lotze, 1884) have been challenged in recent years by phenomena in which the spatial location of moving, apparently moving or flashed lines associated with movement appears to be spatially displaced. Position on the retina or in a cortical topographic map does not determine apparent position. However, it is unlikely that representations in the brain are physically shifted within a cortical map. We have developed a neurally plausible mechanism, based on an encoding of the local differential structure of images, by which the representation of spatial information can be modified in place to mimic a physical spatial or temporal shift. We claim that this requirement of a labile representation places an essential constraint on the form of the neural representation of spatial pattern.