

Vanishing point perception electrified

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Abstract

Often, multiple objects around us are projected in the brain simultaneously. These objects build an interactive interface where individual objects are related to the context, e.g., a table, many chairs, a projector, and corners of the room; or a road through high rises in the city, taking right or left turn. Here abstract lines intersecting at the vanishing points along with multiple objects provide information about perspective of the scene. At what time in the brain are these vanishing points perceived? What is the time course of sensitivity to such abstract interactions which allow detection of change in perspective or match between two near simultaneous perspectives? Here we report that change in perspective based on the change in vanishing point elicits greater activity in the lateral, parietal and occipital regions during the time course of signal around 100-120 ms to the presentation of the image. Change in perspectives increased this gain from the standard image which had a fixed vanishing point at the center of the image. Further we report that increased activity in parietal and fronto-central cortex is seen when two near simultaneous images with opposite locations of the vanishing points are presented. Abstract relations such as vanishing point perception are thus likely achieved simultaneously with object shape and scene perception. Change in vanishing point induces a huge effect across entire topography and the effect remains for a long period of time.

Keywords: LOC, vanishing point detection, abstract property extraction, scene perception