CROSS-CATEGORY INFLUENCE IN IDENTIFYING ORIENTATION-FILTERED FACES

AND TEXTURES

BY

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ABSTRACT

All 2-dimensional images, including faces, are composed of structure from a range of orientations. Horizontal structure is the most important orientation structure during face identification. Picture-plane inversion more negatively affects identification accuracy for faces than non-face images; however, the face inversion effect requires intact horizontal structure. In this experiment, participants viewed upright or inverted horizontally-filtered faces that were embedded in vertically-oriented texture structure. Participants completed four versions of a 1-of-6 identification task: face or texture identification, with upright or inverted faces. During face identification, the texture was task-irrelevant and common across all stimuli; during texture identification, the face was task-irrelevant and common across all stimuli. Our study evaluates the influence of horizontal facial structure when identifying non-face stimuli, even when facial information is task-irrelevant. Since our visual system pools information across a range of orientations, we investigated whether categorically different stimuli in orthogonal orientations would also be pooled. If cross-category pooling does not occur, we expect that the orientation of the face will not affect texture identification accuracy. If cross-category pooling does occur, we expect a face-induced texture inversion effect. We found a face inversion effect, but no face-induced texture inversion effect. Texture identification was not affected by the orientation of the face, suggesting that we did not detect cross-category orientation pooling. This study adds to our understanding of how categorical differences affect visual processing.

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