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processes that are not related to grouping processes in general, and that are mainly right lateralized.

[IP068] Local and Global Amodal Completion: Revealing Separable Processes Using A Dot Localization Method

Susan B Carrigan and Philip Kellman

Psychology, University of California, Los Angeles, USA

Differing theories of amodal completion emphasize either global influences (e.g. symmetry, familiarity, regularity) or geometric relations of local contours. These may reflect separate processes: a bottom-up, local contour interpolation process, and a top-down, cognitive process of recognition from partial information. These can be distinguished experimentally if only the local process produces precise boundary representations. Previously, we used dot localization to measure precision and accuracy of perceived boundaries for partially occluded objects with divergent local and global symmetry completions. Results revealed that local contour interpolation produces precise, accurate, and consistent representations, but responses based on symmetry do not. Here we extend the approach to completion based on familiarity or regularity. In two experiments, participants completed familiar logos (i.e. Apple, Pepsi, Playboy, Puma brands) or objects with regularly alternating borders either locally or globally. On each trial, a dot flashed on the occluder, and participants reported the dot's location relative to the occluded boundary. Interleaved, 2-up, 1-down adaptive staircases estimated points on the psychometric function where the probability was .707 the dot would be seen as inside or outside the occluded object. Results support a clear distinction between local contour interpolation processes and global processes based on recognition from partial information.

[IP069] Task-dependent effect of similarity grouping and proximity on visual working memory

Jiehui Qian and Shengxi Liu

Department of Psychology, Sun Yat-Sen University

The visual working memory (VWM) is responsible for temporarily holding, processing, and manipulating visual information. Research suggests VWM is facilitated by Gestalt grouping principles, e.g., proximity and similarity, but it remains unclear how these factors interact with task. This study employed a pre-cued change detection paradigm to investigate the effect of task, proximity, and similarity grouping (SG) by color and shape. The memory array consisted of a 2 x 3 array of colored items, each being a circle or a triangle, following a cue presented at one item location. After a blank interval, a test item was presented at one of the locations: cued, near-cue, or far-from-cue. The test item in the latter two conditions shared the color, the shape or neither feature with the cued item. The participants performed different tasks, judging whether the color, the shape or either had changed for the test location. The results show that: 1) color SG greatly benefits the capacity of VWM regardless of task and cue-test distance; 2) shape SG does not seem to affect VWM; 3) proximity benefit VWM for the shape judgment but not for color. These suggest that features may differ in grouping effectiveness and the effects are task-dependent.