

日時:2月22日(火)午後4時—5時30分

場所:人間・環境学研究科棟233室

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タイトル

Speed limits on following objects with attention and the perception of spatial relations.

アブストラクト

In visual scenes, object motion is common. But few studies have investigated motion's effect on the perception of arbitrary spatial relationships, such as whether a red object in the scene is adjacent to the blue object. One theory of perceiving spatial relations is that a shift of attentional selection from one object to another is required to apprehend their spatial relationship. This theory predicts that when objects move too fast to follow with attention, judgments of their spatial relationships will fail. To test this, we used a display of two concentric rings of colored blobs, all revolving about fixation. Both below and above the tracking limit, observers could accurately judge their colors and also make a global alignment judgement, indicating that the arrangement of the colors was available to non-attentive texture segmentation mechanisms. However, for blob speeds above the tracking limit, participants were unable to judge which colors were adjacent to each other. A second prediction of the attention-shift theory is that at intermediate speeds, attention might occasionally miss its target and land on the blob trailing it in the moving array. This predicts a characteristic reversal of error pattern, depending on which blob is selected first. We cued attention and found the predicted reversal. In addition to the practical importance of this severe limit on perceiving the spatial relationship of moving objects, the validation of the attention-shift theory lends support to serial (as opposed to parallel) theories of high-level visual processing. Given the evident importance of attentional tracking to perception of spatial relations, we further investigated its speed limits. We found that the speed limit for tracking two objects simultaneously was much slower than for tracking one. Indeed, performance was so poor at high speeds that it was similar to that predicted if participants could only track one, and were forced to guess at the other.