

Biological Vision and Applications

Module 05-05: Attention: Miscellaneous topics

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Evaluation

Dynamic: Compare predicted gaze movement with actual human eye movement



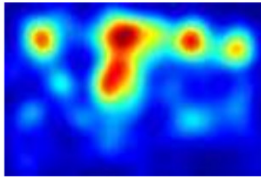
Human fixations:
1 - 2 - 4 - 5 - 3 - 6

Predicted fixations:
1 - 3 - 6 - 2 - 4 - 5

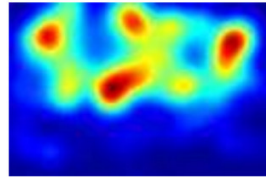
What is the distance between the two sequences ?

Evaluation

Static: Compare predicted attention heatmap with actual human attention heatmap



Experimental Heatmap
 $H(x, y)$



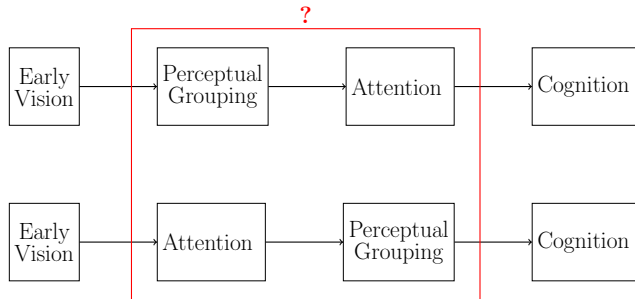
Predicted saliency
 $S(x, y)$

How are the values $H(x, y)$ and $S(x, y)$ correlated ?

Pearson Linear Correlation Coefficient (PLCC)

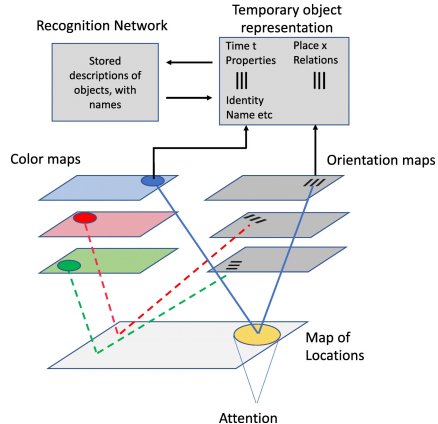
Which one first? Perceptual Grouping or Attention

Is perceptual grouping a pre-attentive or post-attentive phenomenon ?



Is attention needed for perceptual grouping ?

Recap: Treisman's feature integration theory



Suggests that attention is needed for perceptual grouping

Is attention needed for perceptual grouping ?

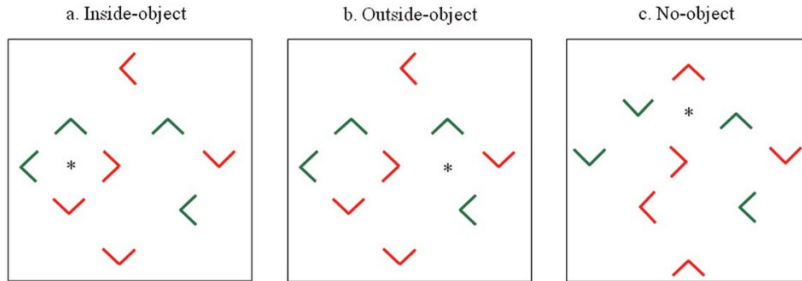
Experiment

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o + o

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Attention is needed for perceptual grouping (similarity, proximity, etc.)

Does Perceptual Grouping affect Attention ?

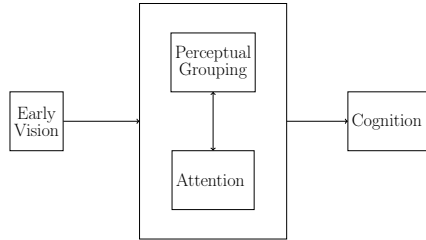


Perceptual grouping (by closure) affects attention

Objects are formed with perceptual grouping; objects draw attention

Perceptual Grouping vs. Attention

Summary



Perceptual Grouping and Attention complement each other.

Some form of perceptual grouping happens pre-attentively, some needs attention.

EdPuzzle: Visual attention (advanced topics)

No quiz for module 05-05

End of Module 05-05