Lecture Outline 11 (Attention, Perception & Selection)  

1. What is Attention?
   a. “Everyone knows what attention is. It is the taking possession by the mind in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought...It implies withdrawal from some things in order to deal effectively with others, and is a condition which has a real opposite in the confused, dazed, scatterbrained state.” (William James, Principles of Psychology, p. 403)
   b. “Focused processing over a subset of information.” (Tse, Seidenberg & Logothetis, Psychological Science, 2003)
   c. Selective Attention
      i. Dichotic listening task
   d. Divided Attention
      i. Similar to multitasking
      ii. Strayer & Johnston (2001)

2. Spatial Attention
   a. Posner’s Spatial Cuing Task

![Dichotic Listening Task Diagram]

![Spatial Cuing Task Diagram]
b. Peripheral Cue
   i. Valid Cue / Cued target
   ii. Invalid Cue / Uncued target
   iii. *Exogenous* Shift in Attention

c. Symbolic cue
   i. Valid Cue / Cued target
   ii. Invalid Cue / Uncued target
   iii. *Endogenous* Shift in Attention

d. Cuing effects
   i. Response facilitation
   ii. *Inhibition of return* (IOR)
   iii. *Time course for peripheral vs. symbolic cues*
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e. Why?
   i. Channel enhancement

   ii. Channel selection

   iii. Spotlight metaphor of attention

f. Gaze Cuing

3. Object-Based Attention
   a. Duncan (1984): Do you select whole object, or only part being focused on?
b. Egly, Driver & Rafal (1994)

4. Visual Search
   a. How attention selects among many items in the visual field
   b. Factors varied:
      i. Target (present vs. absent)
      ii. Distractors
      iii. Set Size
   c. RT x Set Size Slope
   d. Feature search
   e. Conjunction search
   f. Configuration search
   g. Parallel Search vs. Serial Search
   h. Feature Integration Theory
      i. Binding problem and Illusory Conjunctions
      ii. Preattentive stage
      iii. Feature Maps
iv. Conjunction Maps

v. Attentive Stage

i. Feature Integration Theory and Visual Search Predictions?

5. Physiology and Attention
   a. Inattention is rare
   
   b. Visual-hemifield defects
      
      i. Ipsilateral hemisphere
      ii. Ipsilesional visual hemifield
      iii. Contralateral hemisphere
      iv. Contralesional visual hemifield
c. Visual neglect
   i. Line bisection task

d. Visual extinction

e. Moran and Desimone (1985)
   i. Resting Rate of V4 neuron
   ii. Attend to whole RF
   iii. Attend to preferred stimulus
   iv. Attend to non-preferred stimulus