

Varieties of Attention

- Selective Attention
- Divided Attention
- Focused/Sustained Attention
- Mental Workload
- Practice
- Executive Attention
- Working Memory



Selective Attention

- Constant bombarded by stimuli
 - Limited capacity -- Stimulus overload
- Selective attention refers to the selective processing of task relevant information and the successfully ignoring irrelevant info.
- Facilitatory and Inhibitory mechanisms



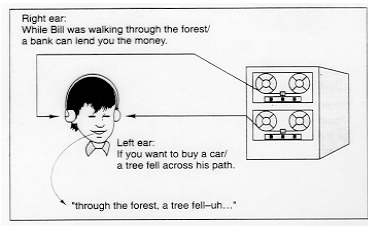
Sensory Overload



Overload



Selective Attention

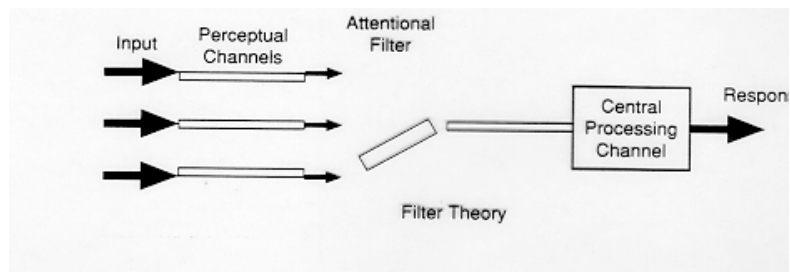


- Dichotic listening studies
- What is processed in unattended message?

Selective Attention

- What is processed in unattended message?
- Unaware of German
- Unaware of backwards message
- Could detect different voices (male vs female)

Broadbent's Filter Theory



Filter Theory



- Broadbent's filter theory
- Everything but gross physical features of unattended message are filtered out.
- But studies showed some semantic material was processed

Problems for Filter Theory

- Message 1 Message 2
GREEN MARK
EGGS BACK
FINE AND
RICE HAM
- Subjects occasionally reported
"green eggs and ham"
- This shouldn't happen if message 2 were completely filtered out.

Problems (cont.)

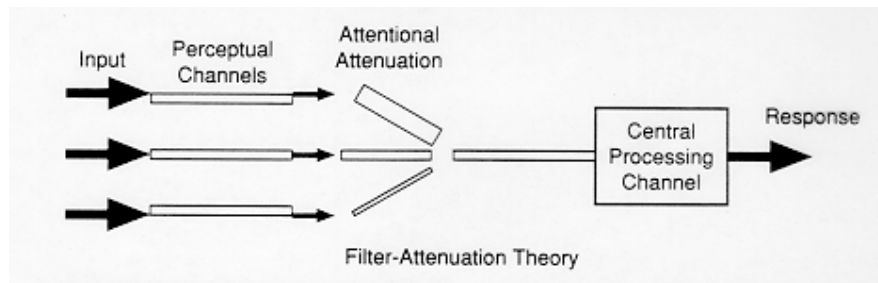
- Additional Evidence:
 - Subjects detected their own names
 - Message 2 was "river" or "money", altering the way subjects interpreted



"He threw rocks towards the bank"




Triesman's Attenuation Theory


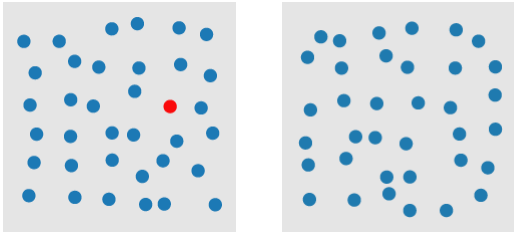


Filter Attenuation Theory

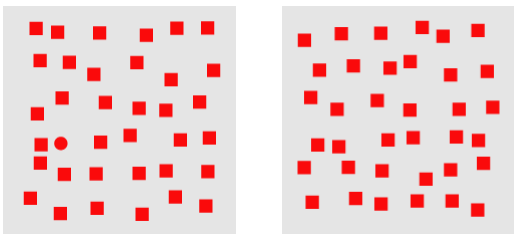
- Triesman's Filter Attenuation Theory
- Unattended message isn't completely filtered out, but is attenuated
- Pertinent info from message 2 is sometimes processed



Feature Search

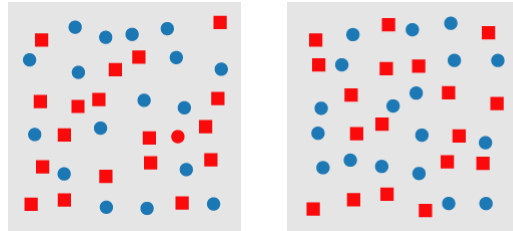


Feature Search

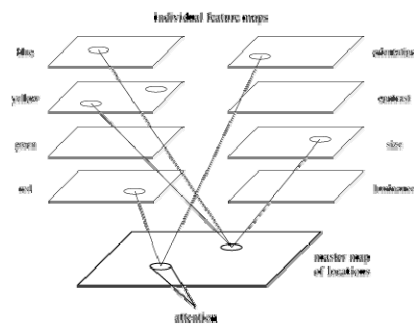




Conjunction Search

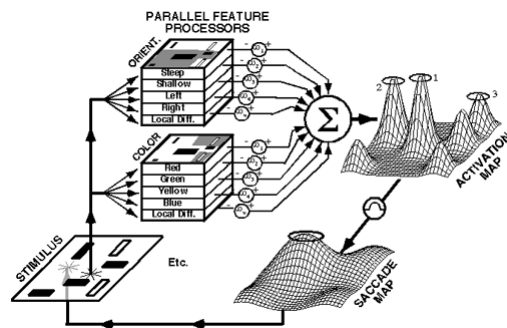


Feature Integration Theory



Attention binds features together

Guided Search



Attention binds features together

Selective Attention



- Simons' demonstrations
- Stroop color-word task
- Space vs. object-based attention
- Covert vs. overt attention

Stroop Task



Blue Red Brown
Black Green Green Blue Yellow
Brown Green
Yellow Red Black
Blue Black Red Yellow Brown
Red Green Yellow Black
Brown Blue Black

Stroop Task



Blue Red Brown
Black Green Green Blue Yellow
Brown Green
Yellow Red Black
Blue Black Red Yellow Brown
Red Green Yellow Black
Brown Blue Black

Stroop Task



Red

Red

Green

Green

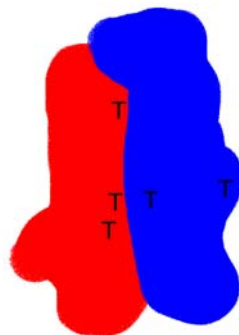
Yellow

Yellow

Blue

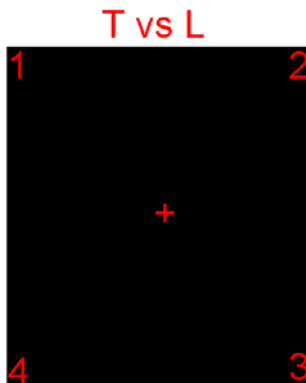
Blue

Space, Object, and Action-based Attention



- Space-based effects
- Object-based effects
- Action-based effects

Covert vs. Overt Attention



- Fixate on + (no eye movements)
- Report if T or L is presented
- Central cue (1, 2, 3, 4 or #)
- Valid cues
- Invalid cues
- What should performance look like if:
 - Overt attention?
 - Covert attention?