

Lecture 5: Attention

Dr. Tony Lambert

Reading:

UoA text, Chapter 5, *Sensation and Perception*

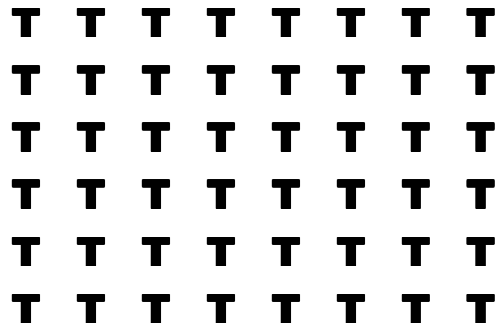
(especially pp. 151-159)

Attention

- At any instant a myriad of stimuli arrive at our sensory receptors
- Competition for attention

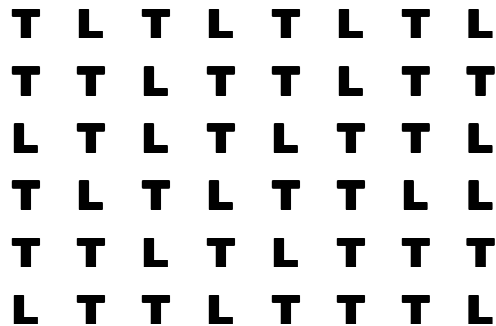
What grabs attention?

On the next slide, locate the red T



What grabs attention?

On the next slide, locate the red T
(Again)



What grabs attention?

- Objects that differ from the background in terms of one simple feature 'pop-out'
- Objects that differ from the background in terms of more than one feature do **not** pop out

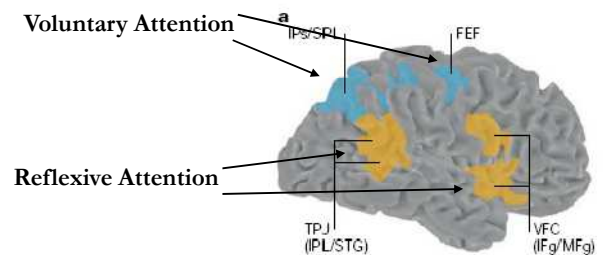
Two kinds of attention

- Reflexive attention vs. voluntary attention
- Brain networks for shifting attention
 - The fronto-parietal attention network

Fronto-parietal attention network

- Voluntary attention
 - Both hemispheres
 - Superior frontal cortex and parietal cortex
- Reflexive attention
 - Lateralised to right hemisphere
 - Inferior frontal cortex & junction of parietal and temporal cortex

Fronto-parietal attention network



Perception without awareness

- Blindsight
- Lesion in occipital lobe – primary visual cortex - V1
- Cortical blindness

Blindsight

- Term introduced by L. Weiskrantz
 - Patients: DB & GY
- Forced choice responding
- Can discriminate line orientation in 'blind' field
- Can discriminate striped patterns from grey patches

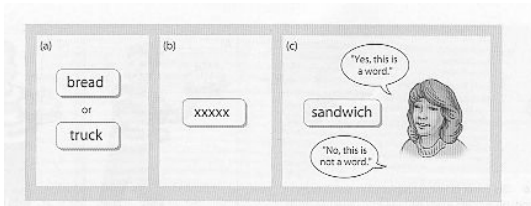
Blindsight

- Good performance – but participant insists that he sees nothing.
- Responses are *pure* guesswork

Perception without awareness

- Subliminal perception & the semantic priming effect
- Marcel's studies
 - Pattern masking

Marcel's experiments



- Problems of replication

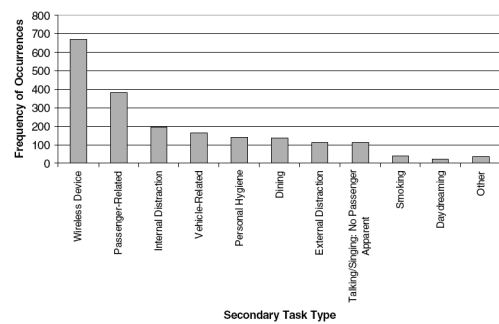
Forms of transient blindness

- Change blindness

Forms of transient blindness

- Inattention blindness

Crash liability & inattention



Attention & conscious perception

- *“Attention provides the key that unlocks the gate dividing unconscious perception ... from conscious perception.”*
- *Without this key there simply is no awareness of the stimulus.”*
- Mack and Rock 1998

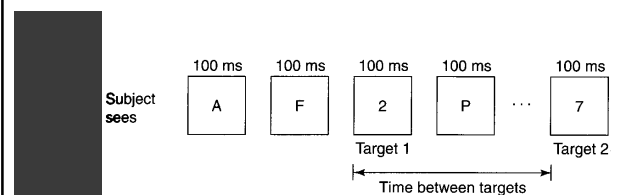
Forms of transient blindness

Repetition blindness and the attentional blink

The attentional blink

- RSVP (rapid serial visual presentation) technique
- Sequence of 10-20 items presented for 100ms each
- Look for numbers in the rapid sequence

The attentional blink



The attentional blink

- Second target is often not seen if it follows the first within about 500ms
- Detection of first target – obligatory capture of attentional resources for about 500ms

Summing Up

- Two forms of attention
 - The fronto-parietal attention network
- Is perception without awareness possible?
 - Blindsight
 - Subliminal & semantic priming
- In the absence of attention, perception can fail in surprising ways