

Module:
Psychological Foundations of Mental Health

Week 2:
Cognitive Processes and Representations



Dr Charlotte Russell

Topic 2:
Attention
Part 2 of 2

What happens to items that are not selected by attention? (1)

What happens to items we
do not pay attention to?

They are filtered out

**Inattention Blindness Versus
Inattention Amnesia for
Fixated But Ignored Words**

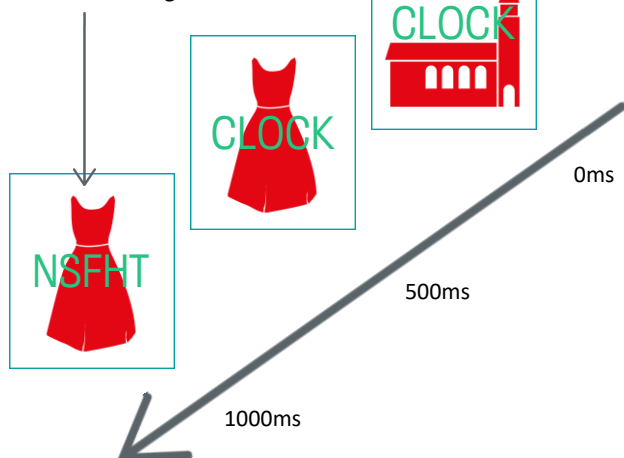
Geraint Rees,^{1,2*} Charlotte Russell,² Christopher D. Frith,^{1*}
Jon Driver²

People often are unable to report the content of ignored information, but it is unknown whether this reflects a complete failure to perceive it (inattention blindness) or merely that it is quickly forgotten (inattention amnesia). Here, functional imaging is used to address this issue by measuring brain activity for unattended words when attention is fully engaged with other material, the brain no longer differentiates between meaningful words and random letters, even when they are looked at directly. These results demonstrate how inattention blindness for words and how that visual information being processed on attention even for highly familiar and meaningful stimuli at the center of gaze.

The extent of processing for unattended objects has been debated for over four decades (1). Recognition of unattended words is considered a crucial test case (2-3), because for these visual stimuli the processing of higher-order cognitive properties such as identity and meaning can be dissociated from more

stimulus processing for meaningful familiar stimuli such as ignored words. Moreover, existing brain imaging data suggest that unattended processing may be attenuated rather than completely eliminated at early levels of processing, so processing of an unattended stimulus will only proceed through to higher levels beyond a multiplicative threshold of attention. This confirms that our manipulation of attention was psychologically effective and agrees with previous findings that people cannot recognize the identity of unattended stimuli introspectively (17). First we compared brain activations when participants were attending to the picture stream versus the letter stream (overall (18). This stream was identical for these conditions.

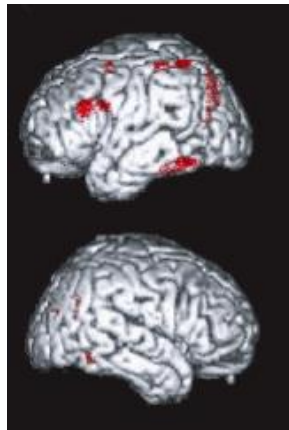
Picture stream target



Rees, Russell, Frith & Driver (1999)

What happens to items that are not selected by attention? (2)

When attending to real words (green letter stream):



Activity in left hemisphere

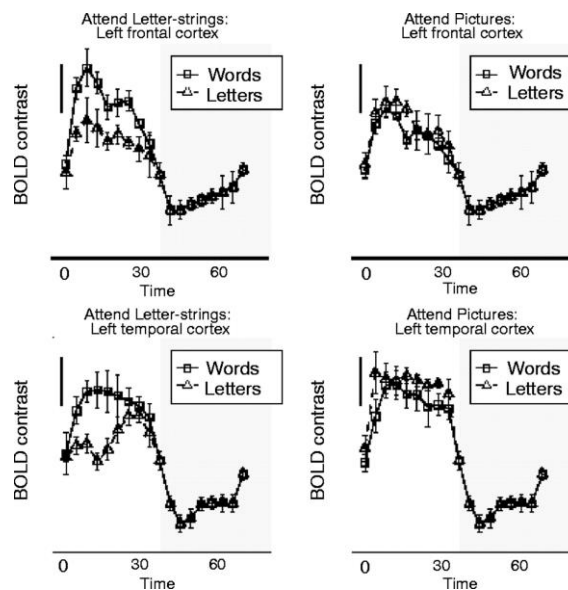


Minimal activity in right hemisphere

Rees, Russel, Frith & Driver (1999)

What happens to items that are not selected by attention? (3)

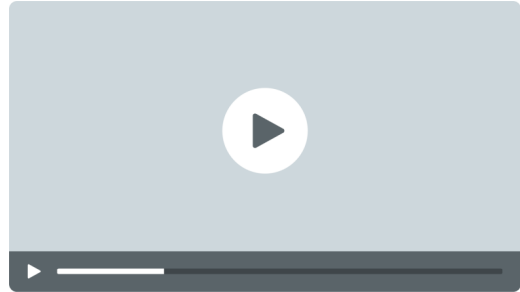
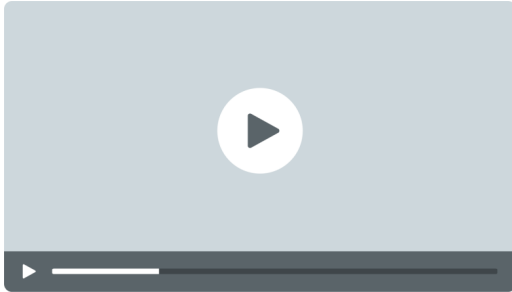
When letter stream is not attended, no word-related processing takes place.



Rees, Russel, Frith & Driver (1999)

Inattentional and Change Blindness

After you have listened to the voice-over, please have a look at the examples below.



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Attention in the brain (1)

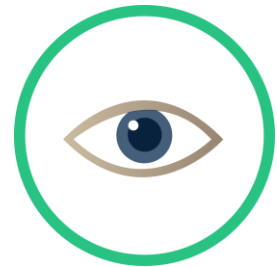
Using PET to study sustained attention

Paying attention to the same item for a sustained period of time

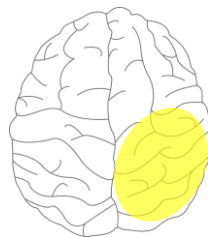
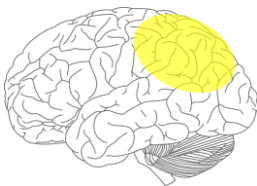
The neural effects of sustaining attention over time



Tactile



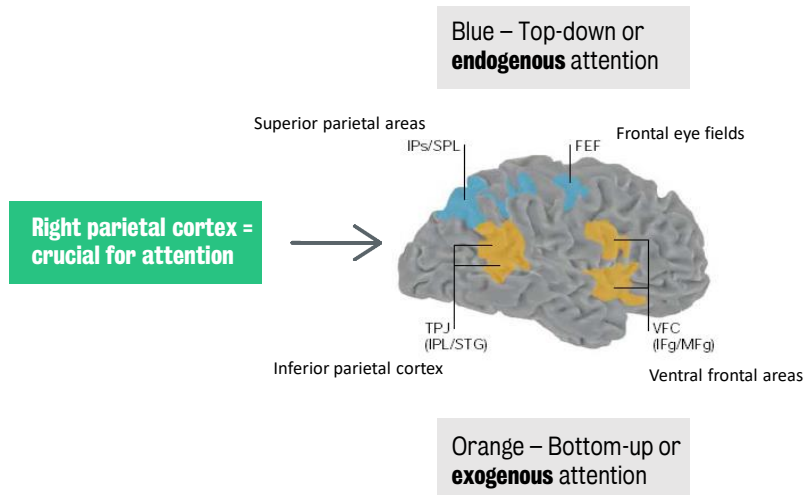
Visual



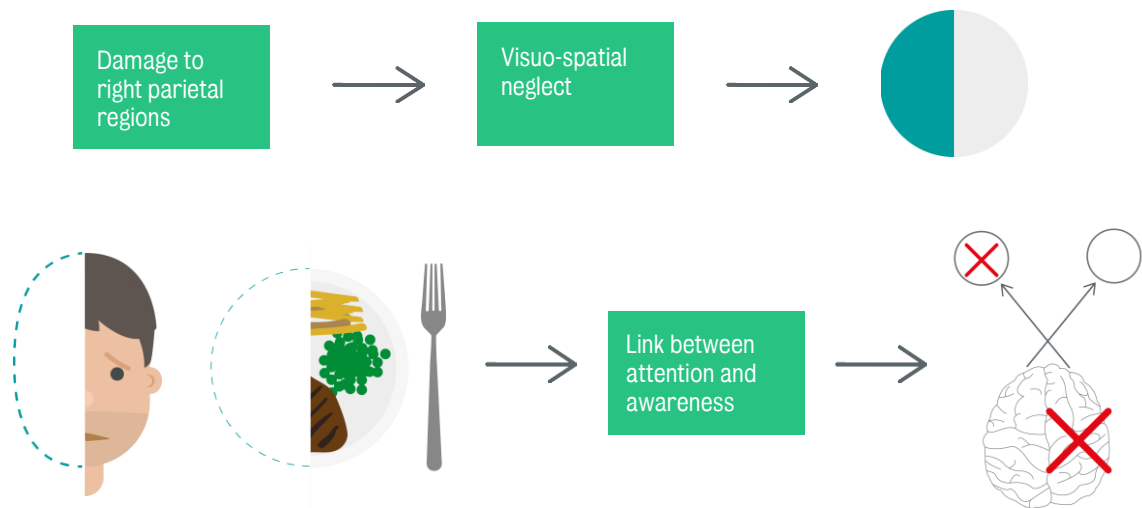
Right parietal cortex crucial in sustaining attention across time.

Pardo, Fox & Raichle (1991)

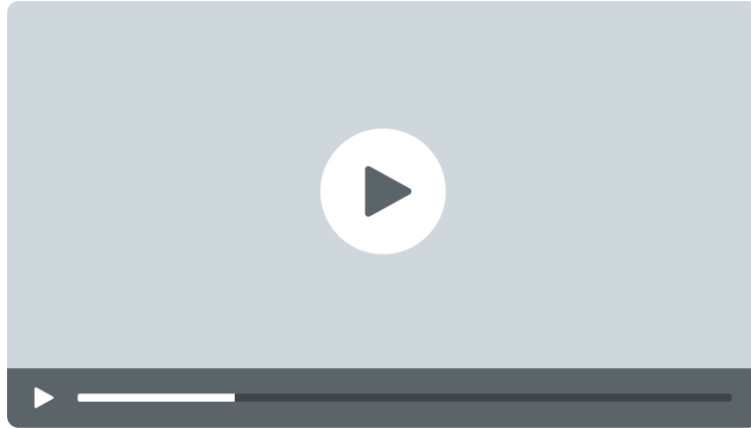
Attention in the brain (2)



What happens when the parts of the brain involved in attention allocation are damaged?



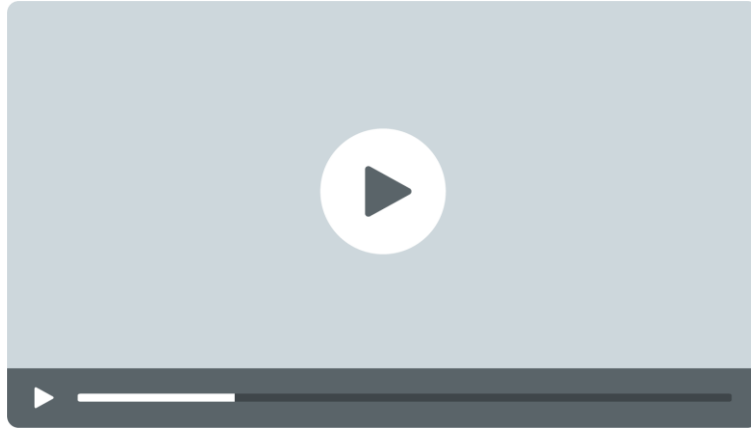
Neglect – Tasks

Click [Next](#) to continue

Cancellation tasks (1)

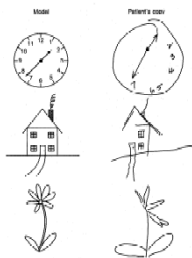


Cancellation tasks (2)

Click [Next](#) to continue

Neglect - Drawing

Copying:



Spontaneous drawing:



Representational Neglect



Week 2 Cognitive processes & representations

Topic 2: Attention

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Visuo-spatial neglect: Unconscious processing

Which of these houses would you live in?



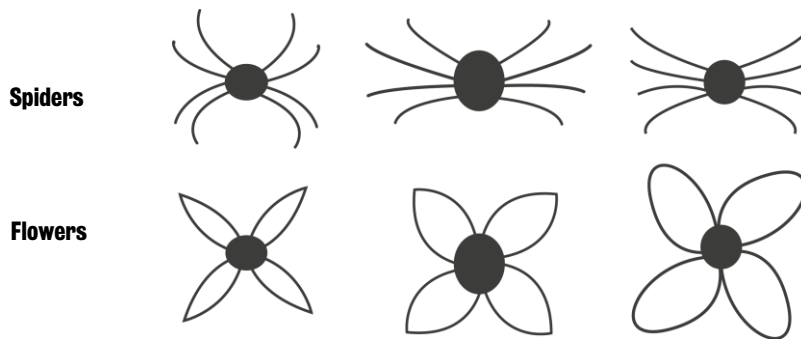
Marshall & Halligan (1995)

Week 2 Cognitive processes & representations

Topic 2: Attention

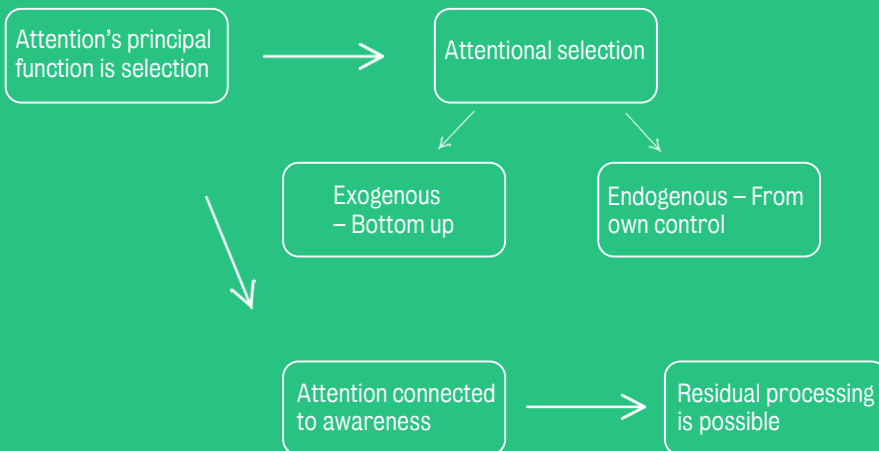
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Implicit contralesional processing for emotional stimuli



Vuilleumier & Schwartz (2001)

Conclusion



References

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