Probing the neural basis of the serial bottleneck in visual word recognition
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Question
We found that a serial bottleneck constrains word recognition: observers can recognize only one of two words in a brief masked display. [1]

Where in the brain is that bottleneck?

Hypotheses: (1) early visual cortex; (2) "visual word form areas" (VWFA) in ventral occipito-temporal cortex [2]; (3) downstream areas.

References

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Approach
• On each trial, the observer views a masked pair of words and reports the semantic category of one that is post-cued.

• (Focal cue trials): the relevant word is pre-cued. Distributed cue trials: either word could be relevant.

• Signature of the bottleneck: smaller fMRI responses when attention is divided than focused.

Conclusions
• No sign of the bottleneck – or any capacity limit – in early visual cortex or word-selective areas.

• The results are consistent with the bottleneck lying downstream of the VWFA.

Discussion
• Potential downstream areas: Broca’s area; IPS.

• A selective attention effect in any particular brain area does not imply a capacity limit there.

References

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