How serial is serial processing in vision?

By zroth
Created 7/4/2011
By zroth July 4, 2011


Abstract:

Visual search for an element defined by the conjunction of its colour and orientation has previously been shown to be a serial processing task since reaction times increase linearly with the number of distractor elements used in the display. Evidence is presented that there are parallel processing constituents to this serial search. Processing time depended on the ratio of the number of the two distractor types used, suggesting that only one type was scanned. Which type was scanned also depended on the distractor ratio, indicating that this decision was made after stimulus presentation and was based on a parallel figure-ground separation of the stimulus elements. Furthermore, in accordance with this serial scanning model, there was an increase in processing speed (elements scanned per second) with increase in number of elements to be scanned. This increased efficiency suggests that clumps of elements were processed synchronously. Under the stimulation conditions used, clumps contained six to sixteen elements and each clump was processed in 50-150 ms.

Journal:
Perception

Volume:
18

Pagination:
191?200

Notes:

{PMID:} 2771604
Our Int'l Ph.D. program provides outstanding students with top-notch courses in computational neuroscience.

[read more]

The Building

The Jerusalem Brain Sciences Building will provide a state-of-the-art research and teaching facility for the Edmond and Lily Safra Center for Brain Sciences.

[read more]

ELSC Media Channel

Get into our media channel and investigate ELSC's latest videos: seminars, public lectures, courses and video articles.

[read more]

Source URL: https://elsc.huji.ac.il/zohary/publications/how-serial-serial-processing-vision