ELSC Seminar: Yoni Pertzov - Apr. 20th, 2017 at 17:00

April 20, 2017

Immediate forgetting and binding in visual working memory, theory and practice

ELSC cordially invites you to the lecture given by:

Yoni Pertzov
Psychology Department, The Hebrew University of Jerusalem

On the topic of:

"Immediate forgetting and binding in visual working memory, theory and practice"

The lecture will be held on Thursday April 20th, 2017 at 17:00

at ELSC: Silberman Bldg., 3rd Wing, 6th Floor,

Edmond J. Safra Campus

Light refreshments served at 16:45

Abstract:
Forgetting influences many aspects of cognitive function in everyday life, but in spite of its significance, the underlying mechanisms remain unclear. It has been suggested that when objects are forgotten they are lost as a whole, without leaving any trace. To study the validity of this claim we used several memory tasks with a continuous analogue scale of reporting with difficult-to-verbalize stimuli and variable delays. Analysis of the distribution of errors made by healthy participants showed that, contrary to the claim above, items are not only forgotten as a whole but the binding between their different features is especially fragile to increased retention intervals. Binding errors were specifically elevated in patients with hippocampal impairment and in pre-symptomatic carriers of an autosomal dominant gene which gives 100% risk of developing Alzheimer’s disease. These findings offer an insight into the early cognitive deficits associated with Alzheimer’s disease and strengthen the claim that the hippocampus is necessary for maintaining associative information across short retention intervals, challenging traditional accounts of hippocampal function as exclusively involved in long term memory. Moreover, immediate forgetting and binding errors may therefore provide a sensitive cognitive marker for early hippocampal dysfunction in Alzheimer’s disease, evident much earlier than traditional behavioral symptoms.

We continued by exploring the factors that influence immediate forgetting. More items in memory lead to faster forgetting slopes, and this enhanced forgetting was counterbalanced by retrospective attention cues. Interestingly, increased level of attention during encoding increases the overall precision of recall, but does not lead to slower forgetting. Thus, forgetting rate seems to be independent of memory precision.

Finally, I will show data indicating that familiar items are encoded more efficiently into visual working memory. Then I will demonstrate how these differences in encoding efficiency could be used to reveal concealed information when subjects try to obscure their familiarity with their friends.

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