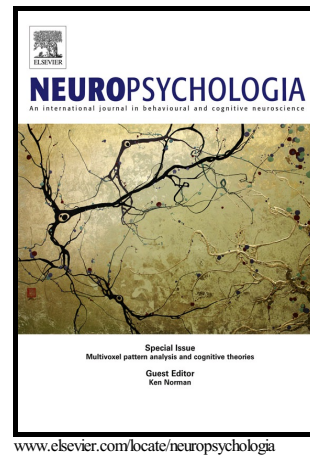


# Author's Accepted Manuscript

Distinguishing the precision of spatial recollection from its success: Evidence from healthy aging and unilateral mesial temporal lobe resection

Aneesha S. Nilakantan, Donna J. Bridge, Stephen Van Haerents, Joel L. Voss



PII: S0028-3932(18)30426-3  
DOI: <https://doi.org/10.1016/j.neuropsychologia.2018.07.035>  
Reference: NSY6871

To appear in: *Neuropsychologia*

Received date: 20 March 2018  
Revised date: 23 July 2018  
Accepted date: 31 July 2018

Cite this article as: Aneesha S. Nilakantan, Donna J. Bridge, Stephen Van Haerents and Joel L. Voss, Distinguishing the precision of spatial recollection from its success: Evidence from healthy aging and unilateral mesial temporal lobe resection, *Neuropsychologia*, <https://doi.org/10.1016/j.neuropsychologia.2018.07.035>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Distinguishing the precision of spatial recollection from its success: Evidence from healthy aging and unilateral mesial temporal lobe resection

Aneesha S. Nilakantan<sup>a\*</sup>, Donna J. Bridge<sup>a</sup>, Stephen VanHaerents<sup>b</sup>, Joel L. Voss<sup>ab</sup>

<sup>a</sup>Department of Medical Social Sciences and Interdepartmental Neuroscience Program, Feinberg School of Medicine, Northwestern University, Chicago IL 60611 USA

<sup>b</sup>Ken and Ruth Davee Department of Neurology, Feinberg School of Medicine, Northwestern University, Chicago IL 60611 USA

\*Corresponding author: 303 E Chicago Ave. Ward Building 19<sup>th</sup> floor, Chicago IL 60611 USA.  
aneeshan@u.northwestern.edu

### **Abstract:**

Successful episodic recollection can vary in the precision of the information recalled. The hypothesis that recollection precision requires functional neuroanatomical contributions distinct from those required for recollection success remains controversial. Some findings in individuals with hippocampal lesions have indicated that precision is dependent on the hippocampus. However, other neuroimaging and lesion studies have implicated regions outside of the mesial temporal lobe (MTL) in precision, such as parietal cortex. To further elucidate distinctions of recollection precision versus success, we examined whether they were differentially sensitive to aging and to unilateral MTL lesions. Precision and success were measured using a novel task that required memory for item-location associations across different spatial contexts. We found impairments in recollection precision, but not success, in older adults (59-80 years) relative to younger adults (18-33 years). Recollection precision was also selectively impaired in individuals with unilateral MTL resections made to treat refractory epilepsy. Moreover, recollection precision was significantly worse when resections included the hippocampus compared to when only non-hippocampal MTL tissue was resected. These findings suggest that the MTL is critically involved in the high-resolution binding required to support spatial recollection precision, and thus provide evidence for functional neuroanatomical differences between recollection success and precision.

**Keywords:** graded recollection, familiarity, context, memory impairment

### **1. Introduction**

Episodic recollection is the retrieval of an event comprised of arbitrary and complex associations among individual features (Yonelinas, 2002). Recollection has typically been conceptualized as an all-or-none experience, such that individuals can either be successful or unsuccessful at recollecting an event. This is often contrasted with familiarity-based recognition, in which memory for single items can vary in strength without specific recall of event associative information (Eichenbaum, Yonelinas, & Ranganath, 2007; Yonelinas, Aly, Wang, & Koen, 2010). However, even when recollection is successful, the quality of the information that is retrieved can vary (Berryhill, Phuong, Picasso, Cabeza, & Olson, 2007; Harlow & Donaldson, 2013; Harlow & Yonelinas, 2016; Jeye, Karanian, & Slotnick, 2016; Parks, Murray, Elfman, & Yonelinas, 2011; Wilding, 2000), with highly precise and detailed memory in some cases (e.g., “the bus stop was on the left side of the street, four blocks ahead of the first stop sign”) and more general memory in others (e.g., “the bus stop was on the left side of the street”). Most studies have used paired-associative memory tests, source memory tests, or remember-know paradigms to measure recollection success, but have not objectively assessed varying levels of

Download English Version:

<https://daneshyari.com/en/article/7317098>

Download Persian Version:

<https://daneshyari.com/article/7317098>

[Daneshyari.com](https://daneshyari.com)