

Ins and Outs of Episodic Memory: Recall and Reconstruction

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1. *The Storage View*

For a long time, philosophers took memory of one's past life to be something like a replaying of experiences. John Locke's influential account of personal identity in terms of 'extension of consciousness' appears to be founded upon the assumption that memory is some sort of storage capacity from which we can retrieve the ideas of past experiences and bring them again into the theatre of consciousness. Call this the Storage View. Direct cortical stimulation in certain neurosurgical procedures at one time appeared to corroborate the Storage View (Penfield 1952). Even from an a priori perspective, however, the Storage View must be deemed implausible, with its postulation of a massive, inert lumber-room of experience records. Empirically, psychological evidence makes it clear that the Storage View is not tenable as a general account of the mechanism of episodic memory.

2. *Memory as Tethered Reconstruction*

Experimentally manipulable misremembering, including the inducement of completely false memories (Loftus 1996, 1997), is part of the evidence that has persuaded psychologists (starting with Bartlett 1932) that episodic memory is largely a matter of reconstruction. The dominant contemporary view is that episodic memory is scenario construction using simulations built around a memory trace. This view we label *Tethered Reconstruction*. It is clearly an improvement upon the Storage View. Perhaps its greatest advantage is that it does not take memory (and need not take perception itself) to be passive retention of input. But there are a number of problems.

3. *Problems for Tethered Reconstruction*

3.1 What is the nature of the memory trace? Does it turn out that there is some truth in Storage, after all? Is there a kernel to episodic memory which is true autobiographical recall?

3.2 Is episodic memory always the same sort of mixture? Or is there variation both inter-personally (as suggested by autistic memory *savants*) and intra-personally (as in incidents which come back to us in vivid detail, compared with those which are remembered only with cognitive effort)?

3.3 Tethered reconstruction represents episodic memory as, in part, ‘imagining the past’ (Hopkins; Schacter et al. 2012). But note that even *occurrent* perception involves feed-back as well as feed-forward cortical processing (predictive processing works outwards on an incoming sensory stream; see Petro et al. 2014; Petro & Muckli 2016). Does it make it easier to understand episodic memory as reconstruction if it is taken as re-running the past application of internally generated ‘mental models’? Can this explanation account for induced false memories?

4. *Suggested Solutions*

4.1 We suggest that stored internal models may provide the ‘kernel’ to which imaginative reconstructions are tethered. Since internal models are models of an organism’s interactions with its environment, this would provide a basis for the ‘autonoetic’ character of episodic memory experience (Tulving 1985).

4.2 There is considerable scope for both interpersonal and intrapersonal variation in the composition of episodic memory. The stored internal model may be more or less precise, and the reconstructive element may be more or less richly imagined. Thus, in our metaphor, both the ‘length’ and ‘strength’ of the tether can vary.

4.3 The Tethered Reconstruction hypothesis allows us to maintain a theoretical distinction between ‘false’ and ‘genuine’ episodic memories that respects a causal constraint on memory: imaginative reconstructions of events one did not in fact witness are tethered to an induced internal model, whereas imaginative reconstructions of events one *did* witness are tethered to an internal model generated at the time of the event.

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