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Causal coherence improves episodic memory of dynamic events

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Abstract

“Episodes” in memory are formed by the experience of dynamic events that unfold over time. However, just because a series of events unfolds sequentially does not mean that its constituents are related. Sequences can have a high degree of causal coherence, each event connecting to the next through a cause-and-effect relationship, or be a fragmented series of unrelated occurrences. Are causally coherent events remembered better? We used dynamic stimuli showing unfamiliar events to test the effect of causal structure on episodic recall in a cued memory task. Experiment 1 found that the order of causally coherent sequences of events is better remembered than that of fragmented events. Experiment 2 showed that recall of causally relevant details of coherent stimuli is superior to recall of details in fragmented sequences. These findings demonstrate that the episodic memory system is sensitive to the causal structure of events and suggest coherence usually improves recall.