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Time Course of Fidelity and Contributing Factors to Long-Term Memory

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Abstract: Various models have been implemented to explain long-term memory (Brady, et al., 2013; Lew, et al., 2015), with some being derived from studies of visual working memory (Bays, et al. 2009; Zhang & Luck, 2008). The implicit assumption is that processes and mechanisms of working memory also exist in long-term memory. However, the findings of fidelity and contributing factors are highly varied (e.g., Persaud & Hemmer, 2014; Schurgin & Flombaum, 2015) To address what happens to memory traces as they transition from visual working into long-term memory and what factors, such as prior knowledge and guessing, contribute to the “lifespan” of long-term memory, we implemented three models: the standard remember-guess model, a three-component remember-guess model, and a Bayesian mixture model and evaluated these models against data from a continuous recall task. The results clarify the time course of fidelity in long-term memory and pinpoints specific factors that contribute to memory.