

Pilot Experiment: Paradigm Evaluation

1.1 Method

This pilot was designed as a manipulation check to confirm that, in comparison to the episodic cueing task used in our prior study (Palombo, Keane, & Verfaellie, 2015), the semantic cueing task in the present study relied more strongly on semantic, as oppose to episodic, processes.

1.11 Participants. We recruited a group of twelve healthy control participants (5 women) who were matched to the patient group in age (56.4 ± 8.8 years), education (16.1 ± 2.0 years) and verbal IQ (108.8 ± 12.5)¹. All participants provided informed consent in accordance with the procedures of the VA Boston Healthcare System Institutional Review Board.

1.12 Materials and Procedure. Healthy controls were asked to complete only the cueing portion of the semantic and episodic paradigms (i.e., there was no intertemporal choice phase). As in experiment 1, for semantic cues, participants were asked to think about what items they would purchase given the amount and delay provided. The episodic cueing procedure was identical to that used in Palombo et al. (2015), such that participants were given a scenario and were asked to imagine themselves spending money in a specific event (e.g., “imagine how you would spend \$34 at a street fair in 6 months”; scenarios were selected based on participants’ preferences endorsed during a pre-session as in Palombo et al., 2015). Participants completed probes over the course of 36 trials (18 semantic; 18 episodic), with each probe type (semantic, episodic) randomly assigned to the delays and rewards. Trials were presented in random order. After

¹ One participant from the pilot had also previously participated in experiment 1.

completing each probe, whether semantic or episodic, participants were asked: “What did you picture in your mind?” Participants selected among three choices: (1) nothing (i.e., either nothing or only a vague image was pictured); (2) objects but not a scene (i.e., individual items or objects were pictured in isolation but not as part of a scene); (3) a scene/scenario (i.e., an entire layout was pictured, including objects; the image could be static or dynamic, such as in an unfolding scenario). We hypothesized that episodic cueing would preferentially elicit images of scenes or scenarios, whereas semantic cueing would preferentially elicit images of objects but without an accompanying scene/scenario. Participants were first given practice trials to familiarize themselves with the materials and procedure.

1.2 Results

Experiment 1 demonstrated that participants engaged in different processes while performing the semantic and episodic cueing tasks. More specifically, the semantic condition elicited a greater proportion of “object” ratings relative to the episodic condition ($t_{11} = 7.85, p < .0001$), whereas the episodic condition elicited a greater proportion of “scene” ratings relative to the semantic condition ($t_{11} = 8.09, p < .0001$; Figure S1).

References

Palombo, D. J., Keane, M. M., & Verfaellie, M. (2015). The medial temporal lobes are critical for reward-based decision making under conditions that promote episodic future thinking. *Hippocampus*, 25, 345-353.

Figure S1.

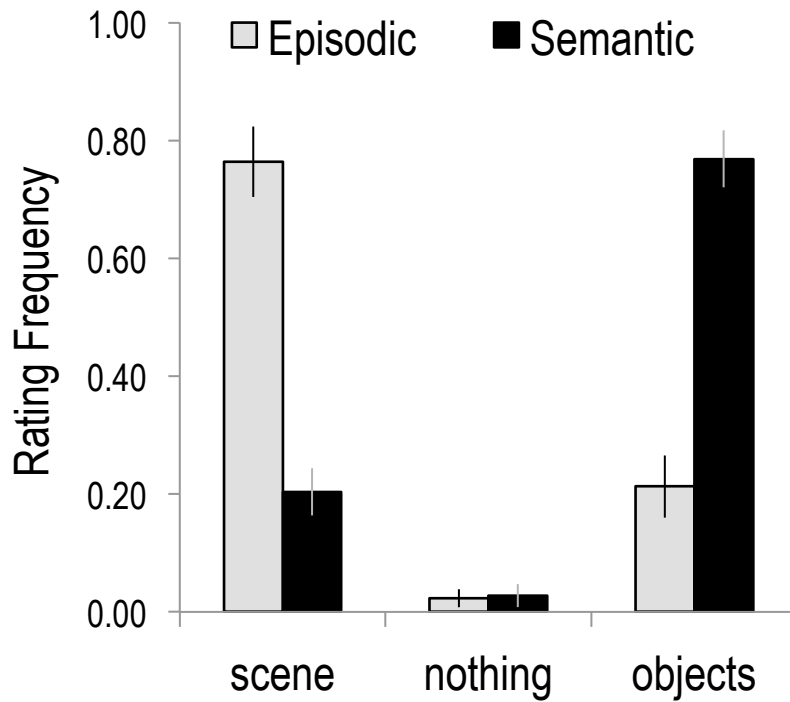


Figure S1. Mean proportion of ratings for the episodic and semantic cueing paradigms for the pilot experiment. Error bars indicate SEM.

Table S1.

Patients	Controls
Winter clothes	Books for tablet
Frank Miller compilation	Godiva chocolates
Leaf rake	Sneakers
Clothing	Irish knit sweater
Plant	Shorts
Hanukkah presents	Linen pants

Note: Examples of responses to the semantic cueing for patients and controls (experiment 1; responses for experiment 2 were similar).