RESEARCH ARTICLE

Figures and figure supplements

Distinct neural mechanisms underlie subjective and objective recollection and guide memory-based decision making

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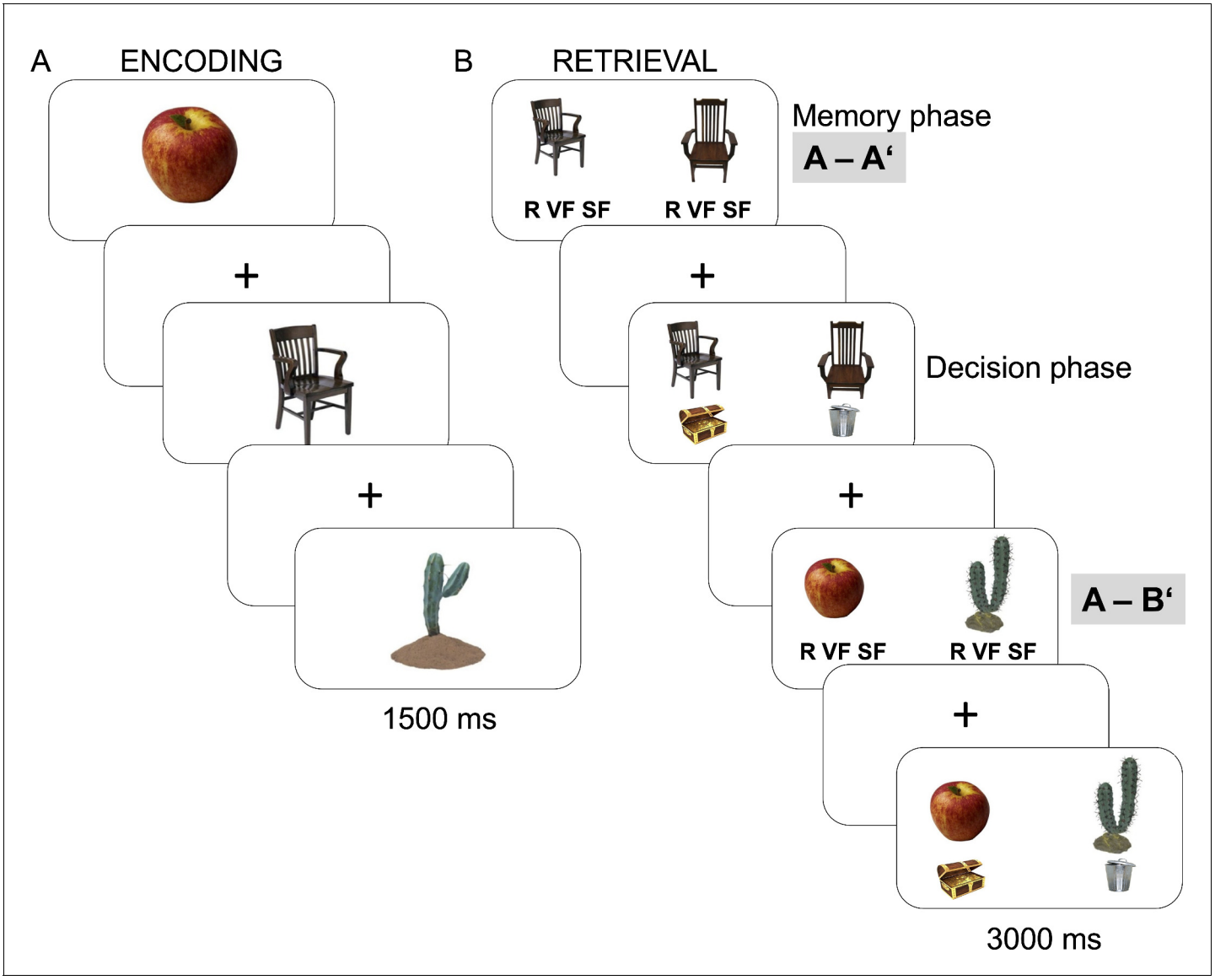

Figure 1. Experimental paradigm. (**A**) During encoding, participants incidentally encoded pictures of objects while making indoor-outdoor judgments with a jittered interstimulus interval (500–6500 ms). (**B**) During retrieval, participants completed a two alternative forced choice (2AFC) recognition test in which a studied target was presented either along with a distractor that was perceptually similar to the target (i.e., A-A' condition) or along with a distractor that was perceptually similar to another studied item (i.e., A-B' condition). Participants chose between a remember (R), very familiar (VF), or somewhat familiar (SF) judgment with the hand corresponding to the position of the image they recognized as the target. Target and distractor positions were randomized across trials. After a jittered fixation period (500–6500 ms) following memory retrieval, the two alternatives were presented again and participants were asked to select their memory to be counted toward their final score by pressing the button corresponding to the treasure chest or to discard the item by pressing the button corresponding to the trash can. The position of the treasure chest and trash can buttons were randomized across trials.

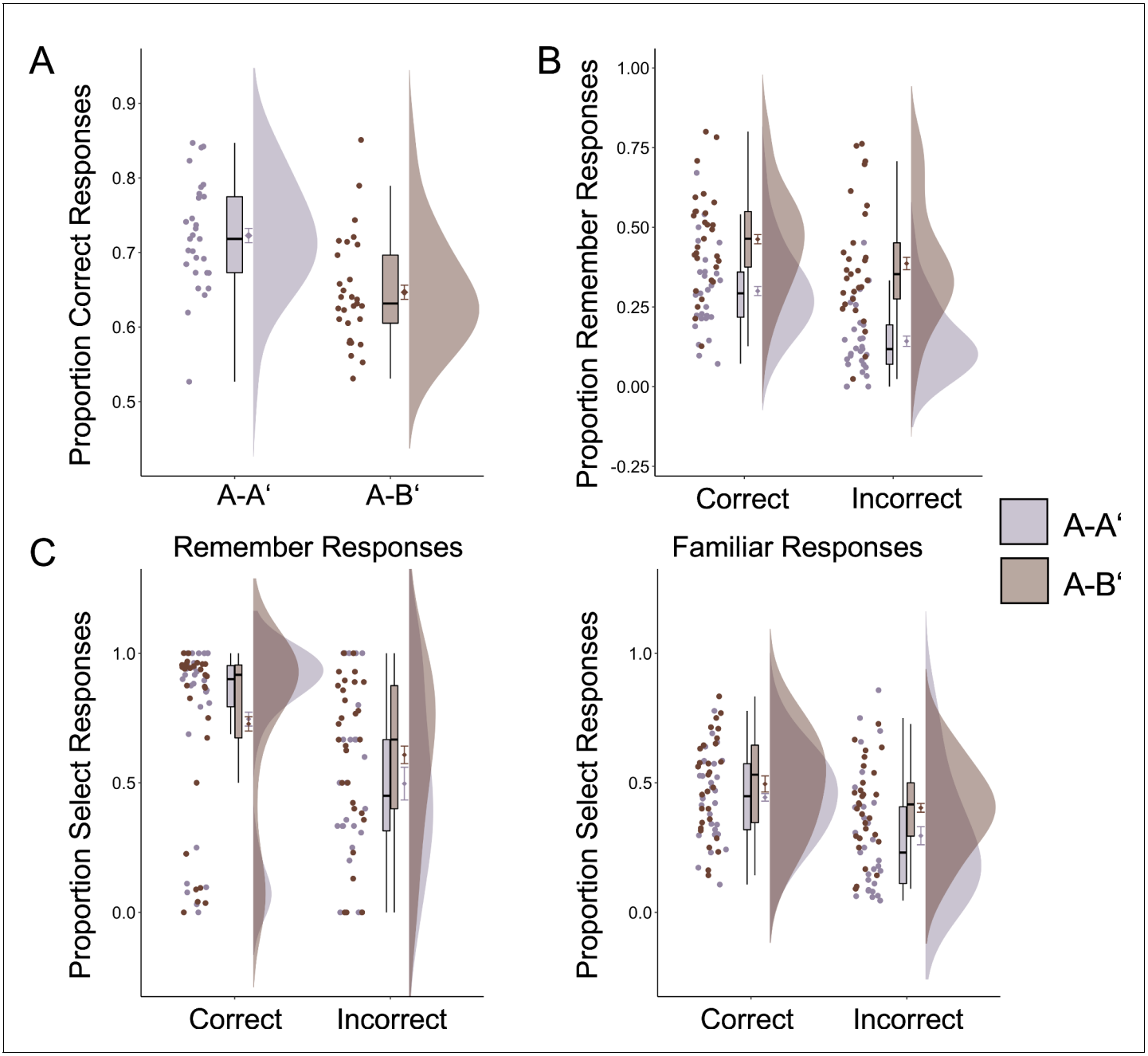

Figure 2. Behavioral results. (**A**) Accuracy across experimental conditions. There were more correct responses in the A-A' condition. (**B**) Proportion of remember judgments out of all correct and incorrect responses across experimental conditions. Participants more often claimed subjective recollection in the A-B' condition both for accurate and inaccurate responses. (**C**) Proportion of memory responses that participants selected to count toward their final score split as a function of experimental condition, accuracy, and subjective judgment. For correct responses, there were no condition differences in selection rates for remember responses, but participants' tendency to select familiar responses increased in the A-B' condition. Error bars around condition means represent standard error of the mean. For plots of estimated logistic regression functions, see ***Figure 2—figure supplement 1***.

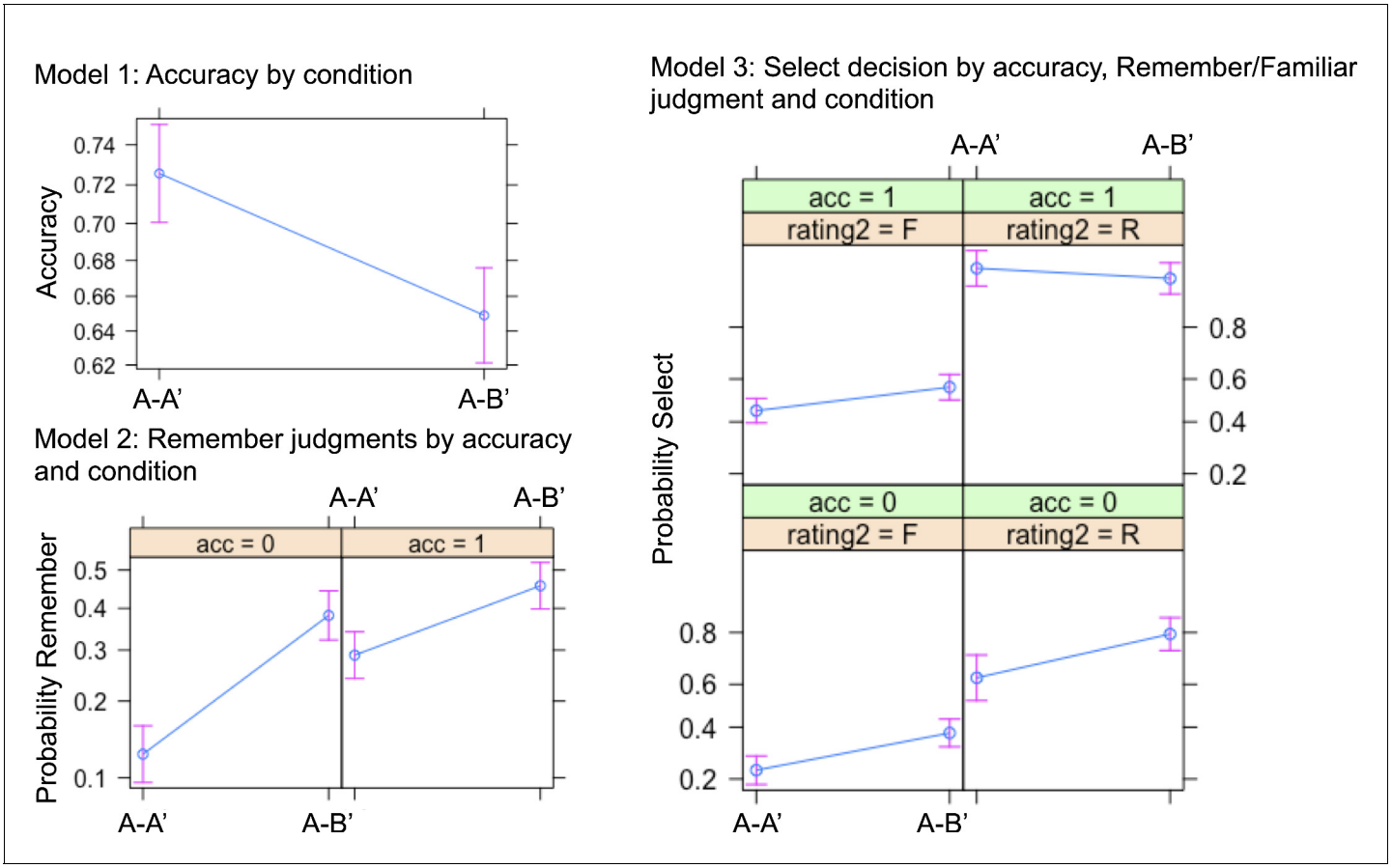

Figure 2—figure supplement 1. Estimated results from logistic regressions on accuracy, remember judgments, and select decisions.

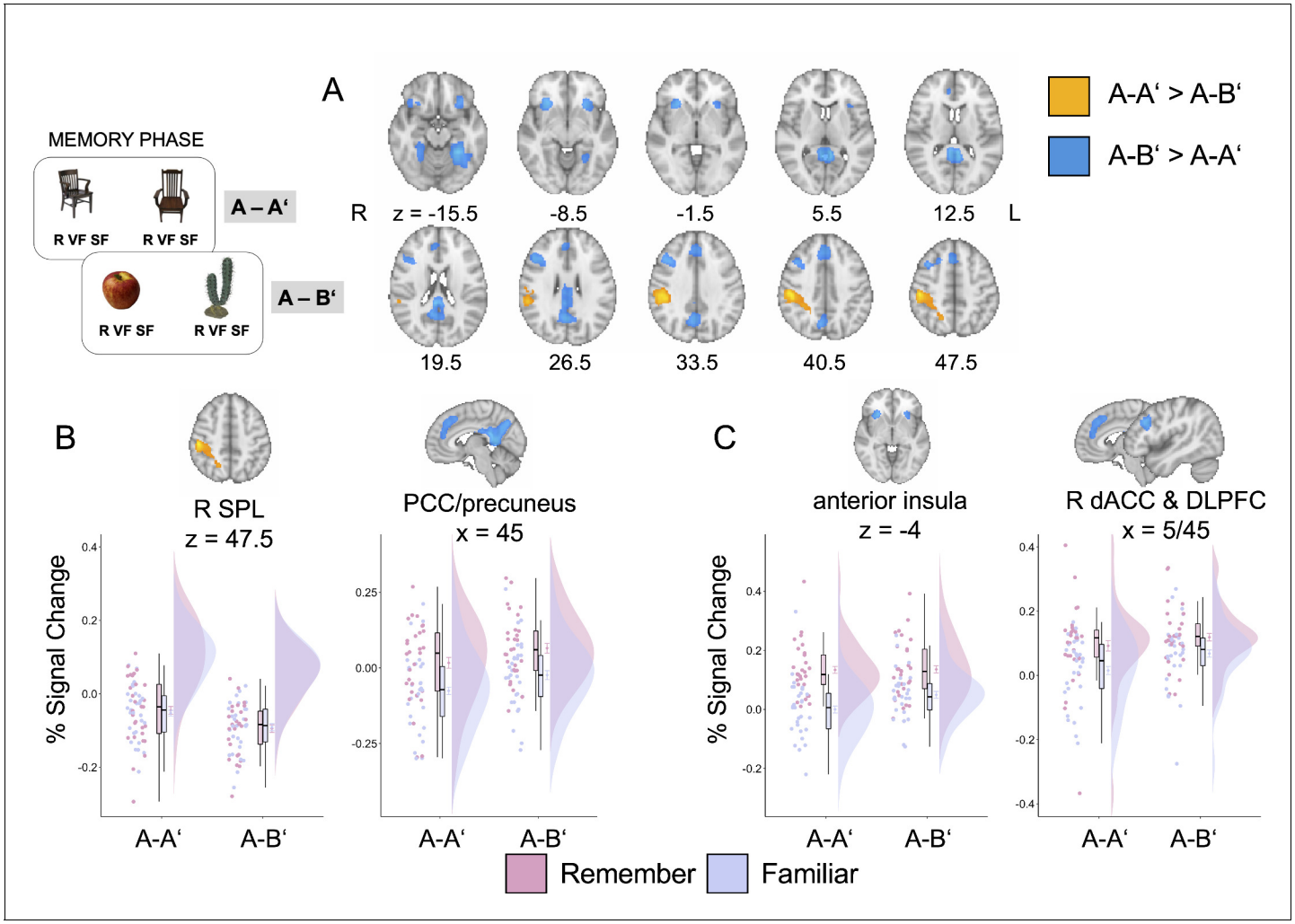

Figure 3. Neuroimaging results for the memory phase. (**A**) Results of a whole-brain comparison between experimental conditions. (**B**) Differences between remember and familiar judgments across conditions in parietal areas identified in A. (**C**) Differences between remember and familiar judgments across conditions for regions identified in A that have been implicated in metacognitive monitoring and appraisal. Error bars around condition means represent standard error of the mean. R SPL = right superior parietal lobe; PCC = posterior cingulate cortex, dACC = dorsal anterior cingulate; R DLPFC = right dorsolateral prefrontal cortex.

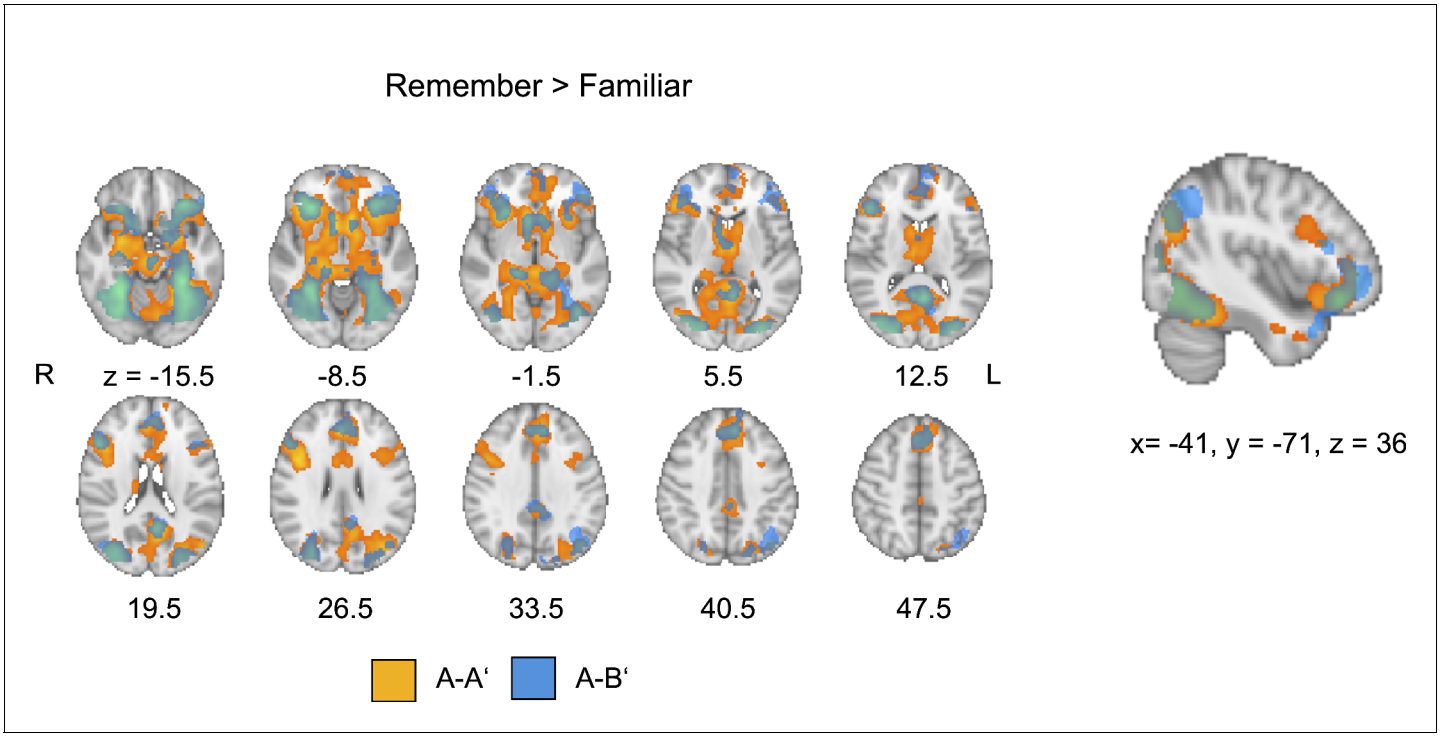

Figure 3—figure supplement 1. Whole-brain comparisons of remember judgments relative to familiar judgments in the A-A′ condition and in the A-B′ condition. Left angular gyrus showed enhanced activation in both experimental conditions.

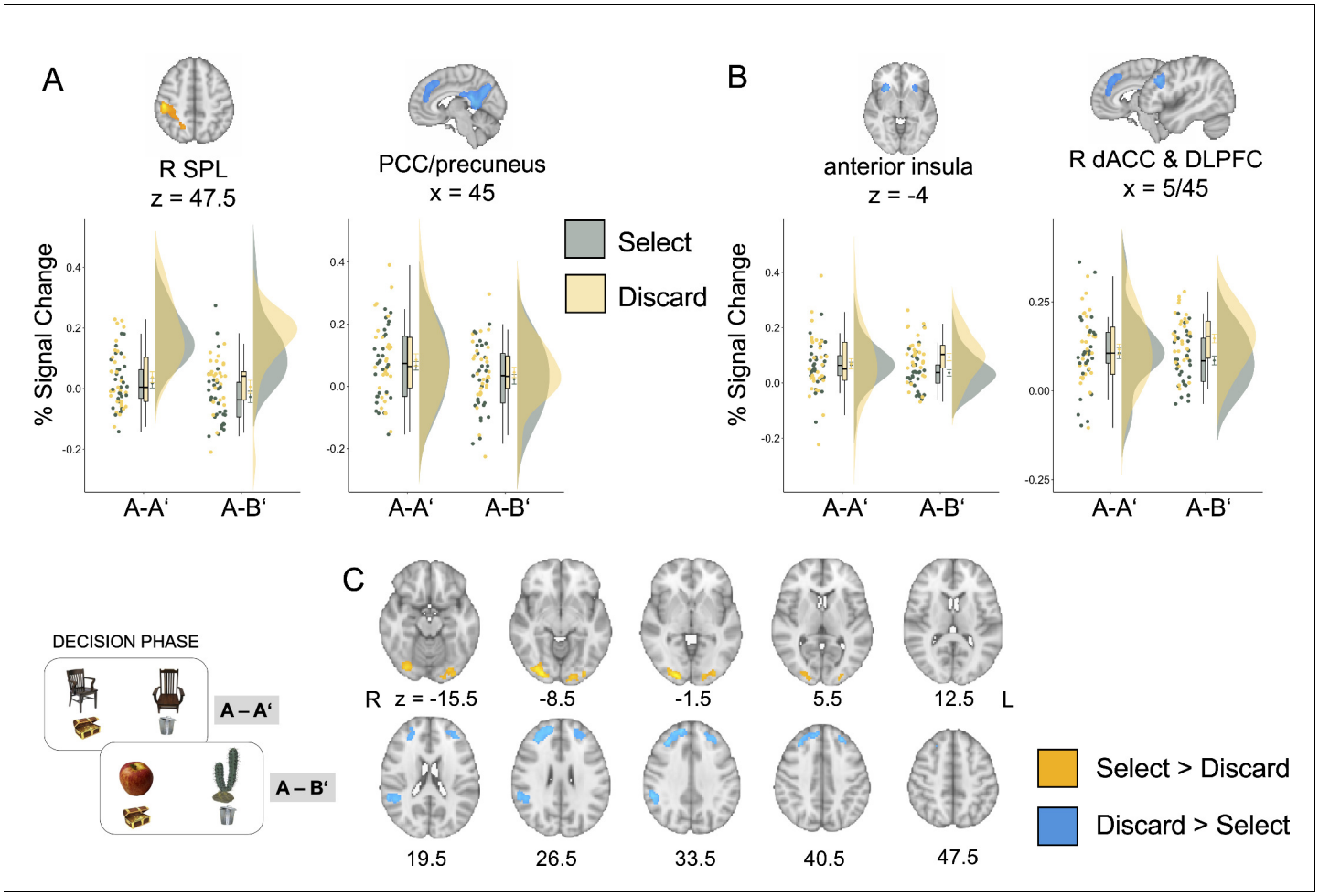

Figure 4. Neuroimaging results for the decision phase. (**A**) Differences between select and discard decisions across conditions in the PPC areas identified during the memory phase. (**B**) Differences between select and discard decisions across conditions for the regions identified during the memory phase that have been implicated in metacognitive monitoring and appraisal. (**C**) Results of a whole-brain comparison comparing select and discard decisions. Error bars around condition means represent standard error of the mean. R SPL = right superior parietal lobe; PCC = posterior cingulate cortex, dACC = dorsal anterior cingulate; R DLPFC = right dorsolateral prefrontal cortex.