Supplementary Figure 1. Regions with more activity in all three memory conditions vs. a control condition are shown in red (from St-Laurent et al., 2011), regions with more activity for incorrect vs. correct trials are shown in green, and overlap between these areas and those regions with more activity for incorrect than correct trials is shown in yellow. Note that both right and left aIFO (and ACC) have more activity for incorrect trials <u>and</u> for memory retrieval in general. However, the activity for general retrieval is much more extensive and there are also areas with more activity for incorrect trials that are not generally active during retrieval (some parts of ACC, right PFC, right SMG, right thalamus), so the two patterns are by no means identical. This suggests that memory retrieval per se is associated with activity in some, but not all, SLN regions, and that this activity is heightened when retrieval fails (see Methods for a description of the control task).
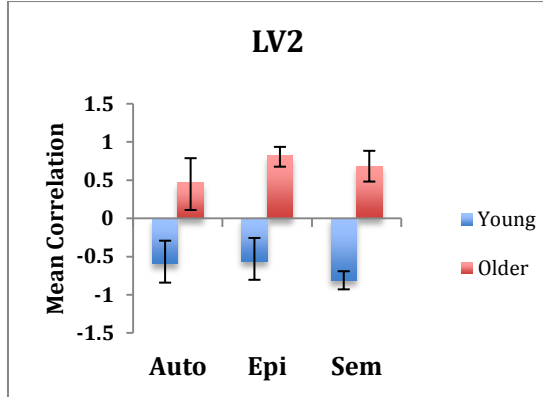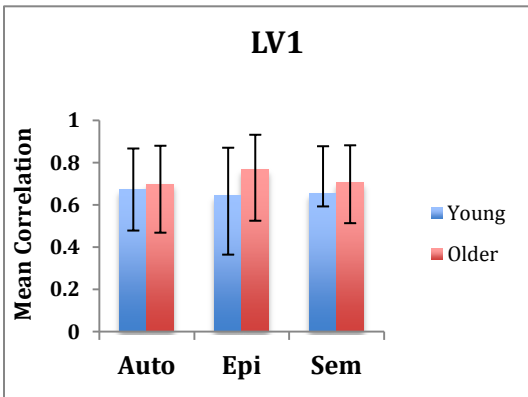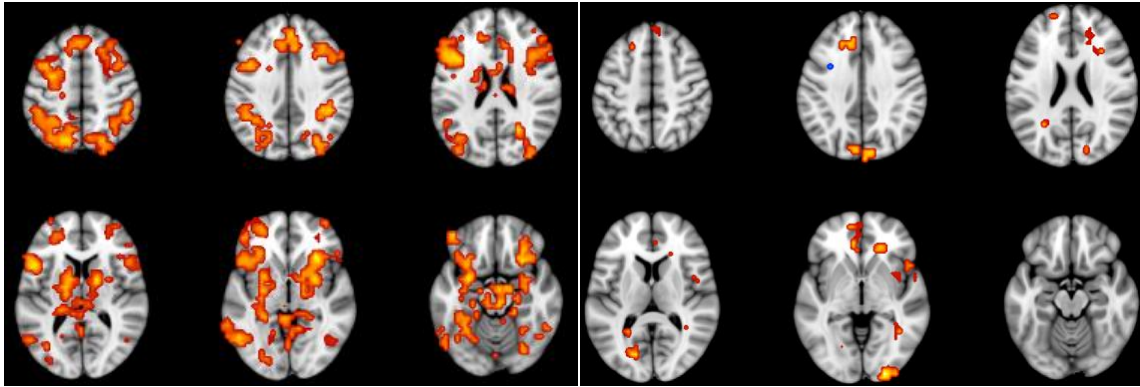
Supplementary Figure 2. Seed PLS analysis on correct trials using the aIFO seeds. LV1 (p<0.001) shows a pattern of functional connectivity that is quite similar to that seen for incorrect trials. The second LV shows a different pattern from the one observed with incorrect trials (Figure 4b in the main text), suggesting that the pattern of dedifferentiation in SLN functional connectivity seen for incorrect trials is specific to those trials.
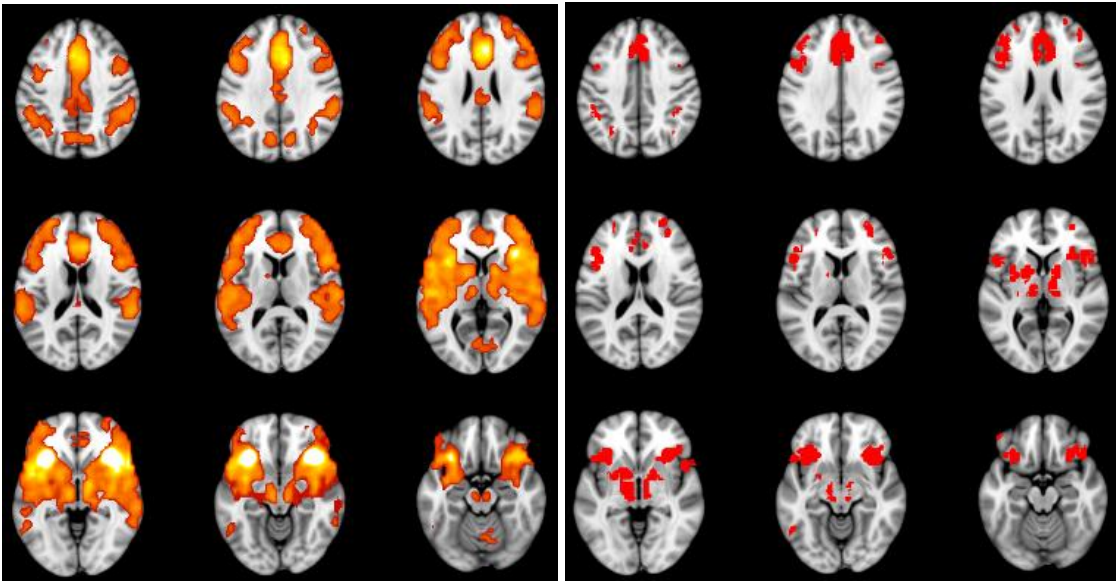
Supplementary Figure 3. Left image: Intrinsic functional connectivity of right and left aIFO measures during a resting state run in 45 young adults. Scale of BSR values is from 8 to 20. Right image: inclusive overlap mask of regions from the left image and the task-related and intrinsic functional connectivity patterns from the current study (i.e., images shown in Figures 5 and 6 in main text).