Figure S1: **Effects of valence and arousal on recall are robust using a different ratings scale.** Probability of recall significantly differed as a function of valence ($\chi^2(2) = 61$, p$< 8 \times 10^{-14}$) and arousal ($\chi^2(2) = 79$, p$< 7 \times 10^{-18}$). Vertical bars denote standard error. Asterisks denote significant difference in proportions across categories. Related to Figure 1.
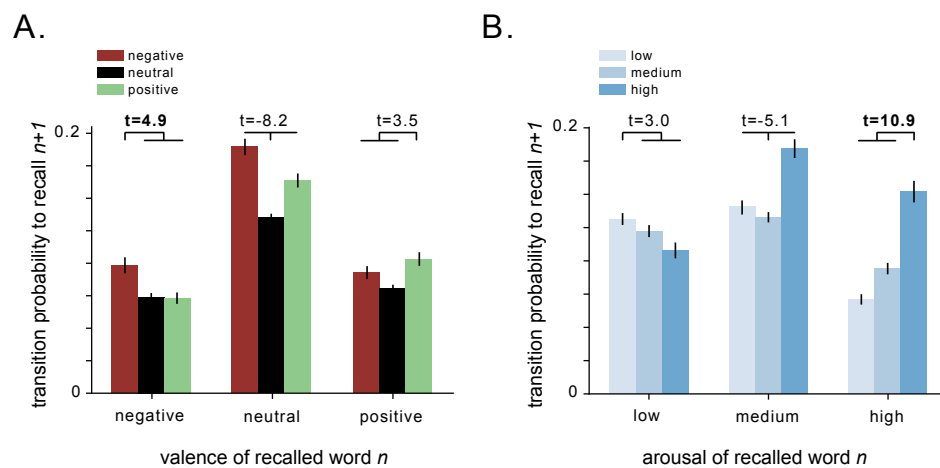
Figure S2: **Emotional context modulates recall dynamics.** A) Conditional response probability based on valence. The height of each bar depicts the probability of making a transition to a particular valence word (denoted by the color of the bar) as a function of the just recalled word's valence (denoted by the x-axis label). Error bars denote standard error. T-statistics denote the relative proportion of within-valence transitions versus across-valence transitions. B) Conditional response probability based on arousal. The height of each bar depicts the probability of making a transition to a particular arousal word (denoted by the color of the bar) as a function of the just recalled word's arousal (denoted by the x-axis label). Error bars denote standard error. T-statistics denote the relative proportion of within-arousal transitions versus across-arousal transitions. The largest t-statistic across both A and B is bolded. Related to Figure 1.
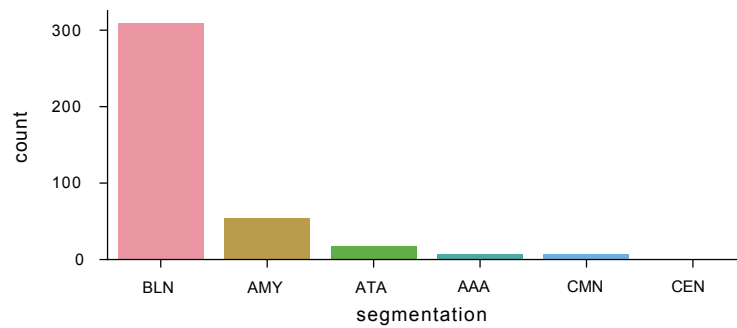
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Figure S3: **Segmentation of electrodes to different amygdala nuclei.** Count of electrodes categorized to different amygdala nuclei on the basis of post-implant imaging. BLN = basolateral nuclei, ATA = amgydala transition areas, AAA = anterior amygdala area, CMN = cortical and medial nuclei, CEN = central nucleus, AMY = could not be localized to specific subregion. Related to Figure 2.
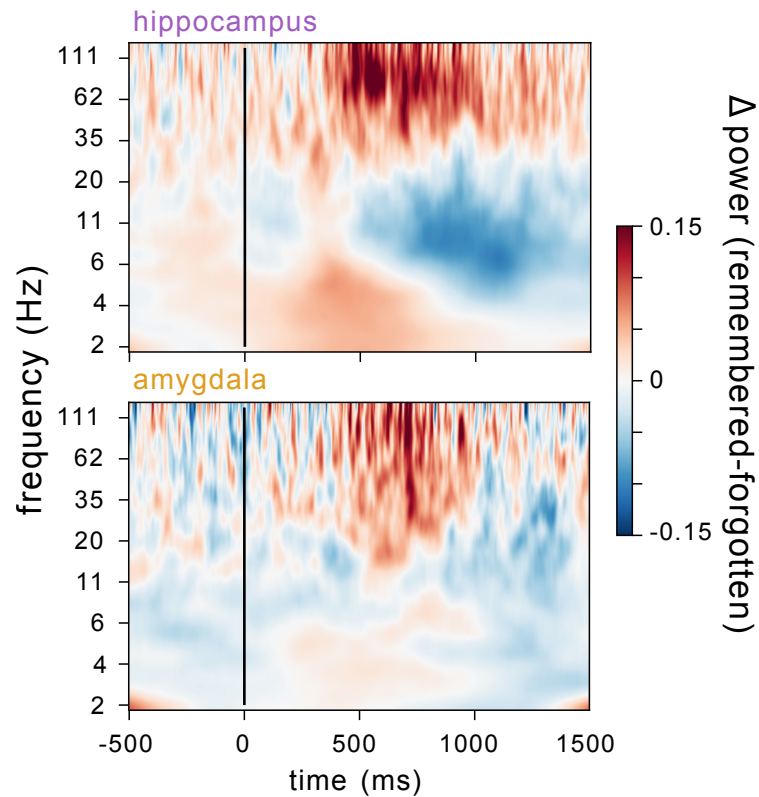
Figure S4: **Hippocampal and amygdalar spectrogram depicting difference in power between remembered and forgotten trials across all electrodes.** Average z-scored spectrogram for hippocampal (top) and amygdalar (bottom) electrodes showing difference between remembered and forgotten words. Warm colors indicate an increase in power during encoding of remembered words, while cool colors indicate a decrease in power. Vertical black line denotes the onset of word presentation. Related to Figure 2.
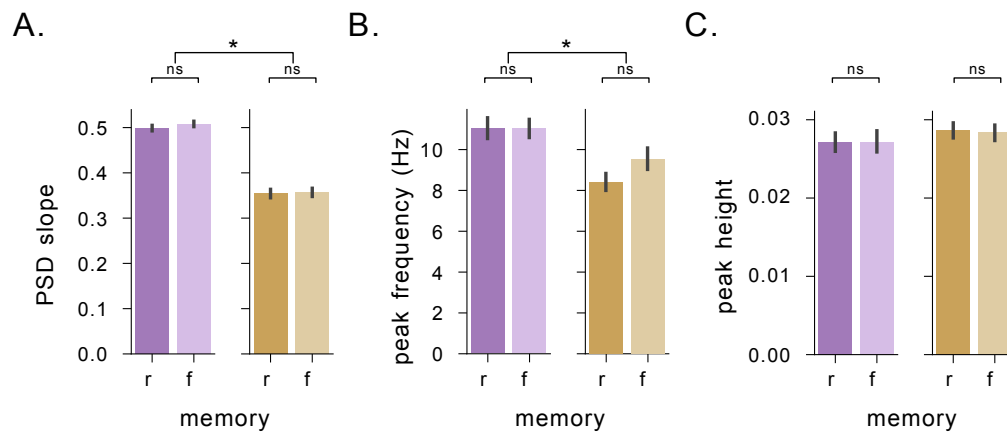
Figure S5: **Memory-related power changes are not due to changes in spectra characteristics.** A) Power spectra slope across the entire session for both remembered (dark shade) and forgotten (light shade) trials in both hippocampus (purple) and amygdala (orange). Asterisks denote significant differences (p's$< 7 \times 10^{-6}$, t-test). B) Peak frequency across the entire session for both remembered and forgotten trials in both hippocampus and amygdala. C) Peak height across the entire session for both remembered and forgotten trials in both hippocampus and amygdala. Related to Figure 2.
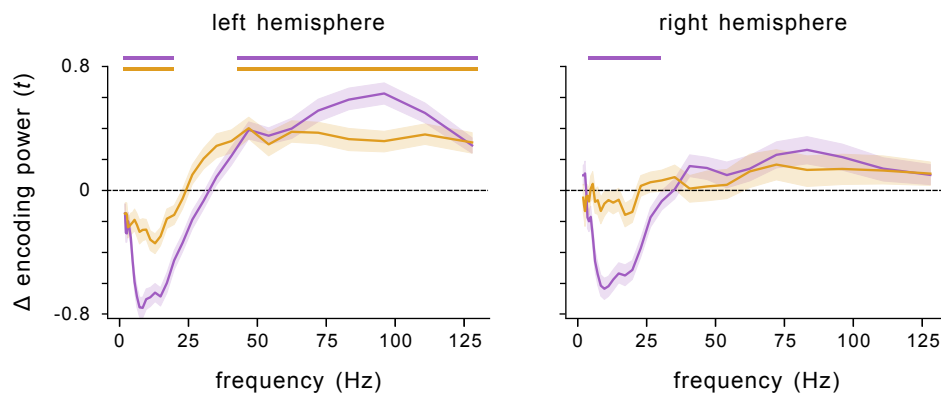
Figure S6: **Laterality of HFA SME across all words.** Comparison of SME (t-statistic) averaged over hippocampal (purple) and amygdala (orange) electrodes, separated by left and right hemispheres. Horizontal lines denote SMEs that significantly deviate from 0 (p's< 0.05, cluster-permutation test). Related to Figure 2.
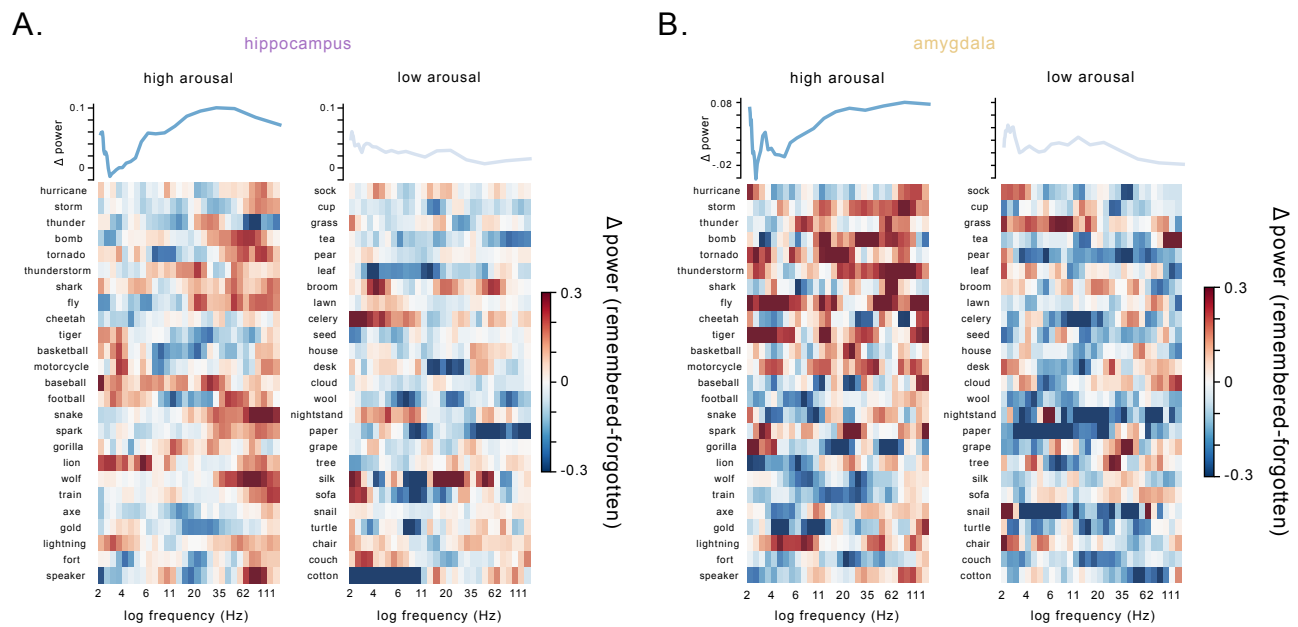
Figure S7: **Word-level SME for high arousal and low arousal words averaged across the population.** A) Heatmaps of hippocampal power (z-scored within session) for specific words from the task wordpool, averaged across sessions and subjects. Words were selected from the 30 words with the highest arousal ratings (left) or lowest arousal ratings (right). Warm colors indicate higher values while cool colors indicate lower values. Above each heatmap is the averaged z-scored power across the words in the heatmap. B) Same as panel A), but for amygdalar power. Related to Figure 2.
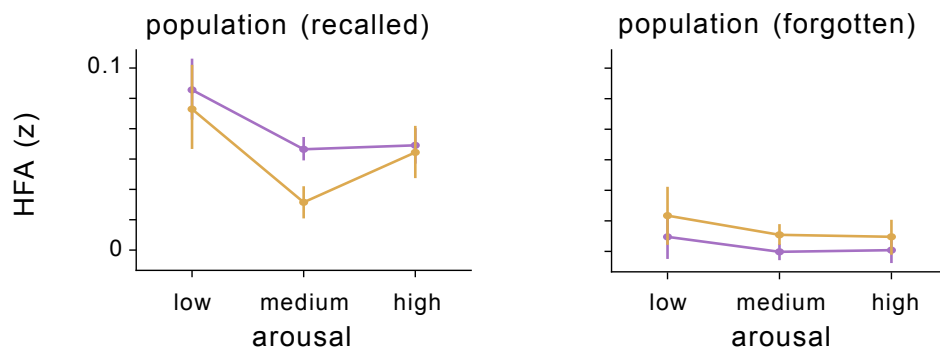
Figure S8: **HFA SME as a function of valence across the population.** Z-scored HFA in the amygdala (orange) and hippocampus (purple) during the encoding phase as a function of word valence for recalled (left) and forgotten (right) words. Circles represent mean of binned valence, with vertical lines denoting the standard error of the bin. Related to Figure 2.
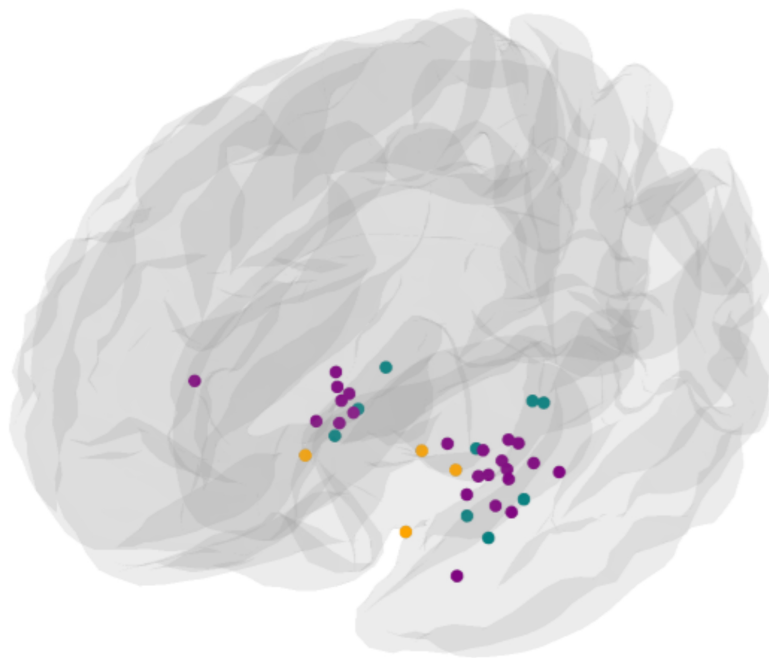
Figure S9: **Location of stimulation electrodes.** Hippocampal electrodes (purple), amygdala electrodes (orange), and non-hippocampal MTL electrodes (teal) where direct stimulation was applied. Related to Figure 3.
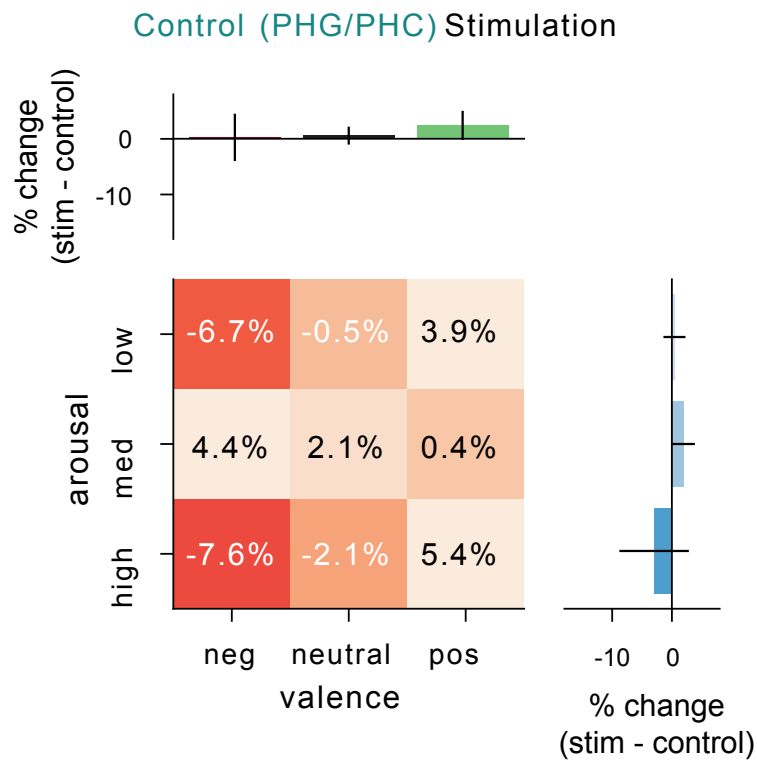
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Figure S10: **Stimulation in control regions in MTL does not result in significant modulation of memory as a function of emotional context.** Effect of stimulation administered to electrodes located in the non-hippocampal MTL regions, split by arousal and valence. Asterisks indicate significant differences between conditions. Heatmap numbers indicate percentage of change in recall performance during stimulation. Related to Figure 3.
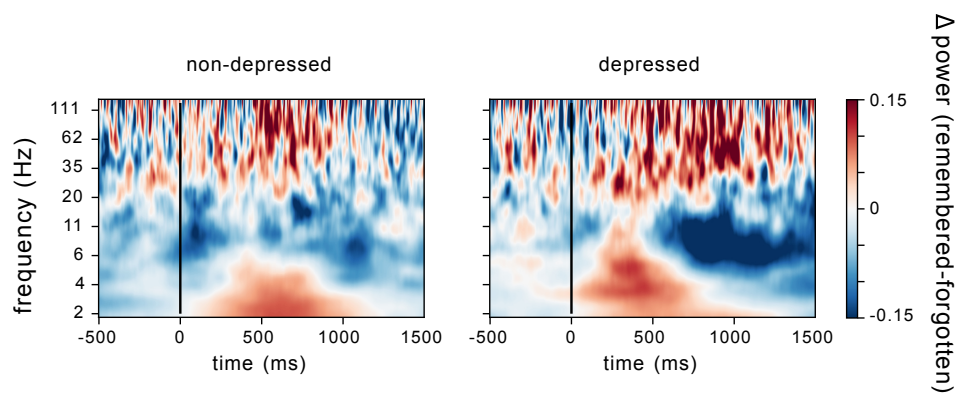
Figure S11: **Difference in hippocampal SME between depressed and non-depressed patients.** Average z-scored spectrogram for hippocampal electrodes in non-depressed (left) and depressed (right) subject showing difference between remembered and forgotten words. Warm colors indicate an increase in power during encoding of remembered words, while cool colors indicate a decrease in power. Vertical black line denotes the onset of word presentation. Related to Figure 4.

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