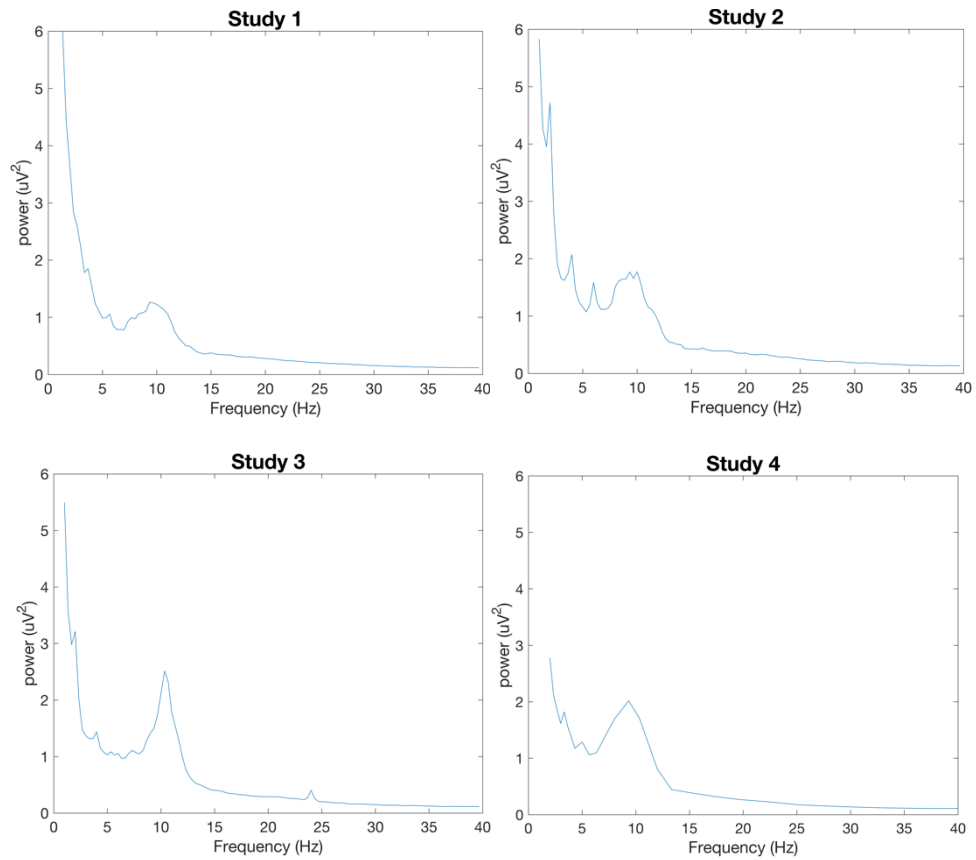


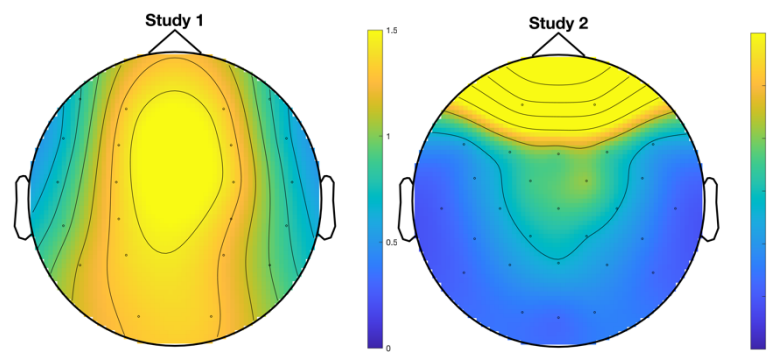
Supplementary Materials

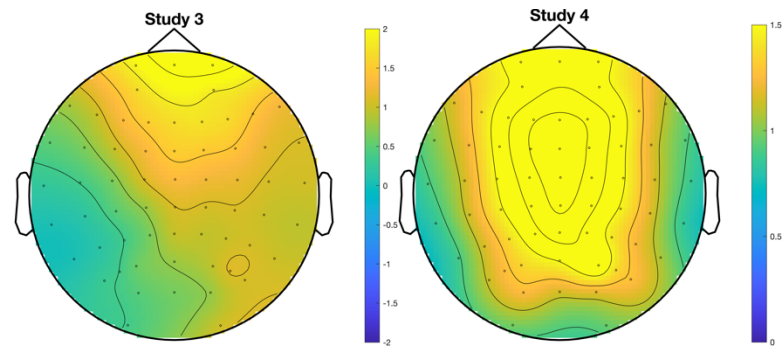
Descriptive Analyses of Oscillatory Patterns in the EEG data

Prior to conducting our main inferential analyses of the time-frequency representations of the EEG data, we performed descriptive frequency-domain analyses to confirm that our four different datasets were generally similar in their spectral properties and did not contain unexpected spectral patterns. First, we conducted power spectrum analysis of all trials concatenated together (i.e. combining all experimental conditions) in each study (See Supplementary Figure 1). For each study, the power spectrum followed a generally $1/f$ -like function, as expected (e.g. Pritchard, 1992). Additionally, the power spectra in all studies contained two concentrations of activity within the theta range (one at 3-4 Hz and one at 6-7 Hz), as well as a large concentration of power in the alpha band (8-12 Hz). Some datasets also showed a concentration of power in the lower frequency delta range (2 Hz). We additionally examined the topography of theta-band activity (3-8Hz) in all trials (regardless of experimental condition). In all datasets, the topography for theta-band power was concentrated over frontal midline electrodes, consistent with numerous previous studies (Cavanaugh & Frank, 2014), although there was some variability across the four studies in terms of the specific location of the peak theta-band power along the anterior-posterior axis. Overall, the results of these descriptive analyses are consistent with what is commonly observed in spectral analyses of human EEG data. There are minor differences between datasets, which are likely attributable to the fact that these datasets were acquired by different labs, with different EEG systems and set-up procedures, and to random variation among individuals' brain anatomy and activity patterns.

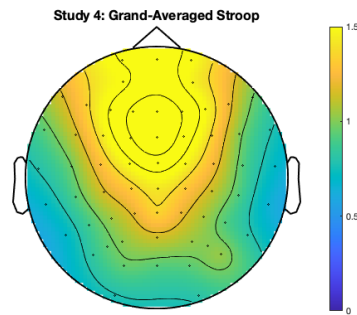


Supplementary Figure 1. Power spectrograms in each study, calculated across all conditions and all electrodes.





Supplementary Figure 2. Topography maps of overall theta activity (3-8Hz) in each study, across all conditions.



Supplementary Figure 3. Topography map of overall theta activity (3-8Hz) for Stroop trials in Study 4.