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| PAC Figure Descriptions  Unless otherwise specified, PAC excel sheets and Images are computed/plotted only for channels that had significant clusters after the surrogate permutation analysis. In some analyses/plots you will see “Overlap” and “[Group1]Only” listed separately. The code checks which clusters were significant for 1) BOTH Group1 and Group2 OR 2) Just Group1 but not Group2 and performs the analyses for these two separate “masked” matrices.  Change Log  08/11/203: YB added images for each figure description and script name that generates it as part of the overall pipeline. | Last Edited 08/11/2023Created 2/8/23Yael BravermanDraft 1 |  |

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| PAC Strength (MI) Plots | | | | | |  | | |
| Folder | Shared Descriptions | | Figure Name (s) *script for Figure* | | | FIGURE Description | | |
| Cluster Maps | Topoplots visualizing PAC strength and frequency grouping information for all channels included in analysis. All subplots within each topoplot share the x- and y-axis of low and high frequency filtered signal. Maps | | Clusters\_comod\_topoplot  *plot\_sig\_pac\_clusters.m* | | | Significant PAC frequency groupings (derived from permutation analysis which randomly swaps Group1 with surrogate or Group2 with surrogate) color-coded for Group1 and Group2 groups. | | |
| Compare\_sig\_clusters\_comod\_topoplot  *plot\_sig\_pac\_clusters\_g1vsg2.m* | | | Significant PAC frequency groupings (derived from permutation analysis which randomly swaps Group1 with surrogate or Group2 with surrogate) color-coded white for sig difference between Group1 and not Group2. | | |
| PAC Strength | [Dx]\_strength\_clusters\_w\_boundaries\_comod\_topoplot  *Plot\_clusters\_with\_boundaries.m* | | | Includes Group1 participant topoplot with normalized PAC strength color-coded using the PAC strength legend increasing from black (low strength) to yellow (high strength). Significant frequency groupings noted with a white outline. | | |
| PAC Strength Contrast | strength\_contrast\_comod\_topoplot  *plot\_g1\_minus\_g2\_pac\_strength.m* | | | Topoplot visualizing the channel- and frequency-space differences in PAC strength by subtracting Group2 PAC strength from Group1 PAC strength | | |
| Freqband Strength Plots | N/A | | [Region(s)]\_[LowFreqHighFreqBandPairing]\_Strength  *plot\_pac\_strength.m* | | | Individual PAC strength by region(s) -  Each circle represents the normalized PAC strength value for an individual color coded by diagnosis group (orange for RTT/Group1 and green for TD/Group2). Group average is indicated by the horizontal dashed line. | | |
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| Phase Preference | | |  |
| Folder | Shared Description | Figure Name *script for Figure* | Figure Description |
| FreqBand Polar Plots |  | [Region]\_[LowFreqBandHighFreqBand]\_PhaseBias  *plot\_pac\_phase\_bias.m* | Individual and group average low frequency band-high frequency band phase preferences.  Each triangle represents a vector average of phase preference for each frequency pairing falling in the theta-gamma coupling range. Filled circles represent group vector averages of all participants’ average low freqband-high freqband phase preferences. Color corresponds to outcome group (TD/Group2 in green and RTT/Group1 in orange). |
| Phase Bin Proportion | Group differences of phase bias proportion. Proportion of LF phase bins that contained the maximum HF amplitude for each frequency pairing included in analysis averaged within groups. Color corresponds to group as indicated in the legend. | [overlap/group1/blank][anterior/posterior]\_[LowFreqBandHighBreqBand]  *plot\_phase\_prop\_and\_stats.m* | Restricted to specific frequency pairing. If no “Overlap” or Group1 at beginning of title, then no masking for sig clusters. |
| Phase Bin Proportion | [overlap/group1only][anterior/posterior]  *plot\_phase\_prop\_and\_stats.m* | Collapsed across all LF HF pairings included in analysis. Masked for Group1 or overlapped sig clusters. |
| Freqband Phase Bias Ratio Plots |  | [Region]\_[LowFreqBandHighFreqBand]\_PhaseBias\_NoCircMean  *plot\_pac\_phase\_bias\_scatter.m* | Individual PAC phase bias by region(s) -  Each circle represents the phase bias value value for an individual color coded by diagnosis group (orange for RTT/Group1 and green for TD/Group2). Group average is indicated by the horizontal dashed line. |
| Extra Plots | | |  |
| Folder | Measure | Figure Name *Script for Figure* | Figure Description |
| Phase Bin Freqband Plots | Amplitude distance | [Region]\_[LowFreqBandHighFreqBand]\_PhaseBins  *plot\_pac\_phase\_distribution.m* | Amplitude distribution for phase bias regions/bins |
| STD Maps | Modulation Index | [Group1]-[Electrode] std  *plot\_MI\_std.m* | Standard deviation of the MI across all Group1 participants for each LF-HF pairs |
| Phase Bias Maps | Phase Bias/Preference | [Region]\_[Dx]\_Phase\_in\_clusters  *plot\_sig\_phase\_bias\_comods.m* | Comodulogram masked for significane, (x-axis LFs, y-axis HFs) where values are 1-18 reflecting phase bias (across the 18 bins) at that LF-HF pairs - could edit visualization in future |
| Phase Bias Cluster Average | Phase bias | [Region]\_[Group]  *compute\_ave\_hf\_amp\_in\_lf\_bin.m* | For significant clusters, plots average phase bin magnitude for each phase bin for a given region, collapsed across all or selected frequency pairs. If not group listed in title, implies that overlapped significance was used (both Group 1 and Group2 were significant). **Note: you can adjust the rlim in this script if you can’t see the differences that well** |
| Cluster Phase Maps | Phase Preference Average | [Group]\_[Channel]\_cluster\_phase\_allfreqpairs  *Plot\_phase\_maps.m* | Same as “Phase Bias Maps” but not masked for significance – colors reflect values ranging from 1-18 (or -pi to pi). Also includes topoplot of all electrodes. |