

Consistency of EEG source localization and connectivity estimates – Supplementary Material

Keyvan Mahjoory*, Vadim V. Nikulin, Loïc Botrel, Klaus Linkenkaer-Hansen, Marco M. Fato, Stefan Haufe*

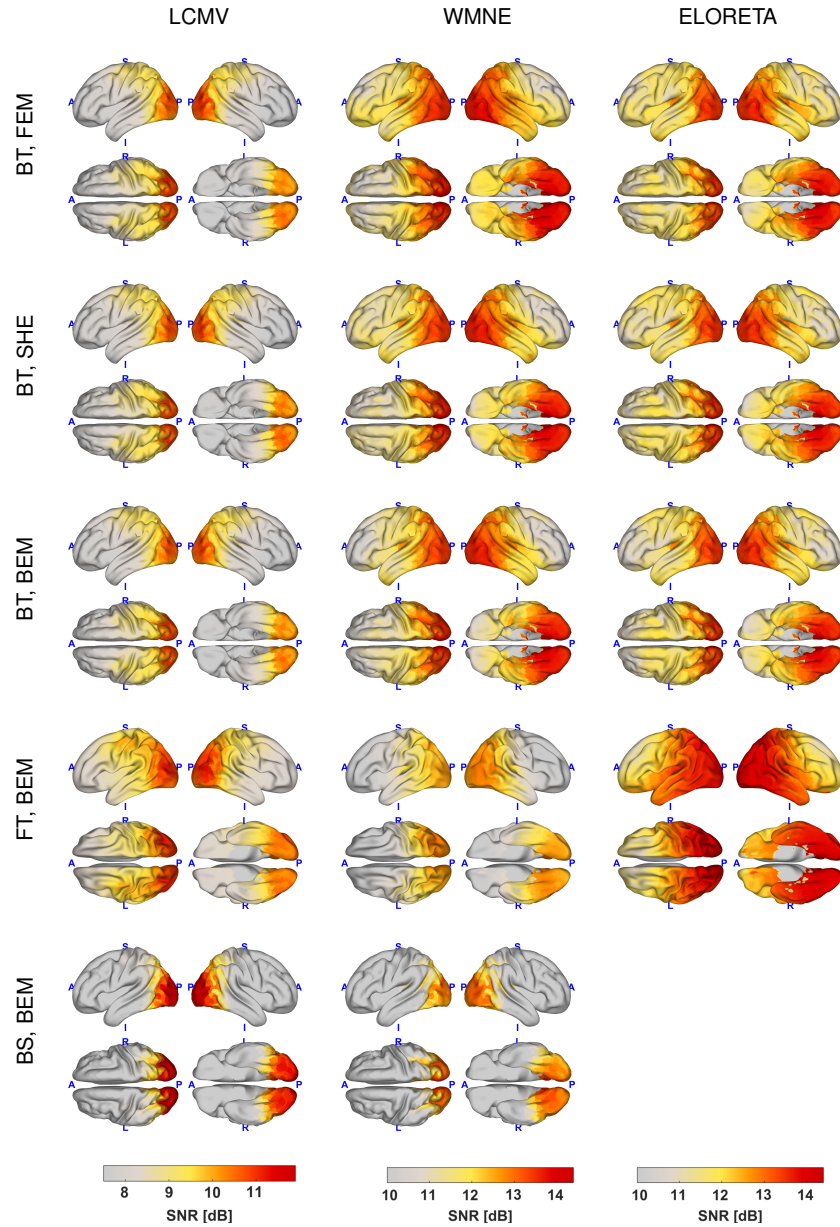


Figure S1: Grand-average alpha-band source localization (defined as voxel-wise signal-to-noise ratio) obtained using 14 different source reconstruction pipelines employing combinations of different forward models, inverse methods and analysis toolboxes. Forward models: finite element method (FEM), boundary element method (BEM), spherical harmonics expansion (SHE). Inverse methods: linearly-constrained minimum-variance beamformer (LCMV), the weighted minimum-norm estimate (WMNE) and eLORETA. Toolboxes: Brainstorm (BS), Fieldtrip (FT), Berlin toolbox (BT). Results are mapped onto the smoothed cortical surface of the ‘New York Head’.

*Corresponding author

Email addresses: mahjoory86@gmail.com (Keyvan Mahjoory), stefan.haufe@tu-berlin.de (Stefan Haufe)

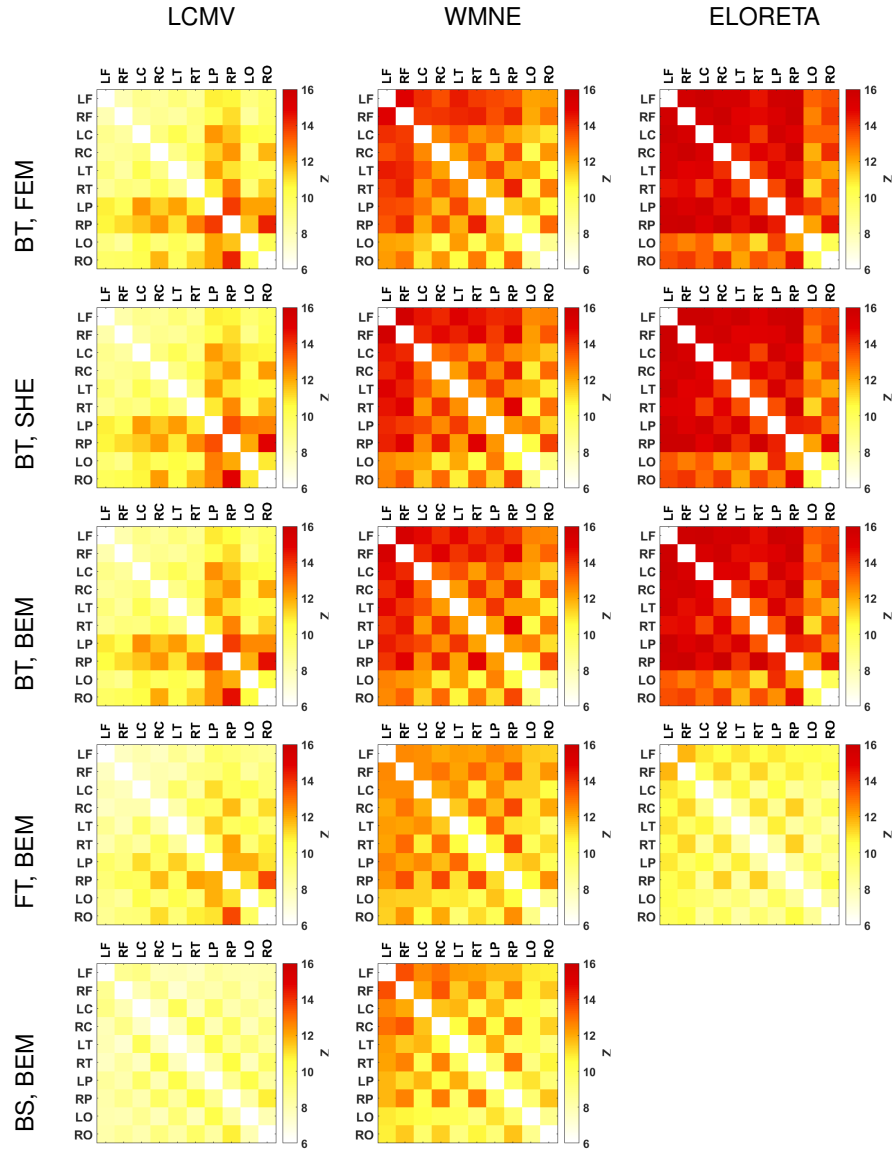


Figure S2: Grand-average alpha-band functional connectivity (FC) between ten source-space regions-of-interest obtained using 14 different source reconstruction pipelines. FC was defined as the absolute value of the imaginary part of coherency.

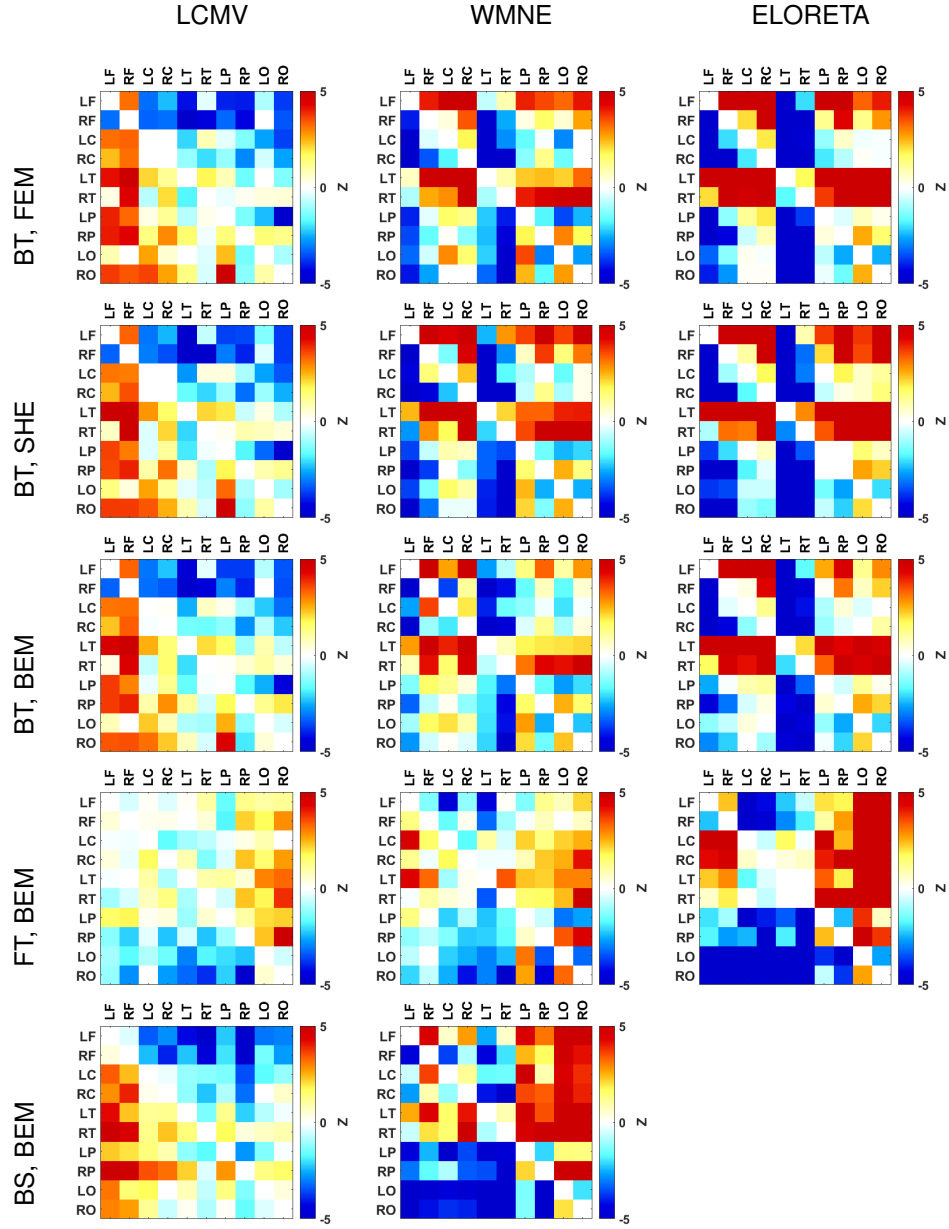


Figure S3: Grand-average effective connectivity (EC) between ten source-space regions-of-interest obtained using 14 different source reconstruction pipelines. EC was defined as the phase-slope index. Red and yellow colors stand for EC from rows to columns, and blue and cyan colors stand for EC from columns to rows.

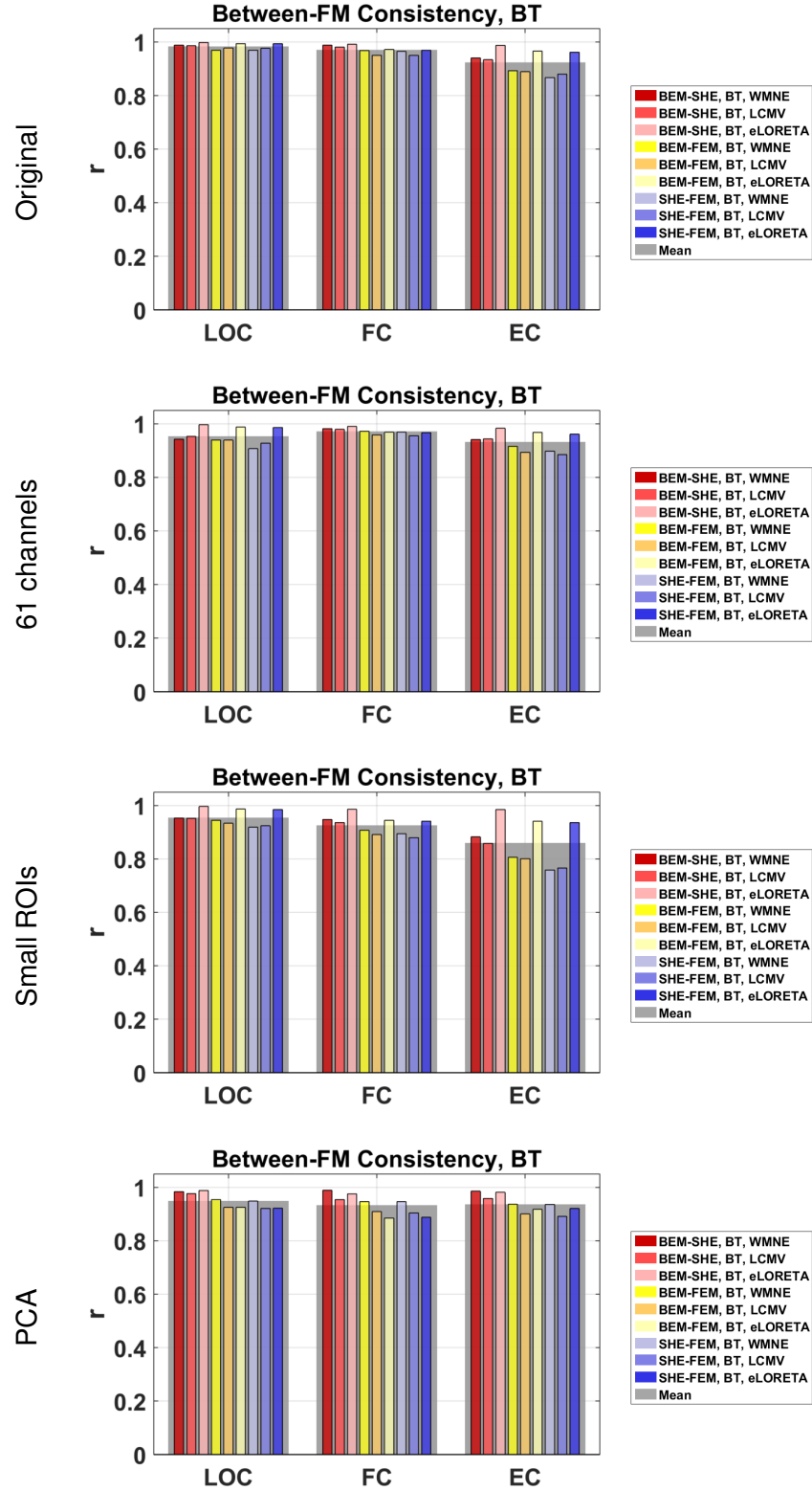


Figure S4: Between forward-model consistency under variation of data processing parameters. Original: results obtained using the pipeline described in the main text. 61 channels: results obtained using larger electrode sets (Fasor data: 57 electrodes, Würzburg data: 61 electrodes; see Figure S9 for a depiction of the additional locations). Small ROIs: results obtained for using a larger set of smaller ROIs (60 ROIs instead of 10 brain lobes; see Figure S10 for a depiction of these ROIs). PCA: results obtained without spatio-spectral decomposition (SSD) processing. Brain connectivity was computed on the first principle component of each source voxel's time series instead of the first SSD component.

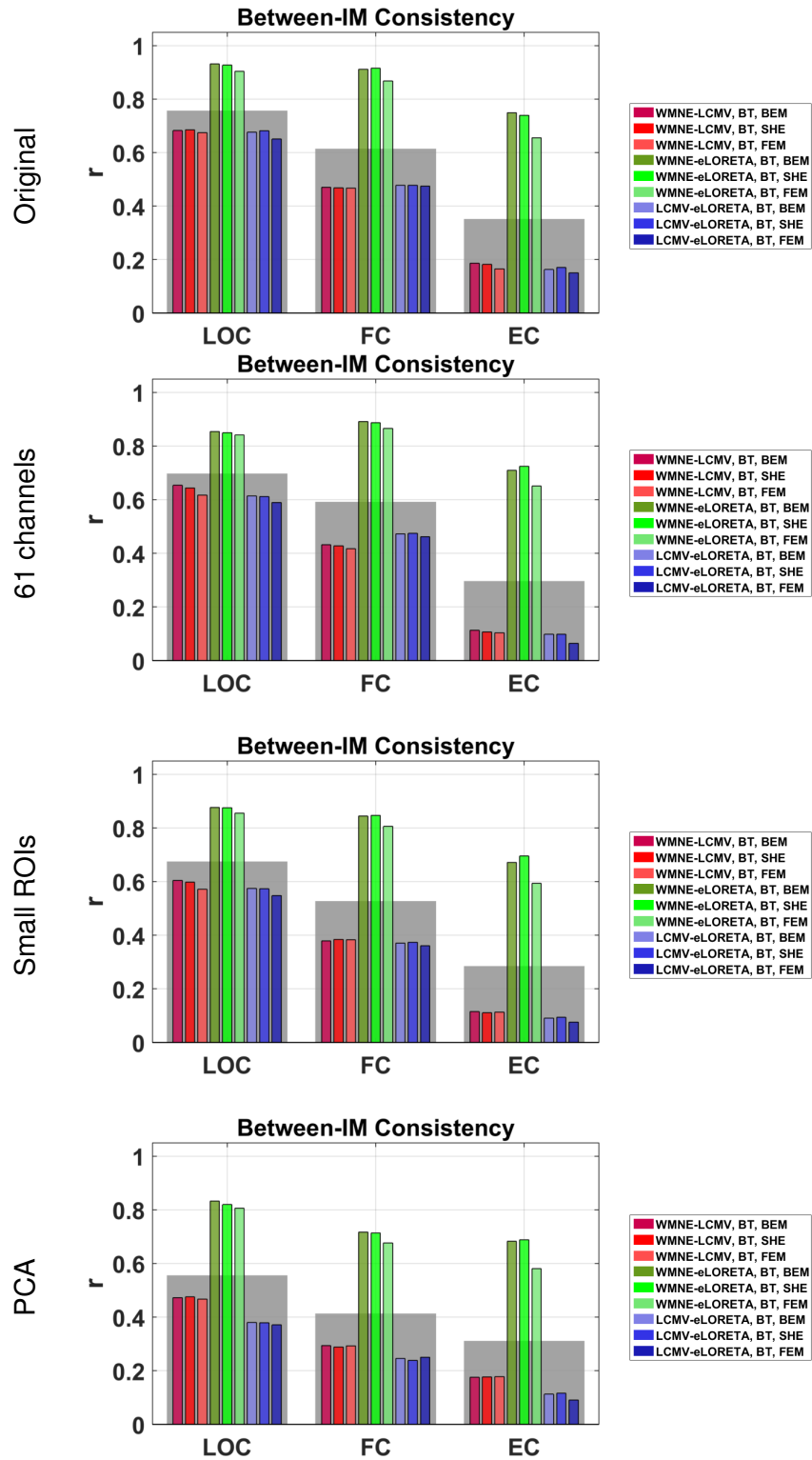


Figure S5: Between inverse-method consistency under variation of data processing parameters. See Figure S4 for a description of these pipelines.

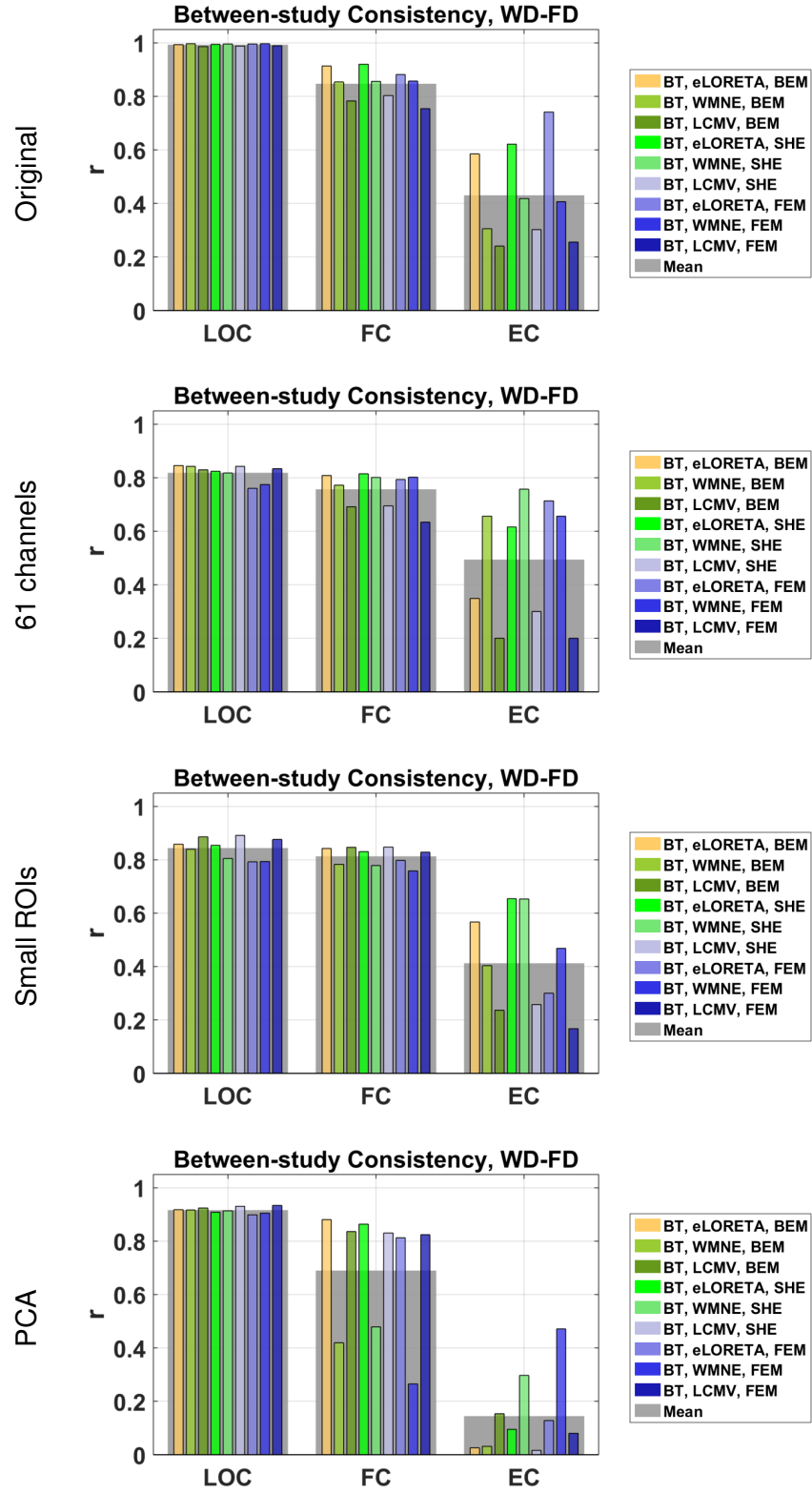


Figure S6: Between-study consistency under variation of data processing parameters. See Figure S4 for a description of these pipelines.

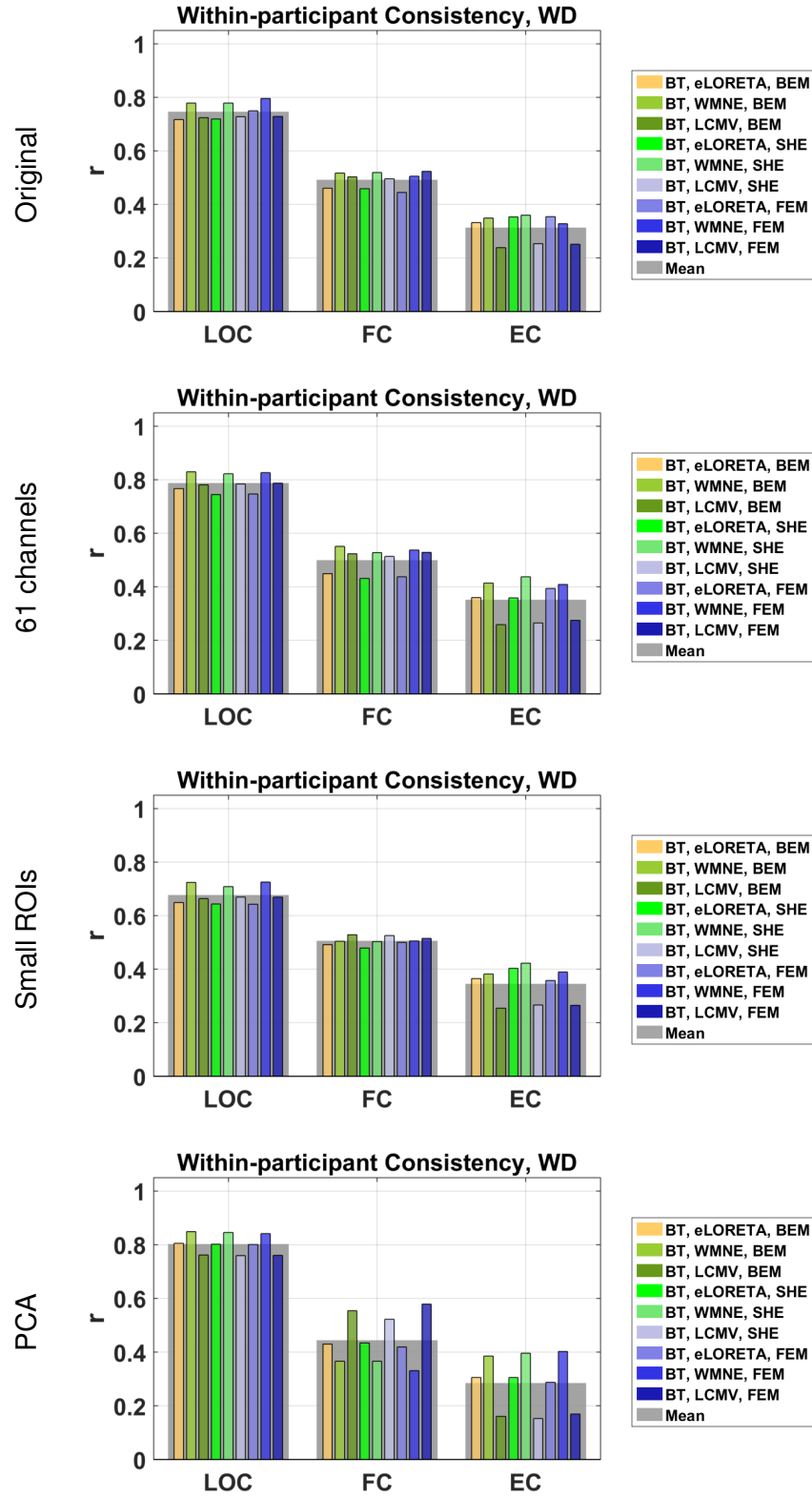


Figure S7: Within-participant consistency under variation of data processing parameters. See Figure S4 for a description of these pipelines.

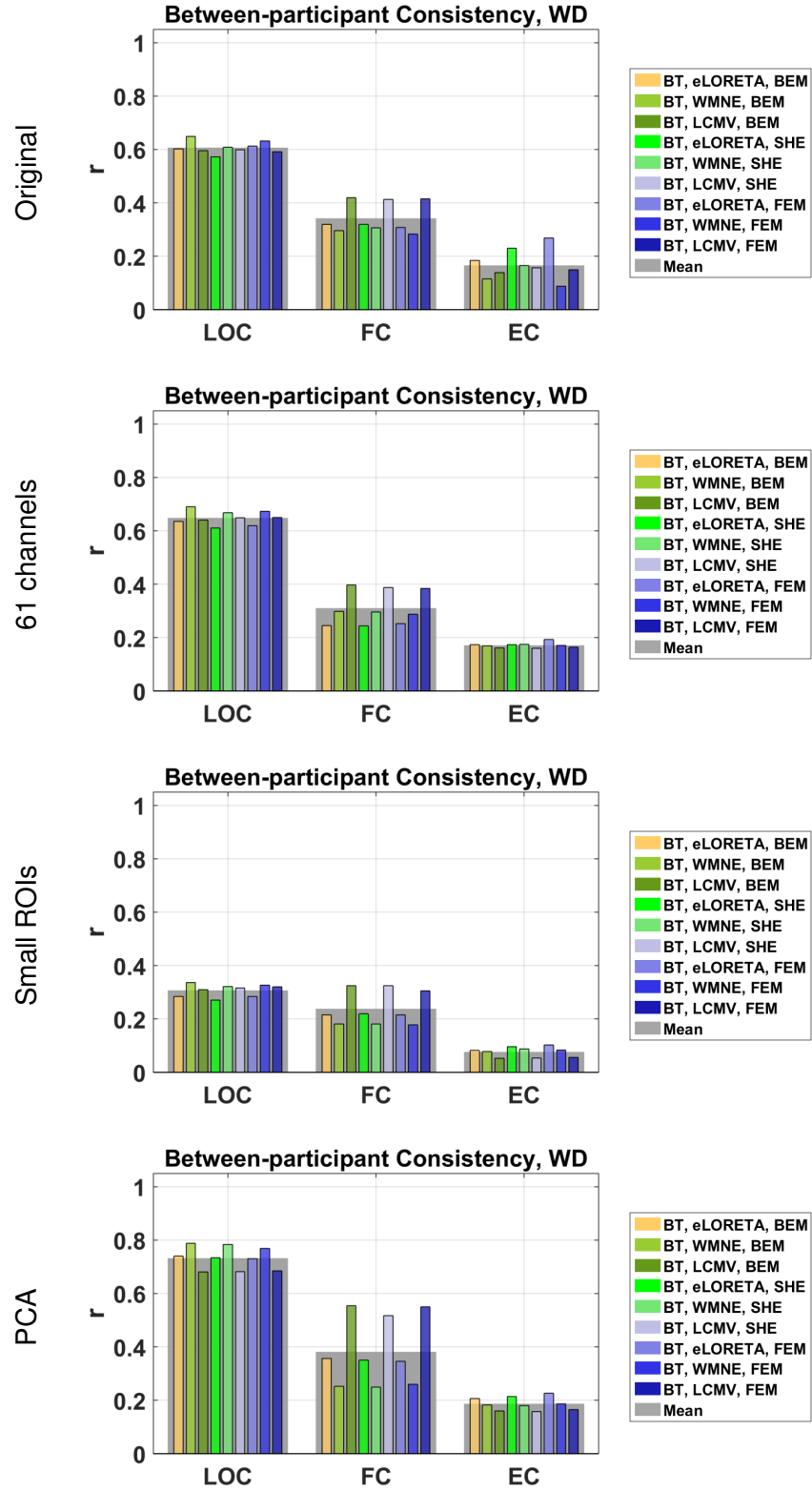


Figure S8: Between-participant consistency under variation of data processing parameters. See Figure S4 for a description of these pipelines.

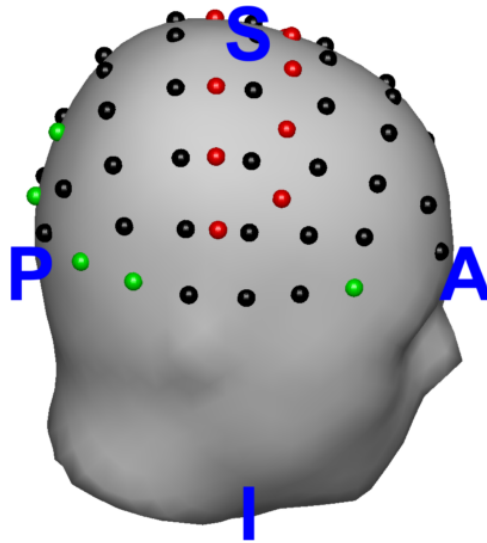


Figure S9: Additional electrode positions used for the Fazor data (green dots) and the Würzburg data (red dots) to obtain '61 channels' results.

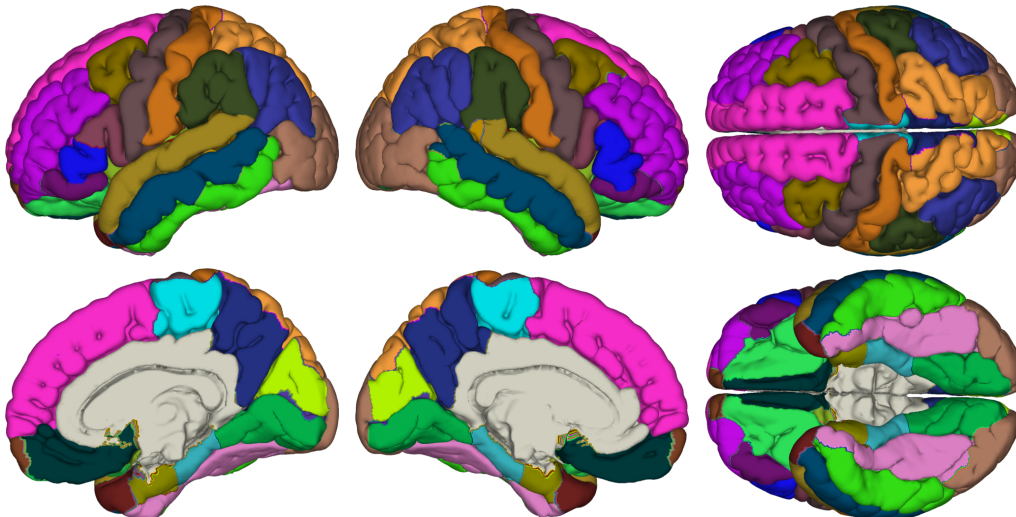


Figure S10: cortical parcellation into 60 ROIs according to the Desikan-Killiany atlas used to obtain 'Small ROIs' results.