



MRC Cognition
and Brain
Sciences Unit



UNIVERSITY OF
CAMBRIDGE

EEG/MEG 1:

Epoching and Averaging

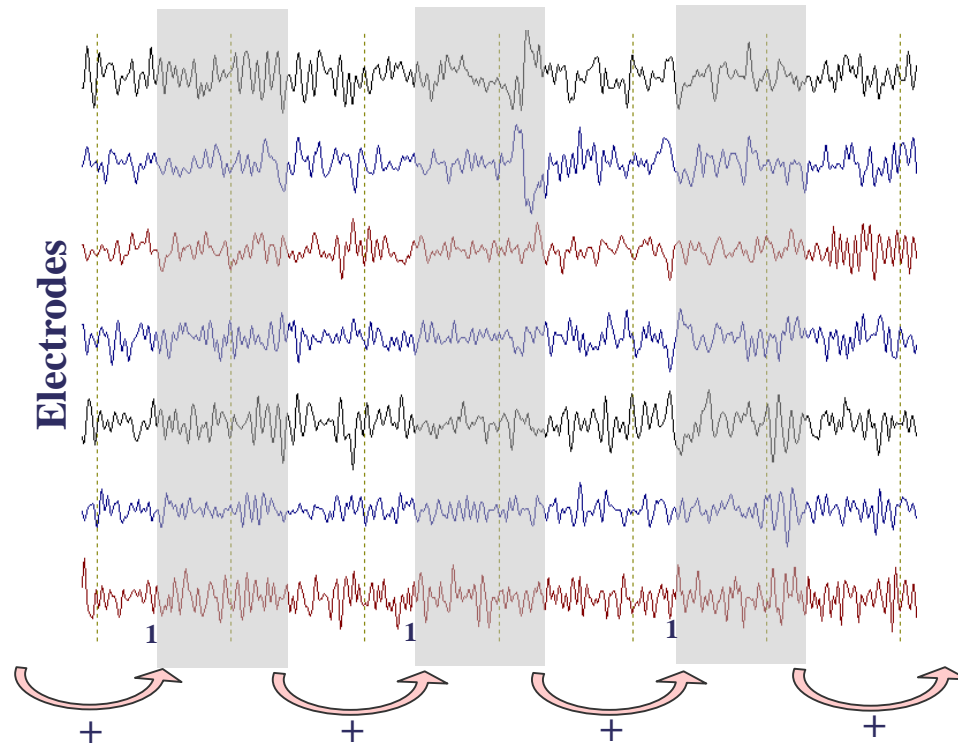
Olaf Hauk

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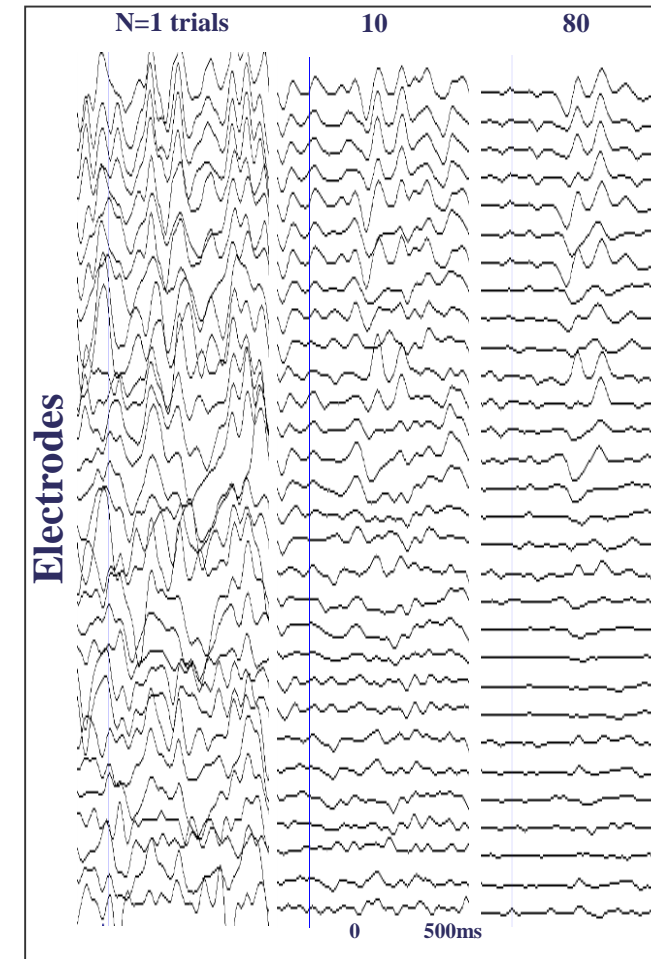
Event-Related Potentials and Fields (ERPs and ERFs)

Data Averaging

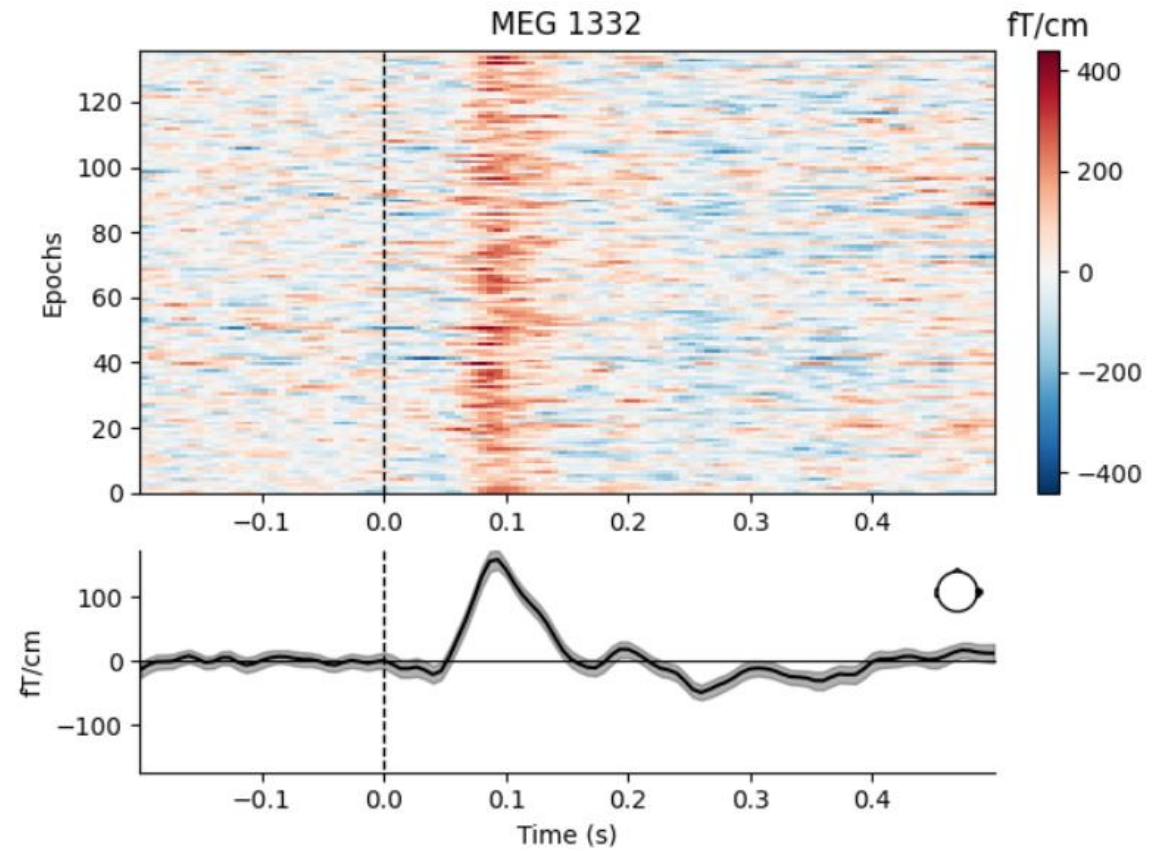
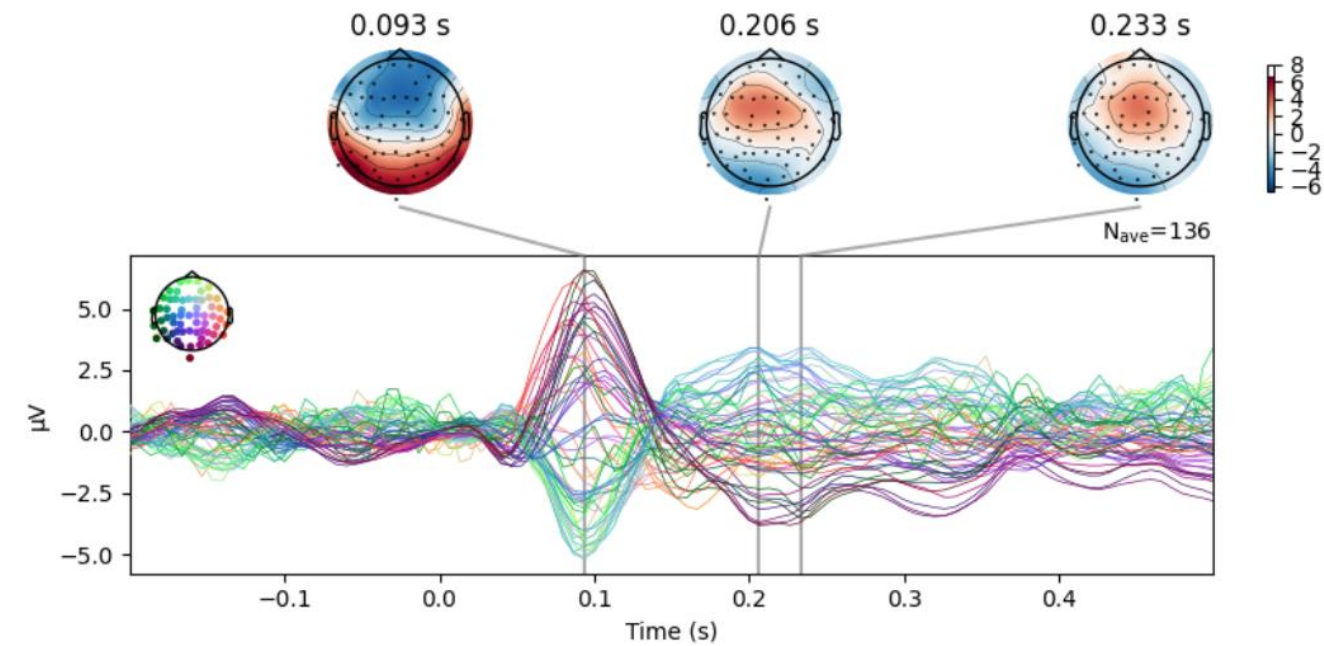
Continuous “raw” data:



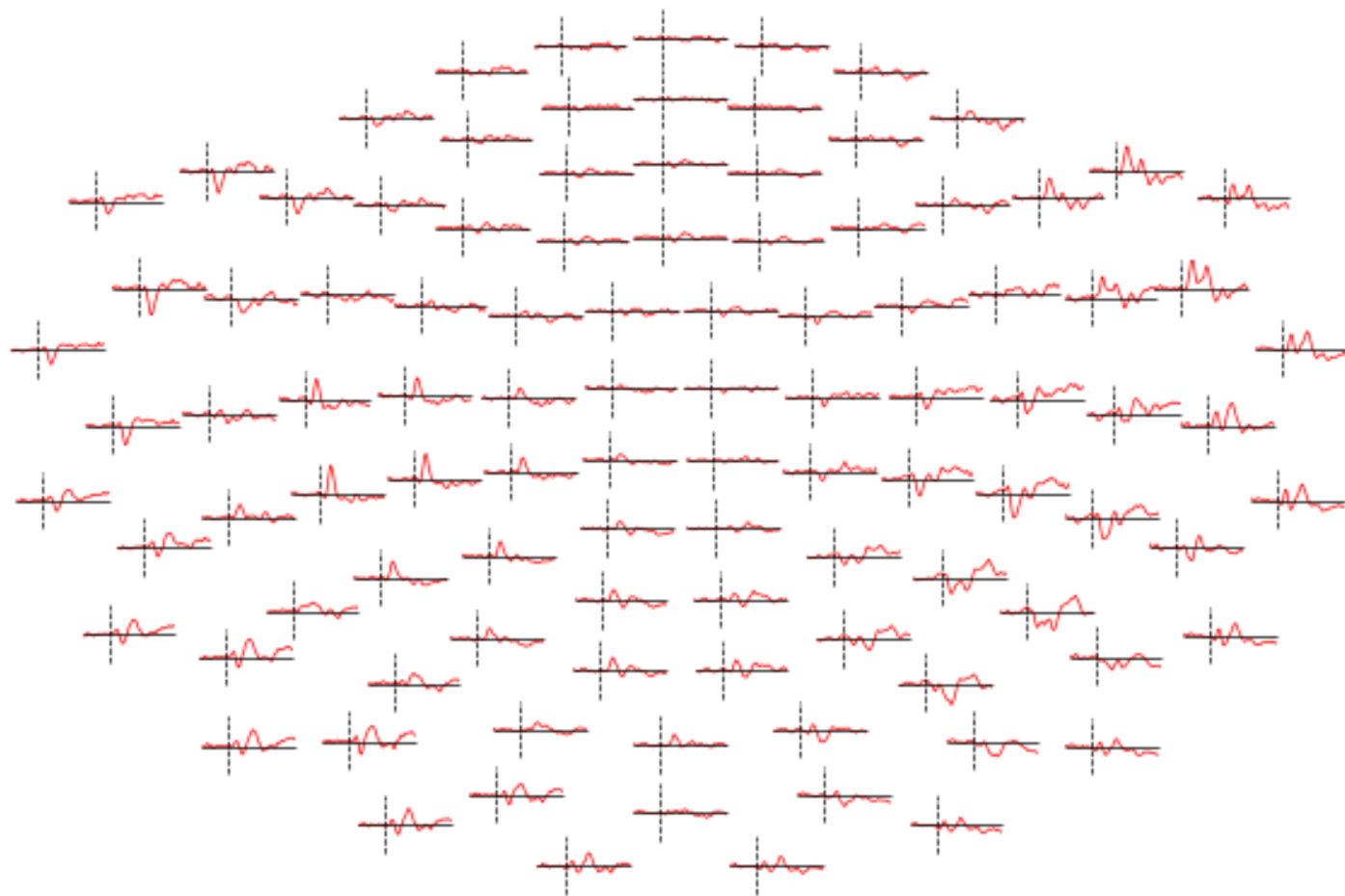
Averaged data:



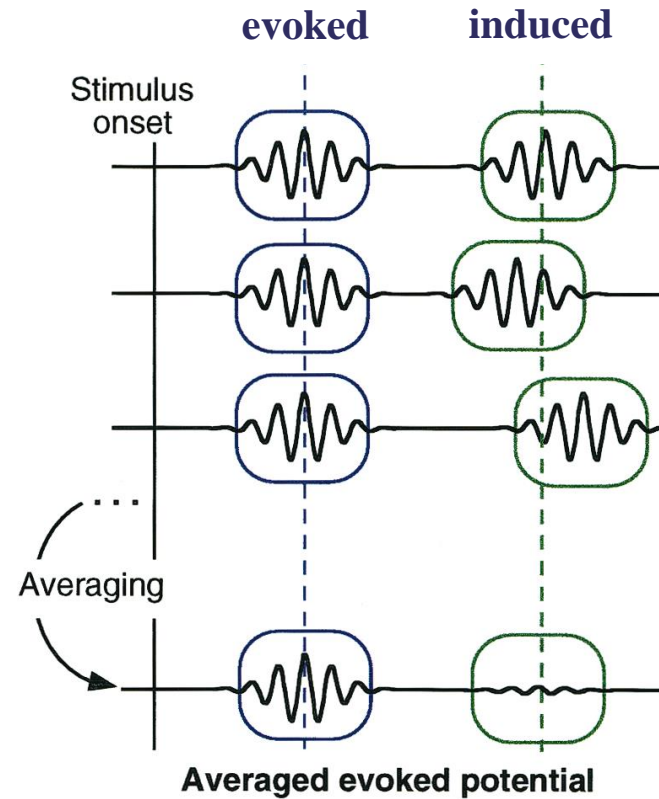
Event-Related Potentials



Event-Related Fields



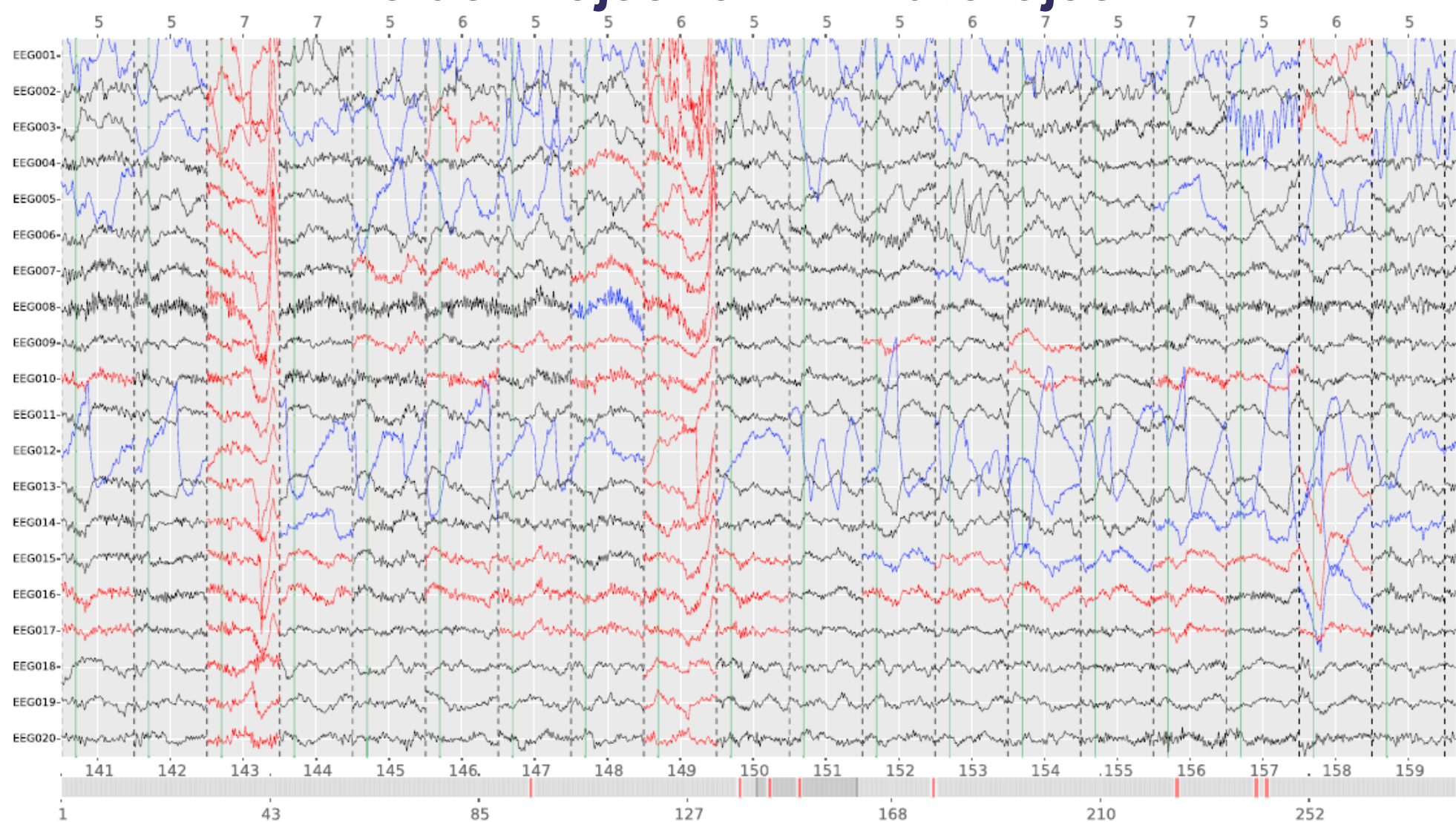
Information may get lost or distorted during averaging



Tallon-Baudry & Bertrand, TICS 1999

Temporal jitter across trials has a larger effect on higher frequencies, and they are more likely to be attenuated by averaging.

Artefact Rejection – “Autoreject”

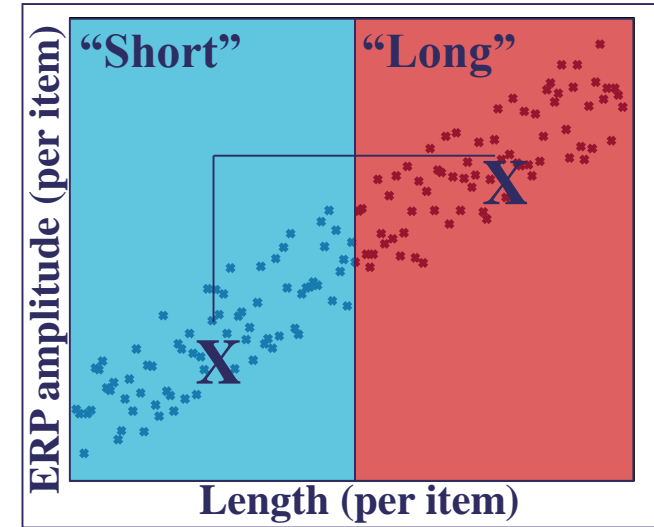
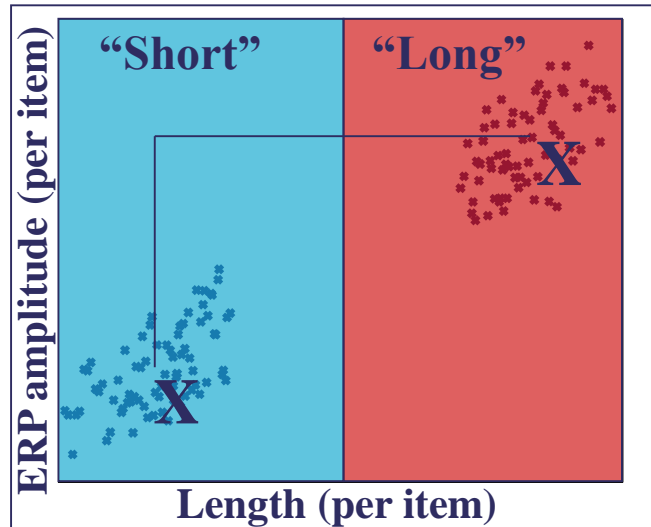


Good Bad and interpolated Bad not interpolated

Parametric vs Factorial Designs

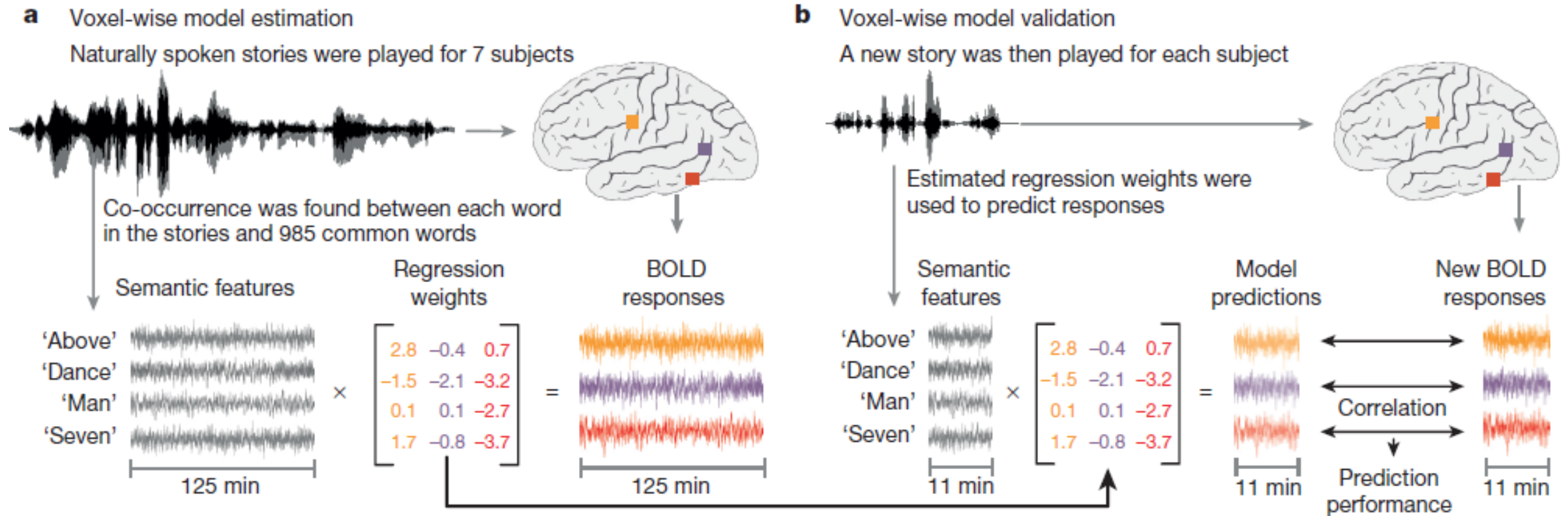
Consider parametric analysis/GLM if stimulus variables are continuous.

(still less common in EEG/MEG than in fMRI analysis)

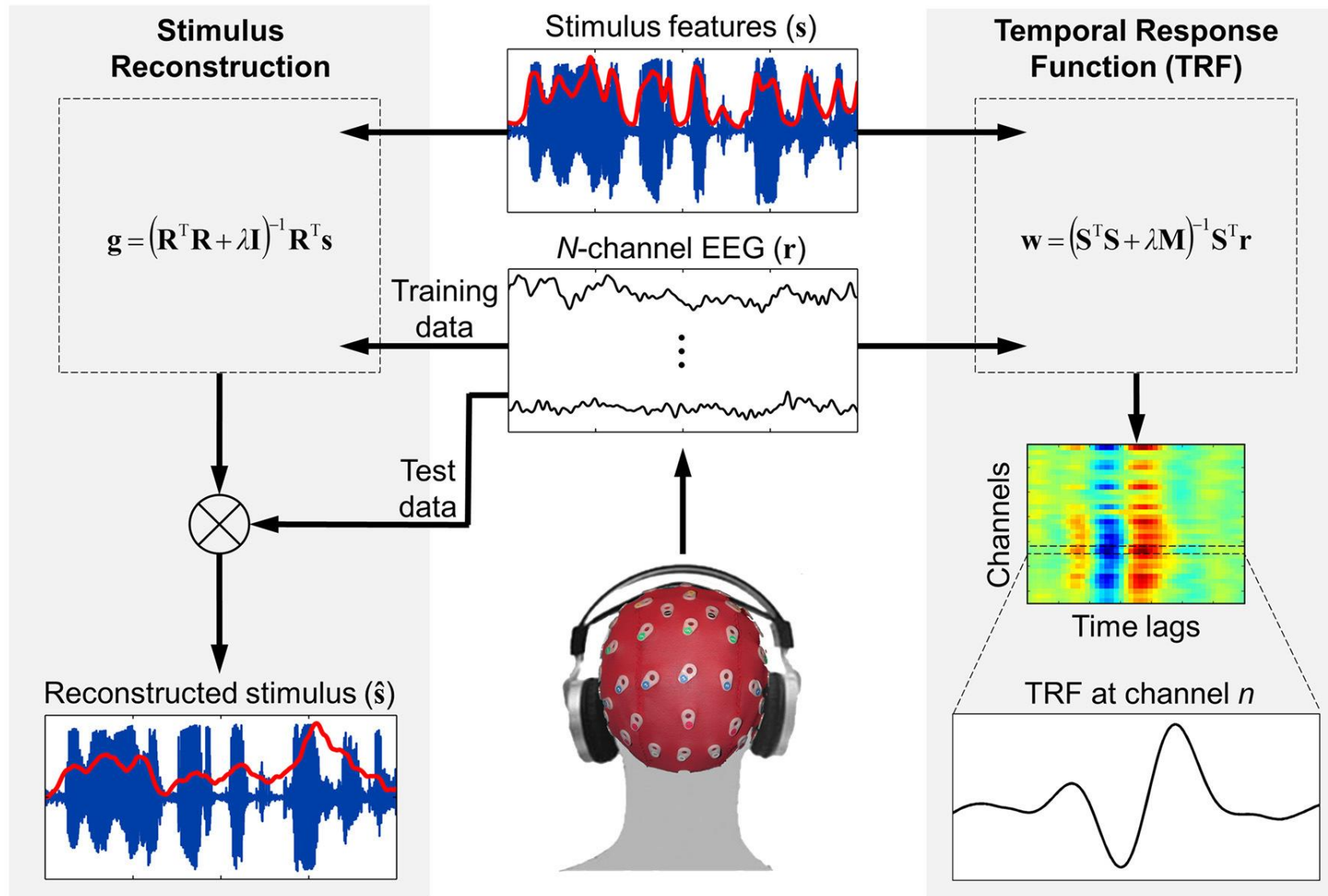


Parametric vs Factorial Designs

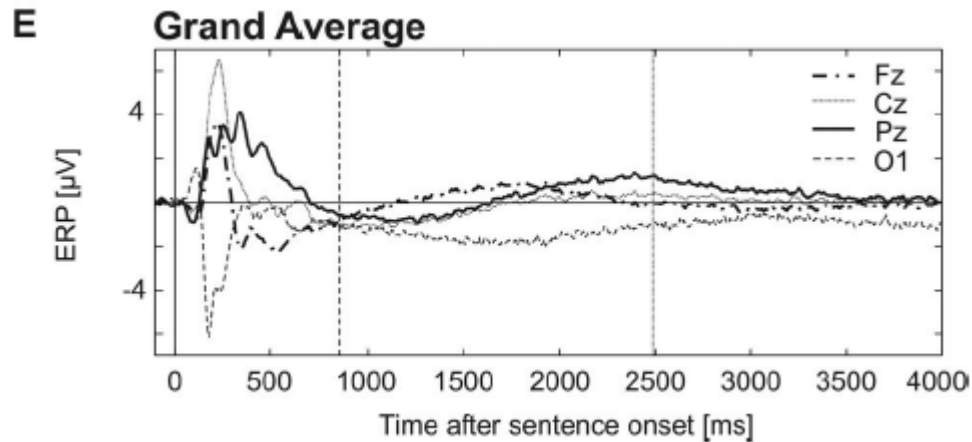
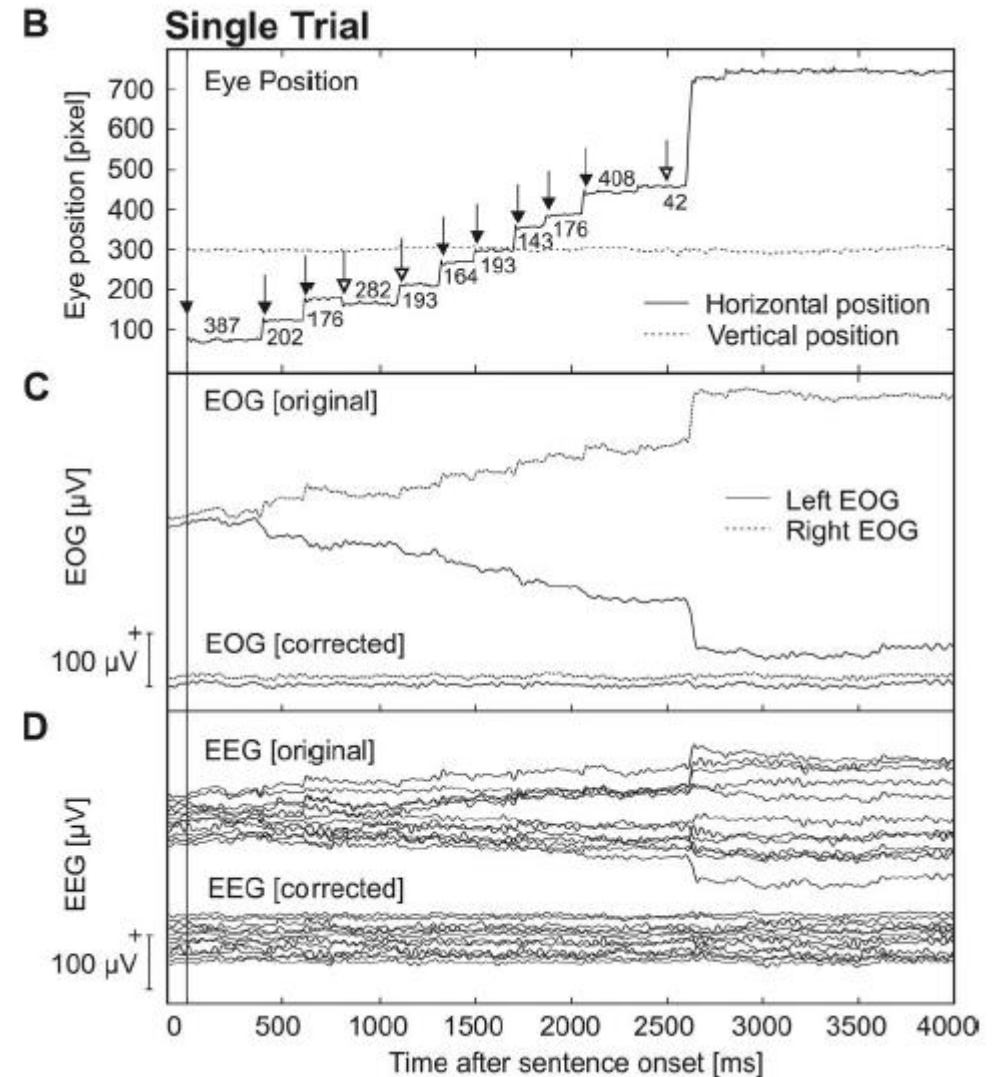
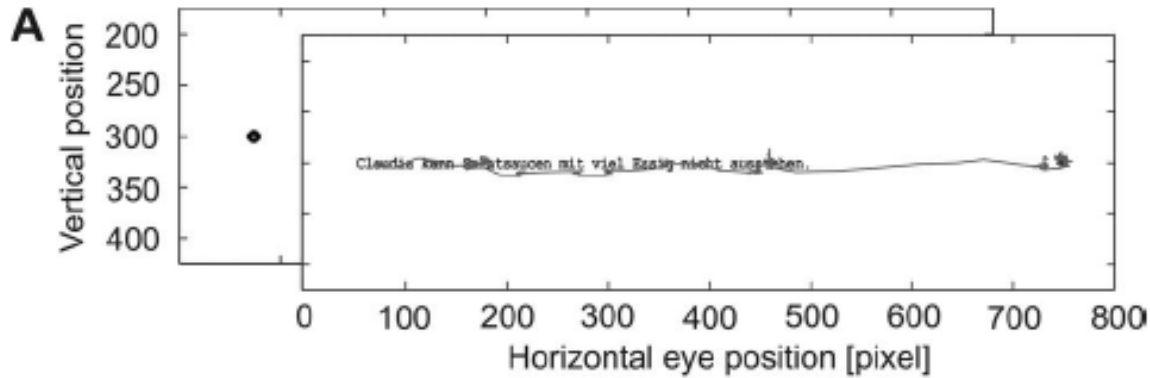
Factorial designs may not always be feasible, e.g. in naturalistic paradigms.



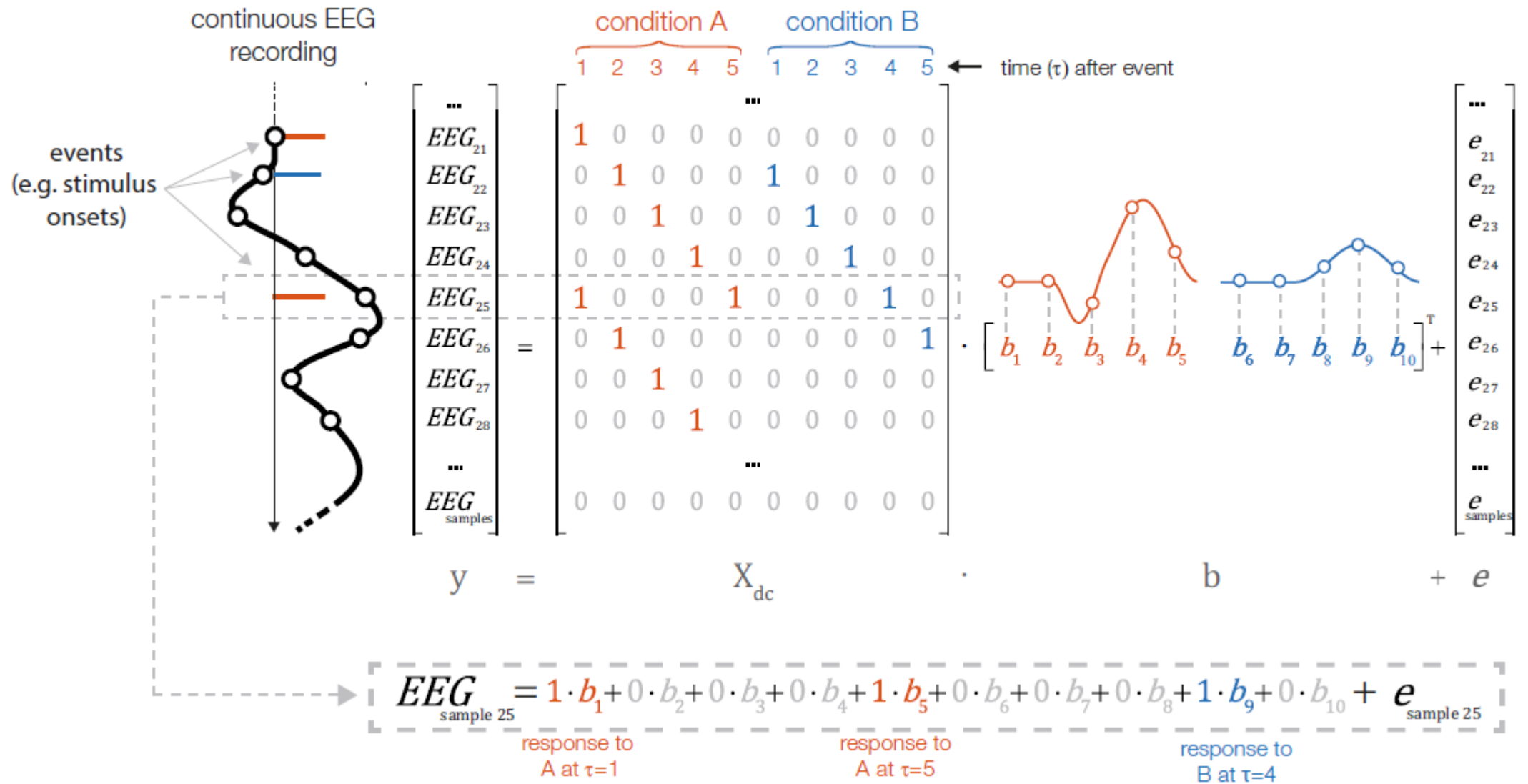
The Multivariate Temporal Response Function (mTRF) Toolbox



EEG with eye movements



Deconvolution of EEG signals – UNFOLD toolbox





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Thank you