



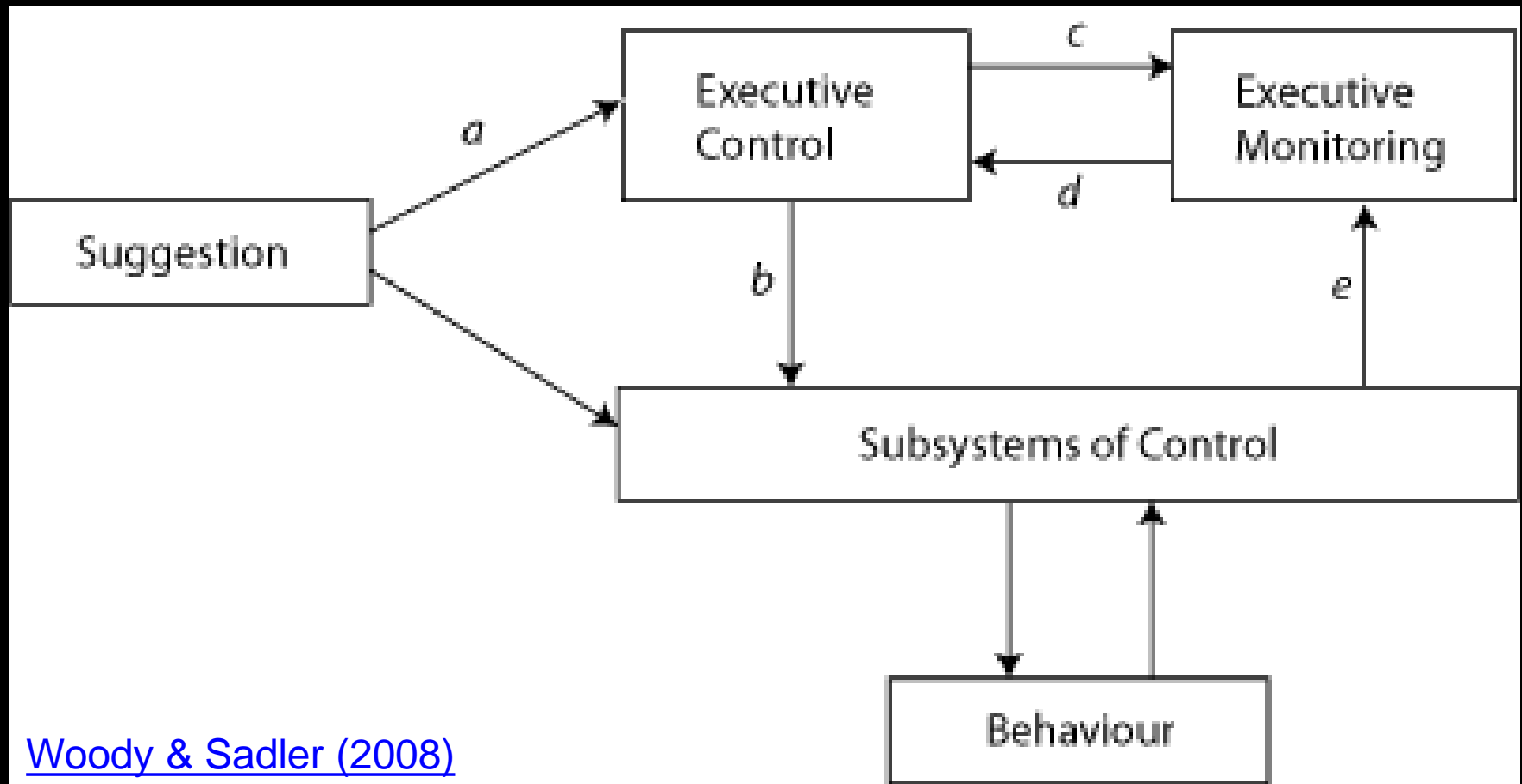
Inhibition of Retrieval in Hypnotic Amnesia: Dissociation by Upper-Alpha Gating

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Tivadar & Ian Evans

Hypnosis and Neuroscience, Paris

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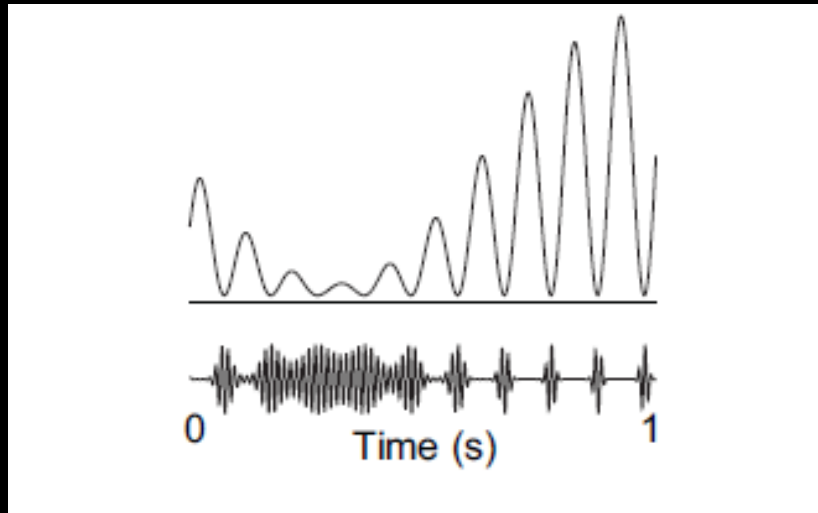
Dissociation Theories of Hypnosis



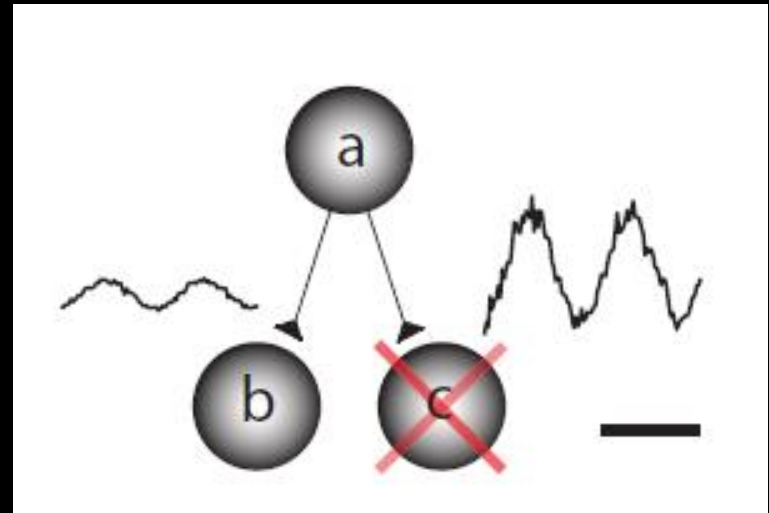
[Woody & Sadler \(2008\)](#)

Event Related Alpha Oscillations

Pulsed Inhibition



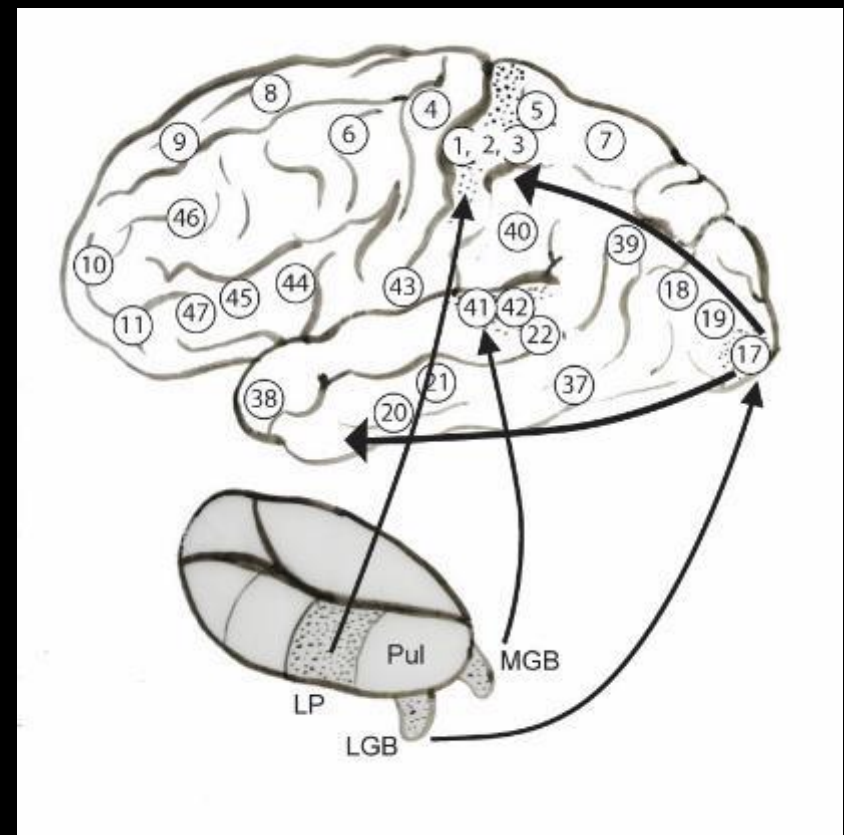
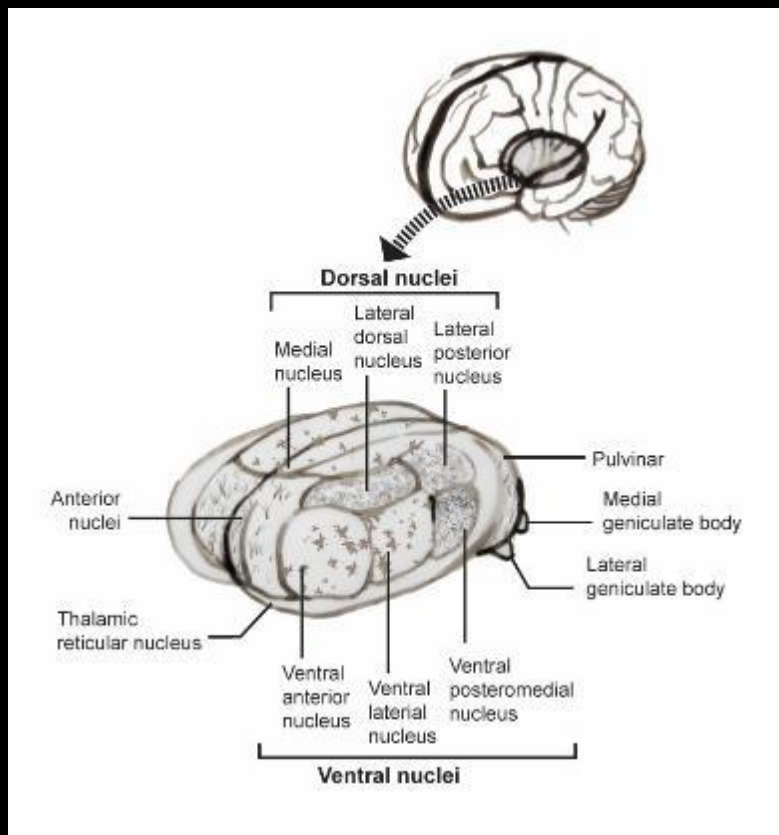
Gated Information Flow



[Jensen & Mazaheri \(2010\)](#)

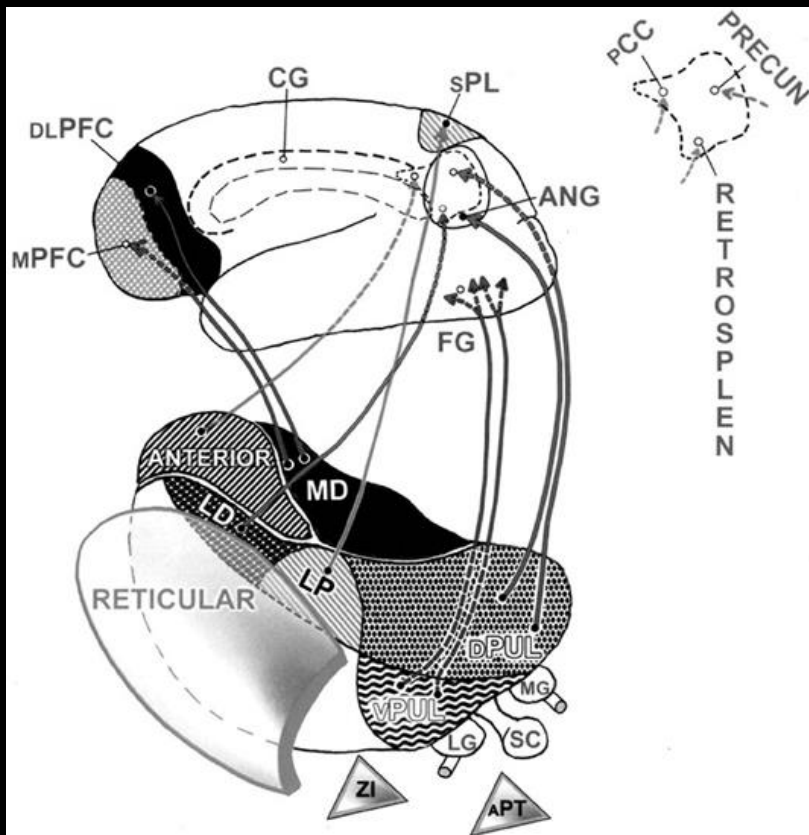


Thalamic Control of Cortical Alpha's

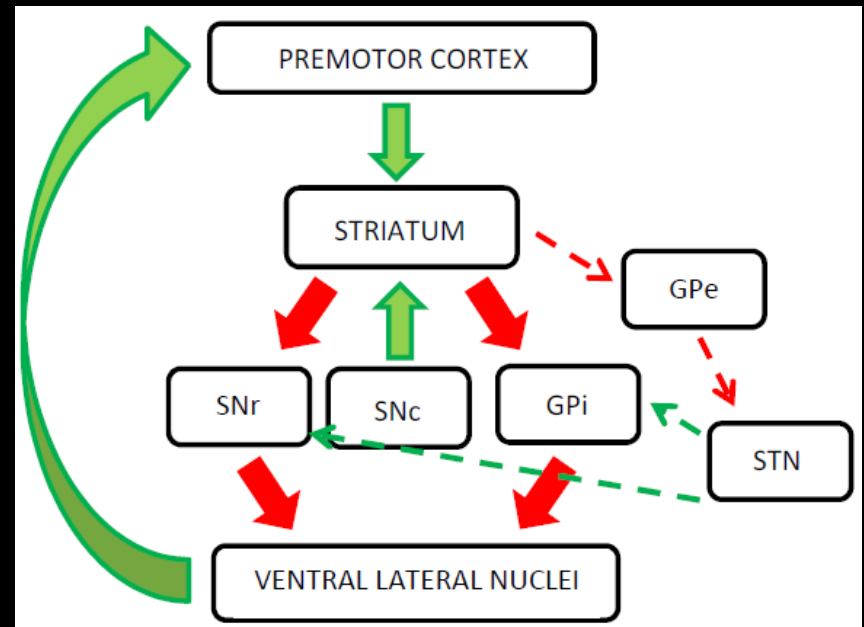


Cognitive Control Gated Through Cortical-Thalamic Loops

Reticular Nucleus Topographic Inhibition

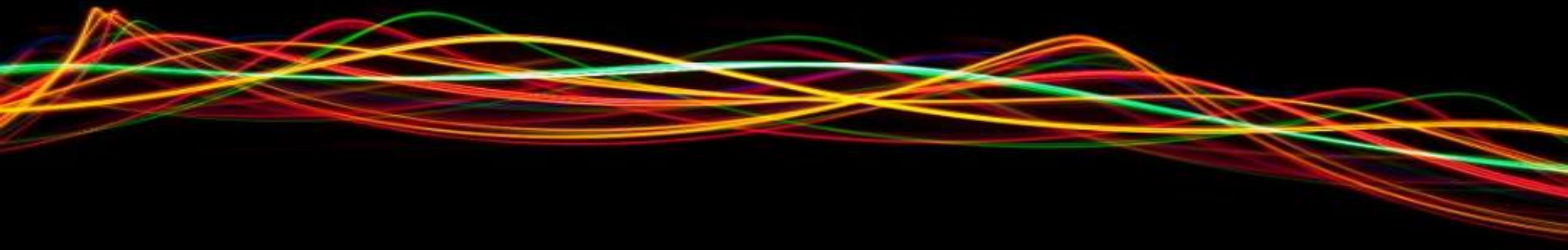


Cortical-striatal-thalamic-cortical loops



Paradigm

- Evoked upper alpha (10 – 12 Hz)
- EEG source localisation and functional connectivity (eLORETA)
- Recognition of recently seen faces
- Hypnotic amnesia suggestion
 - During suggestion
 - Following reversal of suggestion



Hypnotic Aptitude Selection

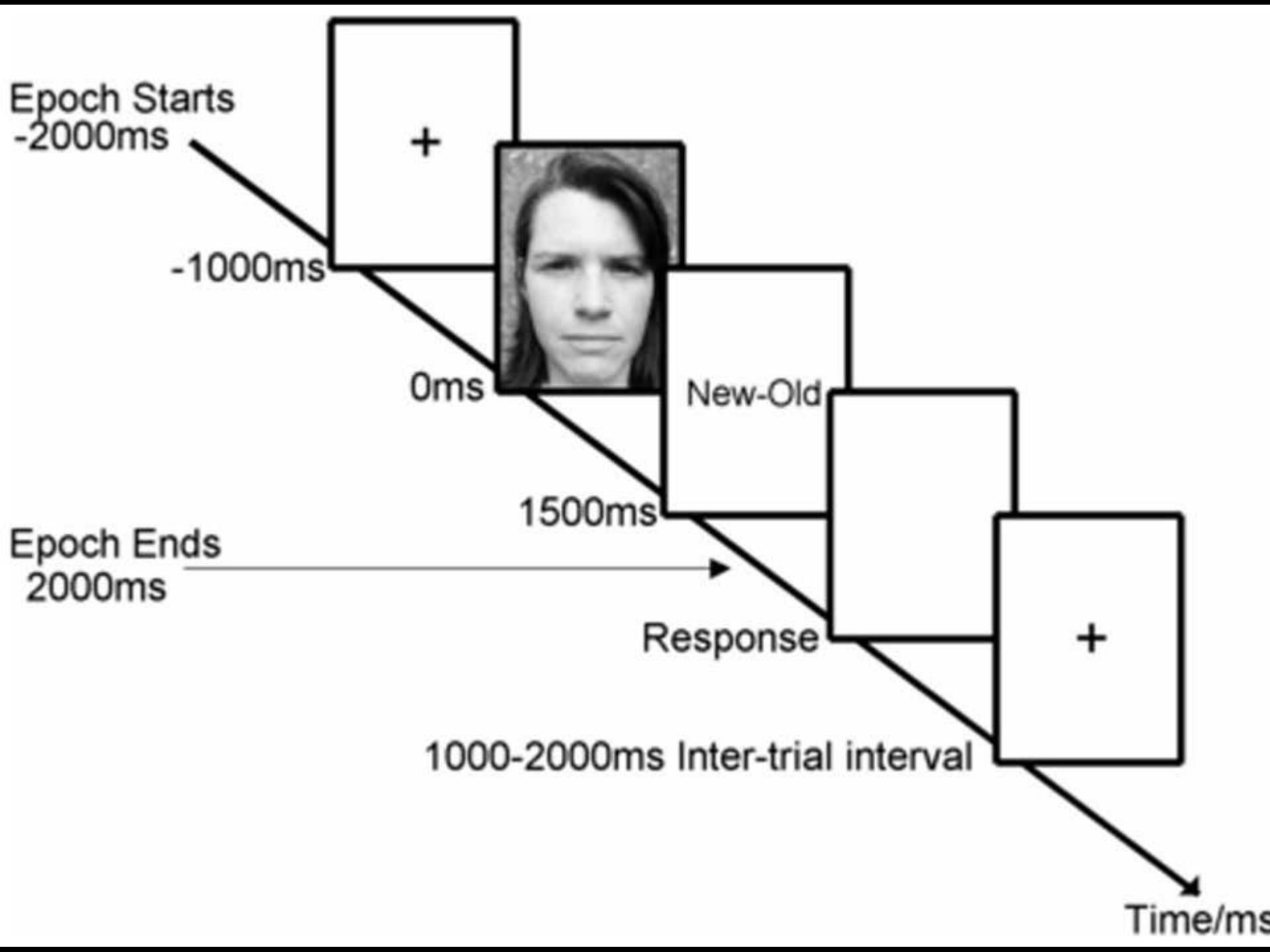
- Double screening
 - HGSHS:A (group)
 - SHSS:C (individual)
- Lows 0 – 2 on both tests (no cognitive or challenge items)
- Highs 10 – 12 on both tests (must pass amnesia)

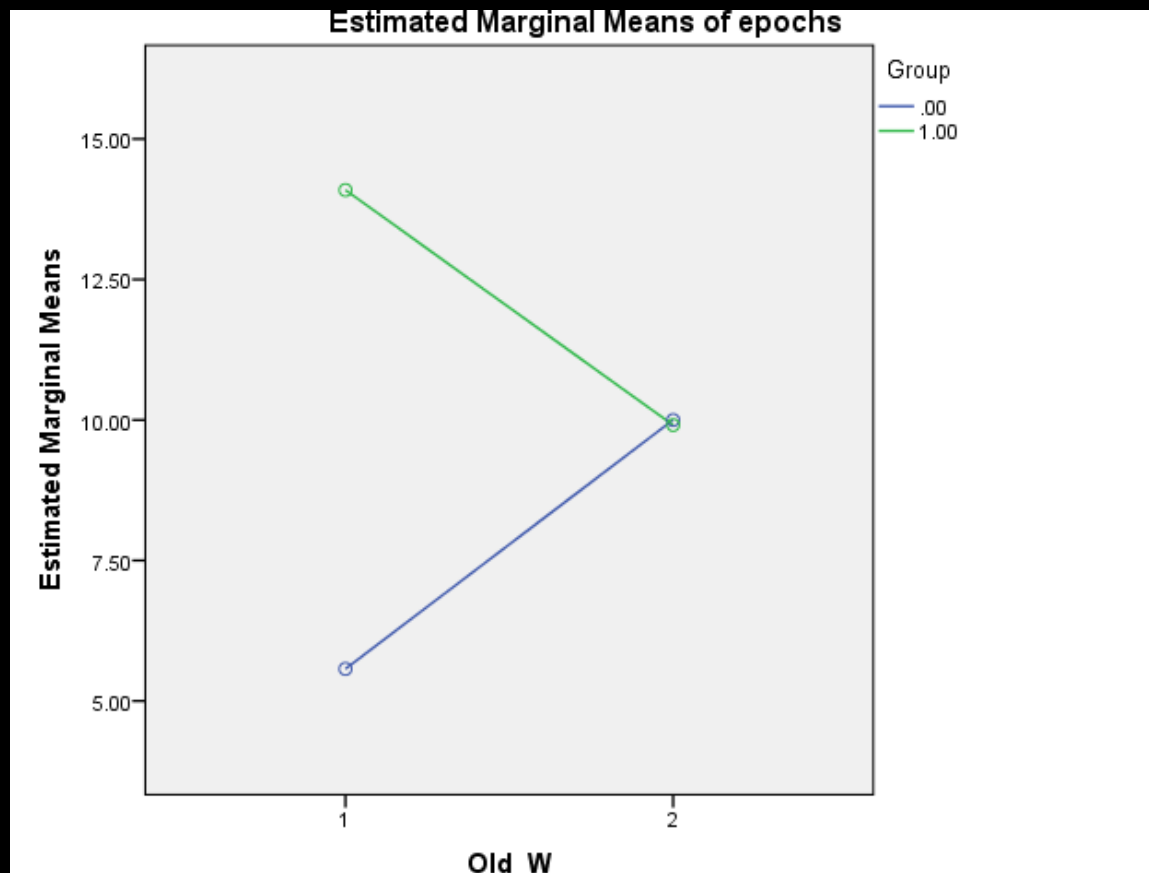
Procedure

- Classify affective expressions (60 faces)
- Hypnotic induction
- Hypnotic amnesia suggestion
- 30 New – 30 Old face recognition Task1
- Reverse amnesia suggestion
- 30 New – 30 Old face recognition Task1
- Hypnotic deinduction

Hypnotic Amnesia: Induction/deinduction

- You are unable to remember the faces you saw previously. You will be unable remember any of those faces until I tell you that you can remember them. Even now your memory of them is fading. You are becoming less and less able to recall them , less and less. Soon you will be unable to recall any of the faces which you saw previously.
- You are now able to remember all the faces that you saw previously. Your memory for those faces is completely normal again and you can recall them just as you were able to do so before I made any suggestion for you to forget.

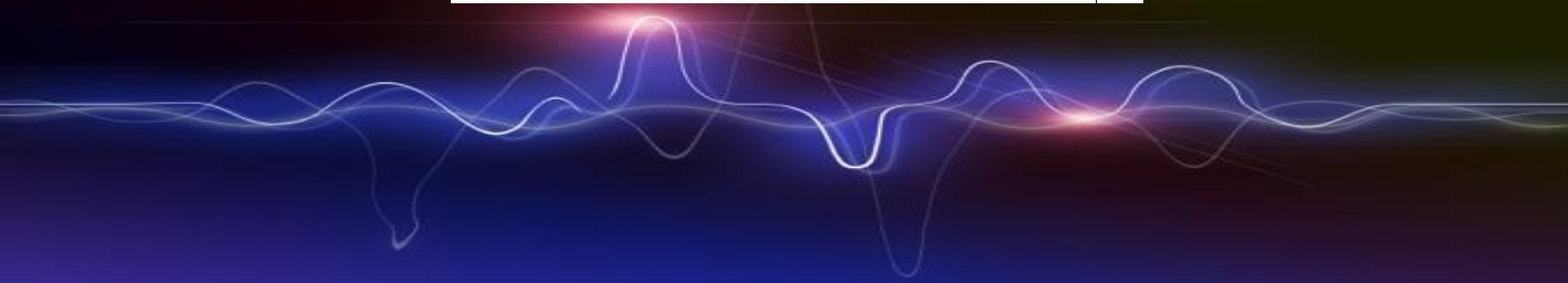
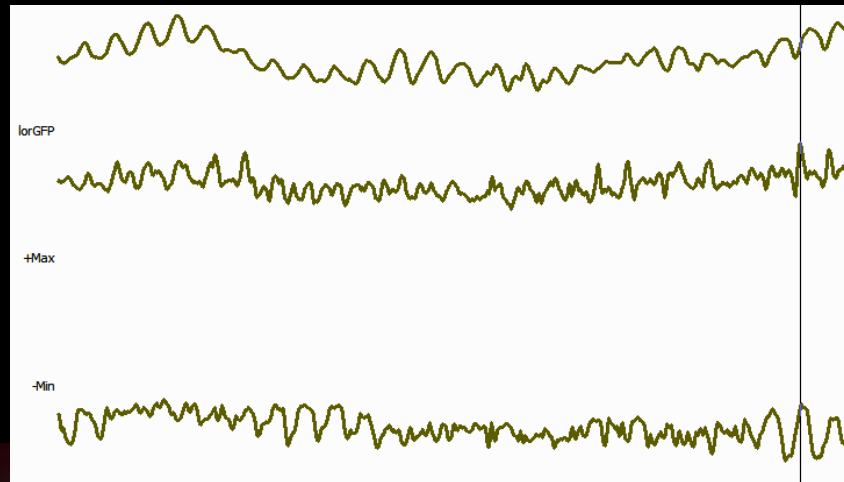
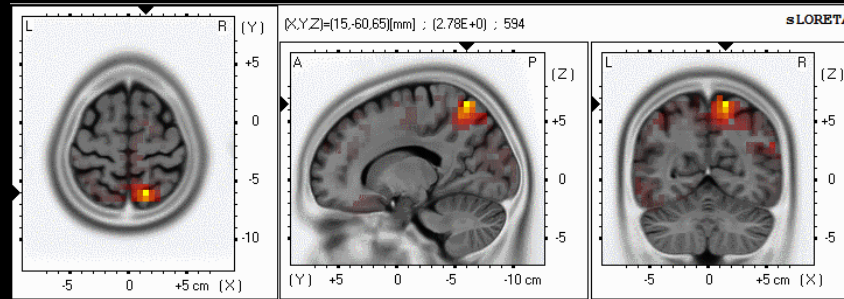




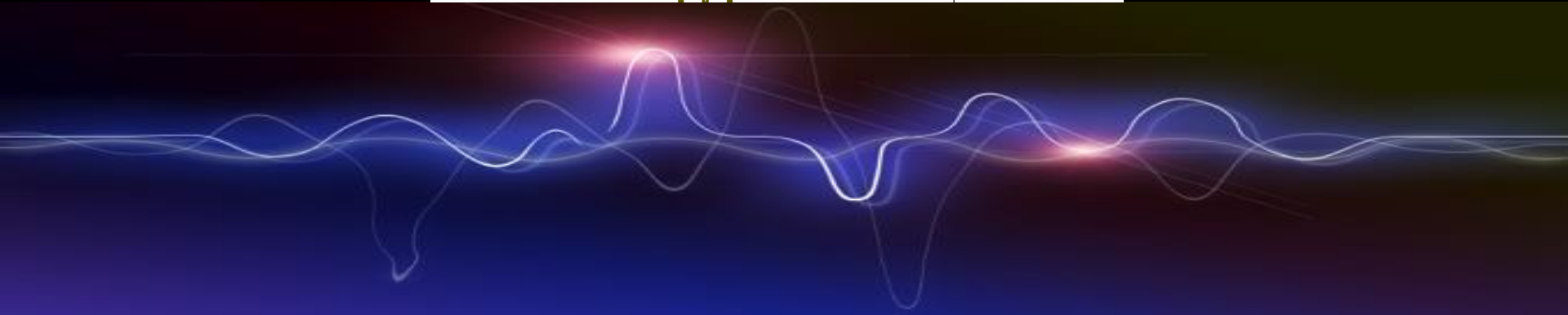
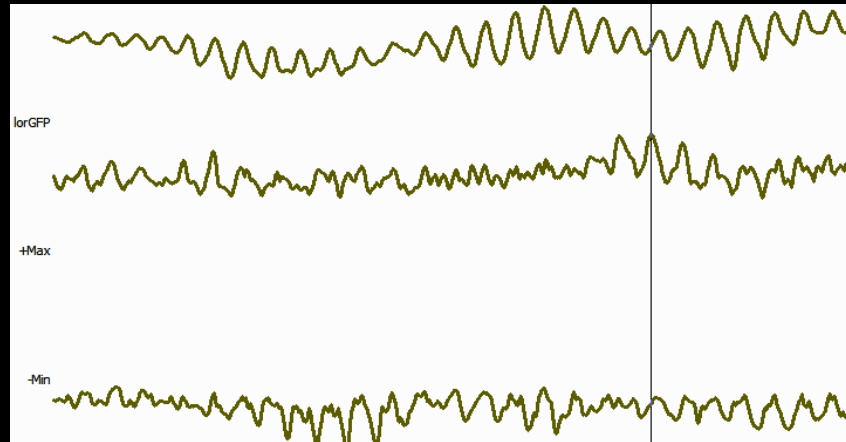
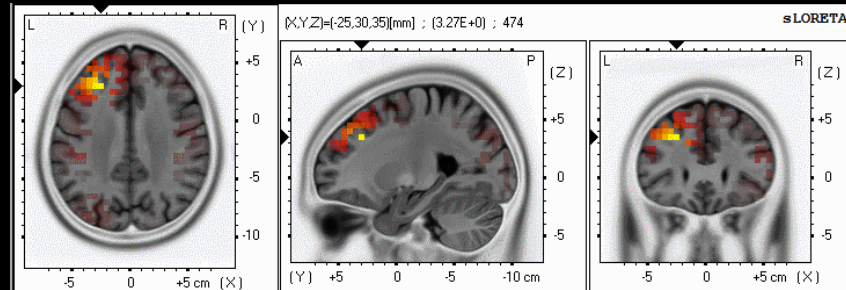
Old faces identified as new: low sand highs under hypnotic amnesia and following lifting of suggestion



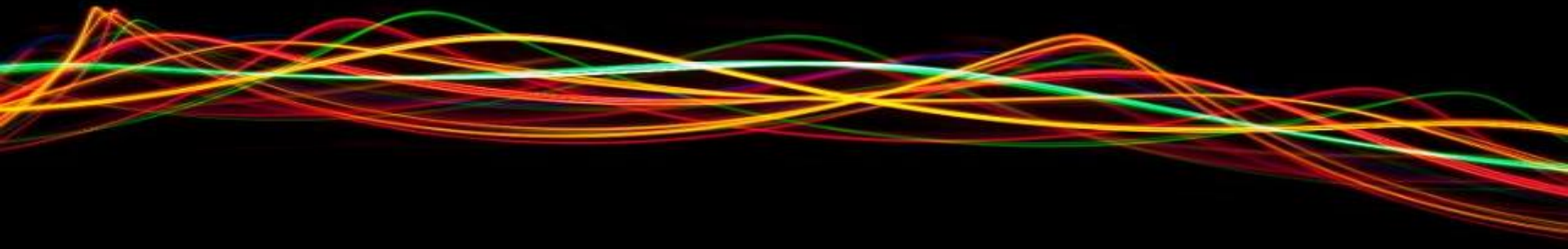
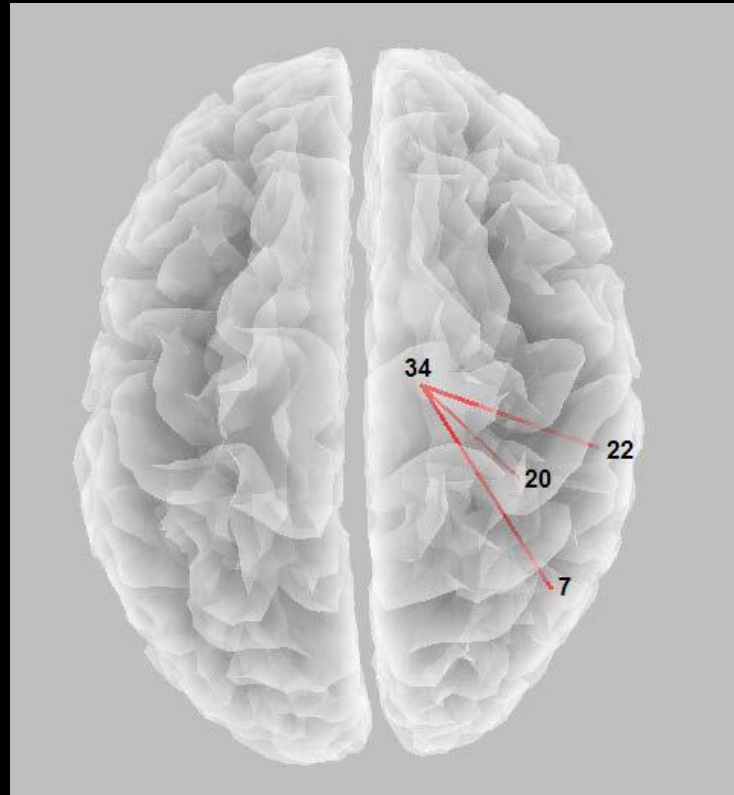
eLORETA: Hypnotic Amnesia



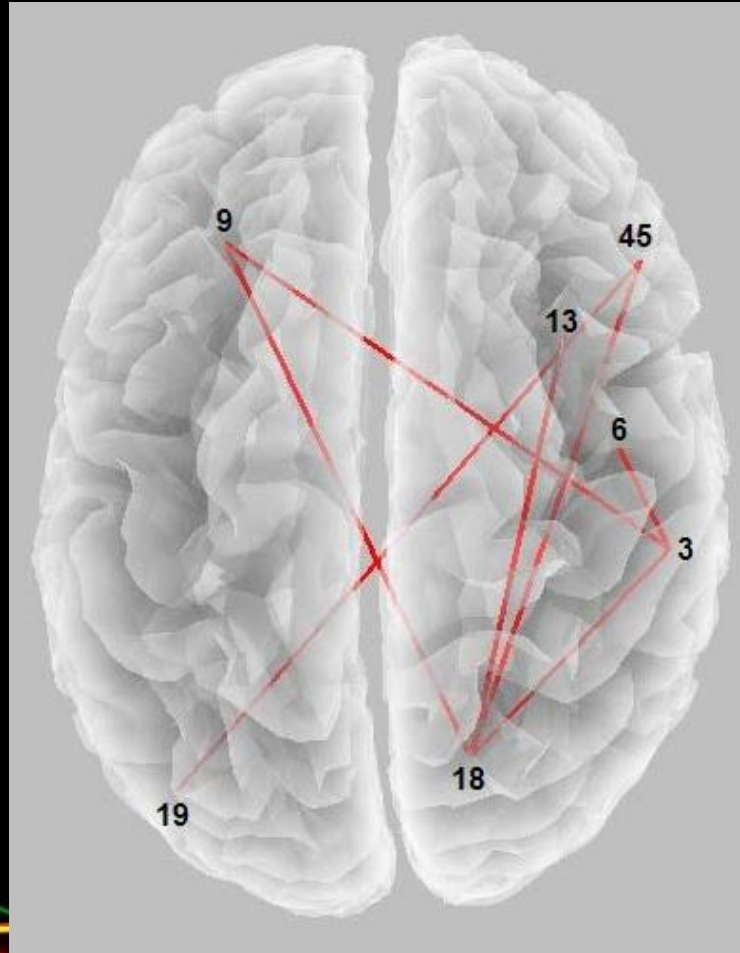
Post-Suggestion



Lagged Non-Linear Connectivity: Hypnotic Amnesia

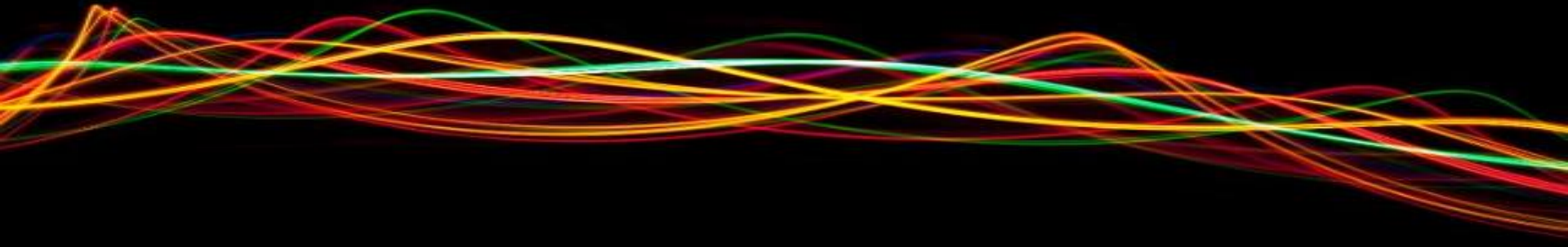


Lagged Non-Linear Connectivity: Post-Suggestion



Research Priorities

- Replication is essential
- Apply these methods to *each of the 4 types* of hypnotic suggestion responses
- Identification of the *shared neurophysiological mechanisms* which enable and coordinate suggestion specific dissociations
- MEG, intracortical recording and deep brain stimulation studies are required to SETTLE the causal mechanisms



Acknowledgements

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- **Thanks to Adrian Burgess and Nathan Ridout (Aston) for assistance in piloting New-Old face recognition paradigm with hypnotic amnesia**