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Neural and Functional States of Working Memory

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Propositions

- Alpha oscillations and voltage changes in the EEG signal exhibit distinct neural mechanisms involved in working memory maintenance, despite overlapping periods of item-specific representations (Chapter 2).
- The representation of colours appear to be more than just a reflection of hue and brightness; it may also contain categorical information (e.g. colour names). In that sense, colours are different from other basic stimuli like orientations (Chapter 2)
- Decoding of neural correlates reveals that what is remembered throughout a trial can be more than what is reported by the participant in that trial (Chapter 2 - 3).
- The maintenance of spatially specific neural representations in working memory does not necessarily require the involvement of early visual cortices (Chapter 3).
- Memory representations of stimuli differ due to functional differences rather than differences in how these representations were formed. (Chapter 3 - 4).
- Short-term changes in synaptic connectivity play a role in spreading activity induced by the sensory processing of an impulse signal (Chapter 4).
- From the perspective of a participant, experiments include learning how to successfully complete a task and automizing this behaviour in the face of fatigue and boredom. A more accurate interpretation of results, therefore, requires considering this perspective, as well (Entire thesis).
- Everything is politics. Denying this does not make you a better person or a better scientist, but surely makes you a bad politician (Entire PhD project).