

# Information flow in the hippocampo-prefrontal system

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In general, I accept the hypothesis that while solving spatial memory tasks, the hippocampus (HPC) and the prefrontal cortex (PFC) need to exchange information. However, I believe that the information flow has an intricate character, which can not be described by a simple, unidirectional information transfer from the hippocampus to the PFC. Instead, I hypothesise that there is a mutually reciprocal transmission of information and the direction of its flow may vary rapidly and depend on the current situation.

My working hypothesis is that the direction of the information flow can be determined based on local field potential data. To achieve its quantitative characterization I use the Granger-causality measure. Preliminary results show that during theta activity of unspecified type there is an increased information exchange between the HPC and the PFC while the common external drive is decreased relative to non-theta periods.