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Competing neural races in human frontal cortex shape decision confidence

Decision formation seems to emerge from a competition between populations of neurons encoding the different choice options located in areas of the parietal and frontal cortex. Theoretical insights suggest that this distributed competition may be key for understanding internal states associated with choice behaviour, especially the confidence about decision accuracy. It has previously been challenging to monitor the dynamics of this competition experimentally. Here, we developed an MEG source imaging approach to track competing neural races for decision in human frontal cortex and relate their competition to the dynamics of decision and confidence formation. Our approach demonstrates a unique contribution of both, "winning"and "losing"neural races to confidence and establishes a novel platform for identifying the principles of distributed cognition in the human cortex.

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