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Divided representation of concurrent goals in the human frontal lobes.

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Source

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Abstract

The anterior prefrontal cortex (APC) confers on humans the ability to simultaneously pursue several goals. How does the brain's motivational system, including the medial frontal cortex (MFC), drive the pursuit of concurrent goals? Using brain imaging, we observed that the left and right MFC, which jointly drive single-task performance according to expected rewards, divide under dual-task conditions: While the left MFC encodes the rewards driving one task, the right MFC concurrently encodes those driving the other task. The same dichotomy was observed in the lateral frontal cortex, whereas the APC combined the rewards driving both tasks. The two frontal lobes thus divide for representing simultaneously two concurrent goals coordinated by the APC. The human frontal function seems limited to driving the pursuit of two concurrent goals simultaneously.

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