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Poster title: Goals and subgoals are dissociably represented in hierarchically organized behavior

Abstract: Humans pursue hierarchically organized goals by balancing persistence with flexible switching between goals and subgoals. How the brain supports this form of hierarchical control during self-directed behavior remains unclear. Using functional neuroimaging and a freely navigated hierarchical goal pursuit task ($n = 29$), we show that goals and subgoals are supported by dissociable neural systems. Participants' choices were captured by a computational account in which "momentum", defined by accumulated progress and rate of progress, governs commitment to ongoing pursuits. Higher-order goal identity and momentum were represented in medial frontal, parietal and striatal regions, whereas lower-level subgoal momentum was encoded in the frontal pole. Goal and subgoal prediction errors were similarly dissociated across medial prefrontal–striatal and anterior cingulate–insular systems, respectively. Neural variability in these momentum signals predicted individual differences in switching tendencies. Together, these findings suggest that hierarchical behaviour is supported by distinct neural mechanisms for representing, valuing and flexibly updating goals and subgoals.