Waymaking: a nested approach to cognition inspired by cognitive and computational hippocampal models

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Abstract

This paper introduces Waymaking, a philosophy that defines cognition by the trajectories of an agent's movement through its ongoing encounter, whereby those trajectories are themselves dynamic patterns of nested (i.e., whole-body, neural) spatiotemporal movement. Here, an agent's encounter incudes all realms traditionally named mental, physical, and virtual, distinguishing these by their affordances and sensory landscapes relative to the agent-base. Recent research on the hippocampal formation and entorhinal cortex has opened a way for cognition to be understood as trajectories within nested landscapes: We can now posit knowledge-acquisition, remembering, and spatiotemporal navigation as a common process through statistically diverse clustered regularities. This paper formulates these findings into a general framework that can be used heuristically to provide a practical definition of cognition applicable across disciplines and species, thus alleviating stubborn dichotomies such as those at the heart of the so-called mind-body problem and arguments around potential plant or animal cognition.

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