

Abstract

Active Inference provides a unified mathematical formalism for understanding biological agents as systems that minimize variational free energy through perception and action. While traditionally viewed as a theory of how agents minimize surprise, we demonstrate that Active Inference operates at a fundamentally *meta-level*: it is both *meta-pragmatic* and *meta-epistemic*, allowing modelers to specify the very frameworks within which cognition occurs, rather than merely describing cognitive processes within fixed frameworks.

We introduce a (2×2) matrix structure that organizes Active Inference's meta-level contributions across four quadrants defined by Data/Meta-Data and Cognitive/Meta-Cognitive processing axes. This organization reveals how Active Inference transcends traditional reinforcement learning by allowing modelers to specify both epistemic structures (what can be known, through matrices (A), (B), (D)) and pragmatic landscapes (what matters, through matrix (C)), creating a meta-methodology for cognitive science.