

## Abstract

Active Inference is a theoretical framework that unifies perception, action, and learning within a single mathematical formalism.

Traditionally understood as providing a principled account of how biological agents minimize surprise in their interactions with the world, Active Inference operates at a fundamentally meta-level.

Active Inference is both *meta-pragmatic* and *meta-epistemic*, enabling modelers to specify particular pragmatic and epistemic frameworks for the entities they study.

Our analysis introduces a  $2 \times 2$  matrix framework that structures Active Inference's theoretical contributions across four quadrants defined by the axes of Data/Meta-Data and Cognitive/Meta-Cognitive processing. This framework reveals how Active Inference transcends traditional reinforcement learning approaches by allowing modelers to define not just reward structures, but entire pragmatic landscapes within which agents operate.

We show that the Expected Free Energy (EFE) formulation, while