Understanding the emergence of cognition likely requires an evolutionary perspective emphasizing how autopoietic principles potentially shape complex internal models. This article introduces "thoughtseeds" – discrete units of knowledge shaped by the interplay of evolutionary forces and individual exploration. We propose three key forces: the Conservative Force, favoring stability by aligning thoughtseeds with ancestral knowledge (phylogenetic priors), the Variational Force, promoting niche-specific adaptability, and the Regulatory Force, maintaining autopoiesis and non-equilibrium steady state.

Thoughtseeds form the building blocks of a Thoughtseed Network (TN), influencing perception, shaping the organism's internal model, and minimizing surprise (aligning with the Free Energy Principle). The TN optimizes action selection using Expected Free Energy (EFE), complementing Variational Free Energy (VFE) in guiding adaptive behaviors. Each thoughtseed possesses a distinct Markov Blanket, encapsulating knowledge, context-dependent affordances, and sensory expectations aligned with the organism's umwelt/ecological niche. We consider hierarchical Markov Blankets, exploring how regulation and EFE optimization operate at multiple levels.

The TN framework emphasizes the role of phylogenetic (basal and lineage-specific) and phenotypic priors in shaping adaptive responses, including potential knowledge transfer across generations. We propose a dynamical systems model to illuminate the formation, refinement, and potential evolution of thoughtseeds, highlighting their role in shaping internal models, Markov Blankets, and emergent cognition. This framework offers insights for neuroscience, evolutionary biology, social sciences, and any field exploring knowledge transmission, adaptation, and the evolution of learning and memory.