

# E-Cognition and Dynamical Systems

Berlin School of Mind and Brain  
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*Are facts about the nervous system sufficient to explain intelligent cognition? Can mental health sufficiently be explained by neuroscience? Do brainless living beings possess cognitive capacities in their adaptation to survive their environments? Does intelligent cognition possess properties that do not reduce to the nervous system? In this seminar, we will explore the so-called E-Cognition positions as a rejection of the reduction of intelligent cognition to the nervous system. Specifically, we will appraise cognition in terms of dynamically unfolding, situated embodied interactions between the organism and aspects of their world. Further, we will examine embodied cognition through the lens of the theory that seems best equipped to formally respond to questions resulting from intelligent interactions with the environment — Dynamical Systems Theory.*

Lecturer

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# Syllabus

## 1. E-cognition

- 1.1. Re-thinking cognition
- 1.2. Embodiment: Existence precedes essence
- 1.3. Disembodiment
- 1.4. Autopoietic enactivism
- 1.5. Radical enactivism: Basic minds

## 2. Dynamical Systems Theory

- 2.1. Stochastic dynamical systems
- 2.2. Non-equilibrium statistical mechanics
- 2.3. Bayesian inference: variational inference & generative models
- 2.4. The Bayesian brain hypothesis
- 2.5. Free Energy Principle I: Entropy & NESS
- 2.6. Free Energy Principle II: Markov blankets
- 2.7. Free Energy Principle III: Active inference

## 3. Open questions in the field