

# Cognitive Ecology

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Carve nature at its joints.

(Plato, Phaedrus)

Put the boundaries where  
the traffic (connectivity) is low.

(Rumelhart)

Cognitive Ecology =

A system of relationships  
among cognitive processes and  
structures in a community

# Relations among

- Mental processes
- Social processes
- Material processes
- Bodies (own and social others)



Ecological  
Psychology

Ecology  
of Mind

Activity  
Theory

## Ecological Psychology

organism/environment  
affordances

## Ecology of Mind

cybernetic loops  
of mindfulness

## Activity Theory

social construction  
of thought

Ecological  
Psychology

organism/environment  
affordances

Dynamical  
Systems

Embodied  
Cognition

Gesture  
Studies

Ecology  
of Mind

cybernetic loops  
of mindfulness

Enaction

Activity  
Theory

social construction  
of thought

Distributed  
Cognition

Situated  
Action

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Psychology

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coupling  
action/perception/thought

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emergence  
multimodality

collective cognition

culturally constructed  
environments for thinking

# Ship's Navigation Team



# Enacting LOPs in Gesture



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Cognitive Ecology

# Cognitive Ecology (seen in the future)

- Focal phenomenon: social, situated, embodied, multimodal interaction
- Meaning in activity systems
- Integrated thought/action/perception
- Learning by participation (not just observation)
- Products of interaction accumulate throughout the ecology (not just in brains)



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# Problems (dis)solved

- Poverty of stimulus?
  - Poverty of the notion that language behavior is learned from the *observation* of language behavior *alone*.
- Inferring the communicative intentions of others requires theory of mind?
  - Learning the meanings of culturally organized activities.
- Symbol grounding problem?
  - Symbol UN-grounding problem.

# Easier to understand

- Why cognitive processes are as they are
  - Synchronic: functional relations among elements of the ecology
  - Diachronic: how the ecology evolves
- Anthropology : Psychology
- ::
- Epidemiology : Pathology

# Human thinking is a form of cultural practice

- Acquired in embodied interaction with patterns of shared social and material worlds embedded in meaningful activity
- Something we do – together
- Cognitive ecology will provide a way to see human thought as manifest in dynamic relations among brain, body, and culturally organized settings