Levels of Analysis

1. Task Analysis
   - Largely Passive Perception
   - Central Executive Agency
   - Rich Internal Messaging System
   - Detailed Internal Maps

2. Representation and Algorithm
   - Perception Active—Action, Task, Attention Specific
   - Motor Activity Simplifies Perceptual Routine
   - Direct Recipes for Action
   - Subsumption Architecture, Dissipative Effects, Environmental Cuing
   - On Demand Consultation of Environment as Its Own Representation

3. Implementation
   - Evolution is Efficient but Messy Tinkerer
   - Solutions to Advanced Tasks Deeply Influenced by and Exploit Existing Solutions to More Basic Problems
   - Implementation Architecture Not Hierarchical—Top to Bottom and Side to Side Influences
   - No Clear Separation of Tasks—Spread Solution Across Body-Brain-Environment

Typified by

Traditional AI Approach
- Perceive-Think-Act Cycle
  - Assumes Functional Decomposition of Task for Engineered Solution
  - Focus on Higher Level Cognition in Isolation from other Tasks

“Bag of Tricks” Evolutionary and Embodied Approaches
- Active Perception, Decentralized Coordination, Minimal Representation, Exploitation of Environment
  - Focus on Complete Low-Level Systems, Complex Contributions of Body, Action, Environment, Attention to Emergence
  - Evolutionary Search, Biological Solution, and Developmental Considerations
  - Evolution is Efficient but Messy Tinkerer
  - Solutions to Advanced Tasks Deeply Influenced by and Exploit Existing Solutions to More Basic Problems
  - Implementation Architecture Not Hierarchical—Top to Bottom and Side to Side Influences
  - No Clear Separation of Tasks—Spread Solution Across Body-Brain-Environment

Engine of Reason and Deliberation?
Organ of Environmentally Situated Control?