Learning New Tasks with Situated Interactive Instruction

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Interactive, taskable agents

Our goal is to design long-living agents that dynamically expand their task knowledge and skill through their experiences in novel environments.

Learning new tasks requires learning relevant state features, spatial relationships, goals, task decomposition structure, policy, etc.

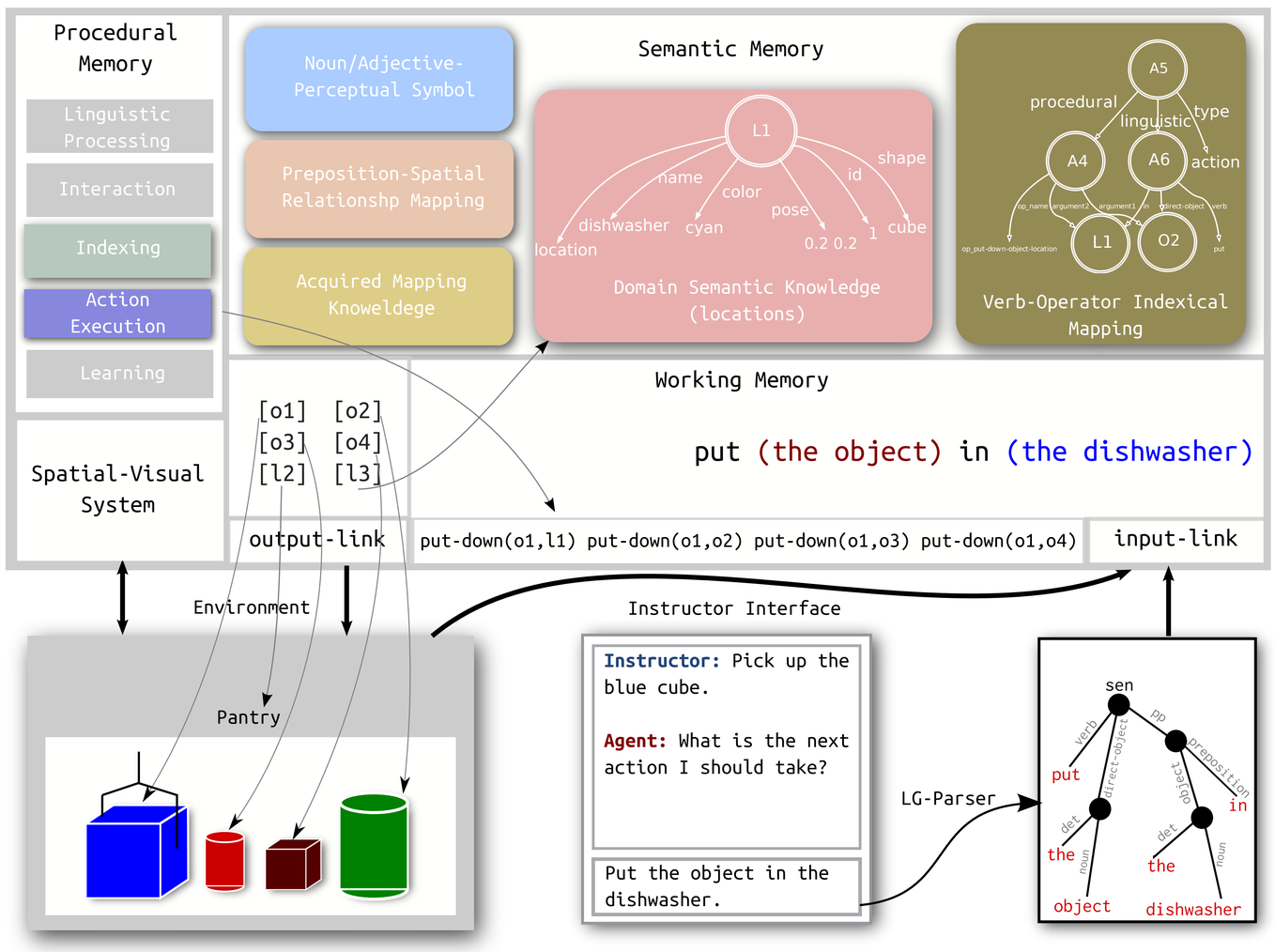
Situated Interactive Instruction (SII)

Task-oriented dialog arises naturally when an expert and a learner collaborate on a task
- *rich in useful information*, identifies relevant features, goals, decomposition structure
- *concept-level*, exploits shared perceptions, common domain knowledge, experience
- *mixed-initiative*, distributes the onus of learnin between the learner and the expert
- *alternative*, *complimentary* to learning from demonstration (LfD)

Rosie Framework

Developed in Soar cognitive architecture (Laird 2012)
Reactive behavior (50 ms percieve-decide-act cycle)
Online, diverse learning: perceptual, spatial, task-oriented, games and puzzles

Situated Comprehension



Task Learning