



## Project Overview

- Household robots will have to be able to operate in complex environments, full of many different kinds of objects
- Current learning and efficient planning algorithms cannot represent objects and their properties and relations
- We are developing new learning and planning algorithms that will allow real robots to learn and use important common-sense facts like “If **a** is on **b** and I pick up **b**, then **a** will move too.”



## Progress Through June 2000

- Developed probabilistic rule-based representation of next-state probability distributions
- Developed algorithm for learning probabilistic rules from experience in the world, inspired by Drescher's schema mechanism
- Provided formal semantic foundation for rule sets
- Acquired a physical simulation software system for implementing simulated robotic domain
- Conducted reading group on the use of object-based representations in robotic systems



## Research Plan for the Next Six Months

- Compare learning algorithm with Bayesian network learning methods on simple domain
- Develop of simple visual segmentation and object-recognition methods to use in the simulator
- Develop of simulated hand-eye robot domain using physical simulation software
- Apply learning algorithm in simulated robot domain
- Extend probabilistic rule formalism to the restricted first-order case
- Invent learning algorithm for first-order rules