



## Lecture 24 of 42

### Review of Logic and Search Discussion: Midterm Exam Review

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KSOL course page: <http://snipurl.com/v9v3>  
Course web site: <http://www.kddresearch.org/Courses/Fall-2007/CIS730>  
Instructor home page: <http://www.cis.ksu.edu/~bhsu>

Reading for Next Class:  
Chapters 1-10, 11.1 – 11.2, Russell & Norvig 2<sup>nd</sup> edition



## Lecture Outline

- Today's Reading: Sections 11.4 – 11.7, 12.1 – 12.4, R&N 2e
- Today and Next Monday: Practical Planning
  - \* Conditional Planning
  - \* Replanning
  - \* Monitoring and Execution
  - \* Continual Planning
- Next Monday: Hierarchical Planning Revisited
  - \* Examples: Korf
  - \* Real-World Example
- Later Next Week: Reasoning under Uncertainty
  - \* Basics of reasoning under uncertainty
  - \* Probability review
  - \* BNJ interface (<http://bnj.sourceforge.net>)
  - \* Graphical models problems
  - \* Algorithms





## Summary Points

- **Previously: Logical Representations and Theorem Proving**
  - \* Propositional, predicate, and first-order logical languages
  - \* Proof procedures: forward and backward chaining, resolution refutation
- **Today: Introduction to Classical Planning**
  - \* Search vs. planning
  - \* STRIPS axioms
    - ⇒ Operator representation
    - ⇒ Components: preconditions, postconditions (ADD, DELETE lists)
- **Next Week: More Classical Planning**
  - \* Partial-order planning (NOAH, etc.)
  - \* Limitations

Adapted from slides by S. Russell, UC Berkeley



## Terminology

- **Classical Planning**
  - \* **Planning** versus search
  - \* Problematic approaches to planning
    - ⇒ Forward chaining
    - ⇒ Situation calculus
  - \* **Representation**
    - ⇒ Initial state
    - ⇒ Goal state / test
    - ⇒ Operators
- **Efficient Representations**
  - \* STRIPS axioms
    - ⇒ Components: preconditions, postconditions (ADD, DELETE lists)
    - ⇒ Clobbering / threatening
  - \* **Reactive plans and policies**
  - \* Markov decision processes

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