

# CSCI 5582

## Artificial Intelligence

Lecture 19  
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CSCI 5582 Fall 2006

## Today 11/13

- Decision Lists
- Break
  - Quiz review
  - New HWs
- Boosting

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## Decision Lists

- Each element in the list is a test that an object can pass or fail.
- If it passes, emit the label associated with the test.
- If it fails, move to the next test.
- If an object fails all the tests emit a default answer.
- The tests are propositional logic statements where the feature/value combinations are atomic propositions.

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## Decision Lists



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## Decision Lists

- Key parameters:
  - Maximum allowable length of the list
  - Maximum number of elements in a test
  - Logical connectives allowed in the test
- The longer the lists, and the more complex the tests, the larger the hypothesis space.

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## Decision List Learning

**function** DECISION-LIST-LEARNING(*examples*) returns a decision list, *No* or failure

**if** *examples* is empty **then** return the value *No*

*t* ← a test that matches a nonempty subset *examples<sub>t</sub>* of *examples*  
such that the members of *examples<sub>t</sub>* are all positive or all negative

**if** there is no such *t* **then** return failure

**if** the examples in *examples<sub>t</sub>* are positive **then** *o* ← Yes

**else** *o* ← No

**return** a decision list with initial test *t* and outcome *o*

and remaining elements given by DECISION-LIST-LEARNING(*examples* − *examples<sub>t</sub>*)

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