

# CSCI 5582 Artificial Intelligence

Lecture 11  
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## Today 10/3

- Review *Model Checking/Wumpus*
- CNF
- WalkSat
- Break
- Start on FOL

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## Review

- Propositional logic provides
  - Propositions that have
  - Truth values and
  - Logical connectives that allow a
  - Compositional Semantics and
  - Inference

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## Models

- Models are formally structured worlds with respect to which truth can be evaluated.
- $m$  is a model of a sentence  $\alpha$  if  $\alpha$  is true in  $m$
- $M(\alpha)$  is the set of all models of  $\alpha$

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## Wumpus world model

Situation after detecting nothing in [1,1],  
moving right, knowing in [2,1]

Consider possible models for  $\mathcal{D}$  assuming only pits

3 Boolean choices  $\Rightarrow$  8 possible models

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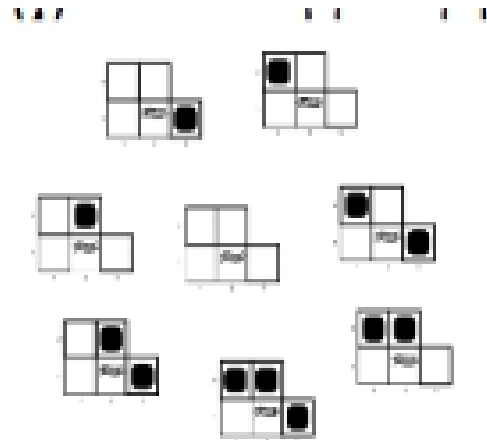
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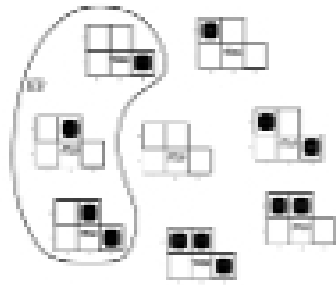
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## Wumpus world model



$KD$  = wumpus world rules + observations

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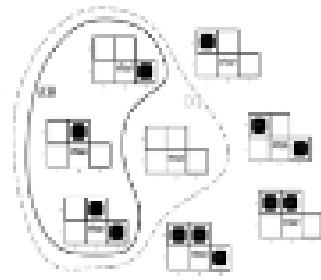
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## Wumpus world model



$KD$  = wumpus world rules + observations

$s_1 = [U]$  is safe,  $s_2 = [U]$  is not, proved by model checking

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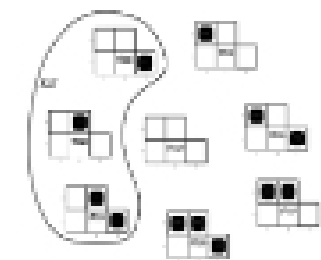
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## Wumpus world model



$KD$  = wumpus world rules + observations

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