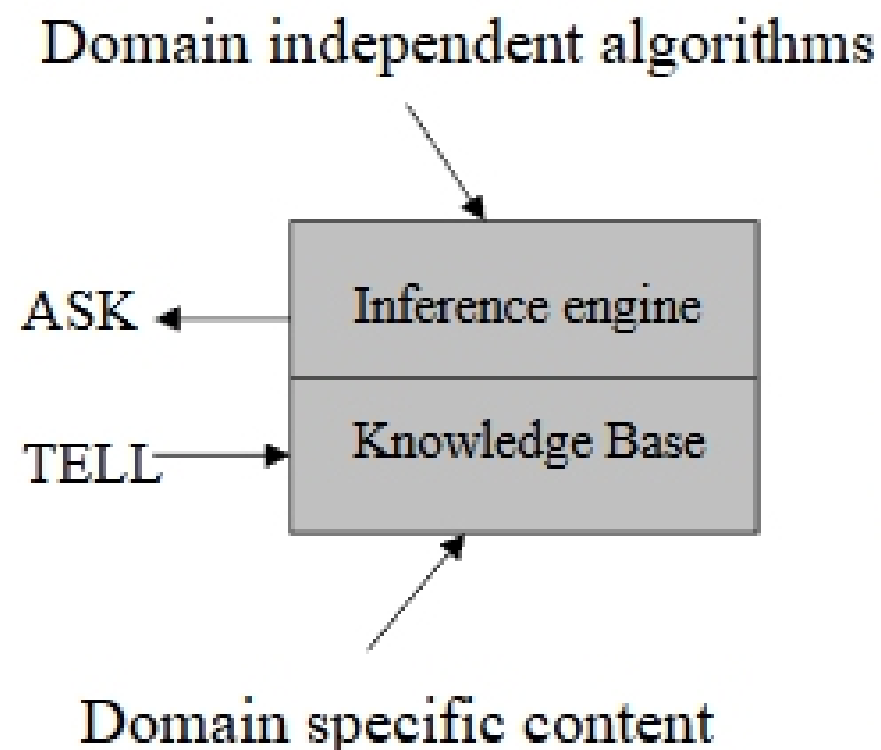


Knowledge and reasoning – second part



- Knowledge representation
- Logic and representation
- Propositional (Boolean) logic
- Normal forms
- Inference in propositional logic
- Wumpus world example

Knowledge-Based Agent



- Agent that uses **prior** or **acquired** knowledge to achieve its goals
 - Can make more efficient decisions
 - Can make informed decisions
- Knowledge Base (KB): contains a set of representations of facts about the Agent's environment
- Each representation is called a **sentence**
- Use some **knowledge representation language**, to TELL it what to know e.g., (temperature 72F)
- ASK agent to query what to do
- Agent can use inference to deduce new facts from TELLED facts

Generic knowledge-based agent

```
function KB-AGENT(percept) returns an action  
static: KB, a knowledge base  
         t, a counter, initially 0, indicating time  
  
TELL(KB, MAKE-PERCEPT-SENTENCE(percept, t))  
action ← ASK(KB, MAKE-ACTION-QUERY(t))  
TELL(KB, MAKE-ACTION-SENTENCE(action, t))  
t ← t + 1  
return action
```

1. TELL KB what was perceived
Uses a KRL to insert new sentences, representations of facts, into KB
2. ASK KB what to do.
Uses logical reasoning to examine actions and select best.