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2.

Facts	propositional logic
(i) It is raining	RAINING
(ii) It is sunny	SUNNY
(iii) It is windy	WINDY
(iv) If it raining, then it is not sunny	RAINING $\rightarrow \neg$ SUNNY
(v) Socrates is a men	SOCRATESMAN

3. Validity and satisfiability

A sentence is valid if it is true in all models.

e.g:- True, $A \vee \neg A$, $A \Rightarrow A$, $(A \wedge (A \Rightarrow B)) \Rightarrow B$

validity is connected to inference via the Deduction theorem

$KB \vdash \alpha$ if and only if $(KB \Rightarrow \alpha)$ is valid

A sentence is satisfiable if it is true in some model

eg:- $A \vee B$, C

A sentence is unsatisfiable if it is true in no models

eg:- $A \wedge \neg A$

Satisfiability is connected to inference via

$KB \vdash \alpha$ if and only if $(KB \wedge \neg \alpha)$ is unsatisfiable

4. Knowledge Bases

Inference engine	← Domain independent Algorithm
knowledge Base	← Domain specific content

knowledge base = set of sentences in formal language

Declarative approach to building an agent

Agents can be viewed at the knowledge level or at the implementation level.

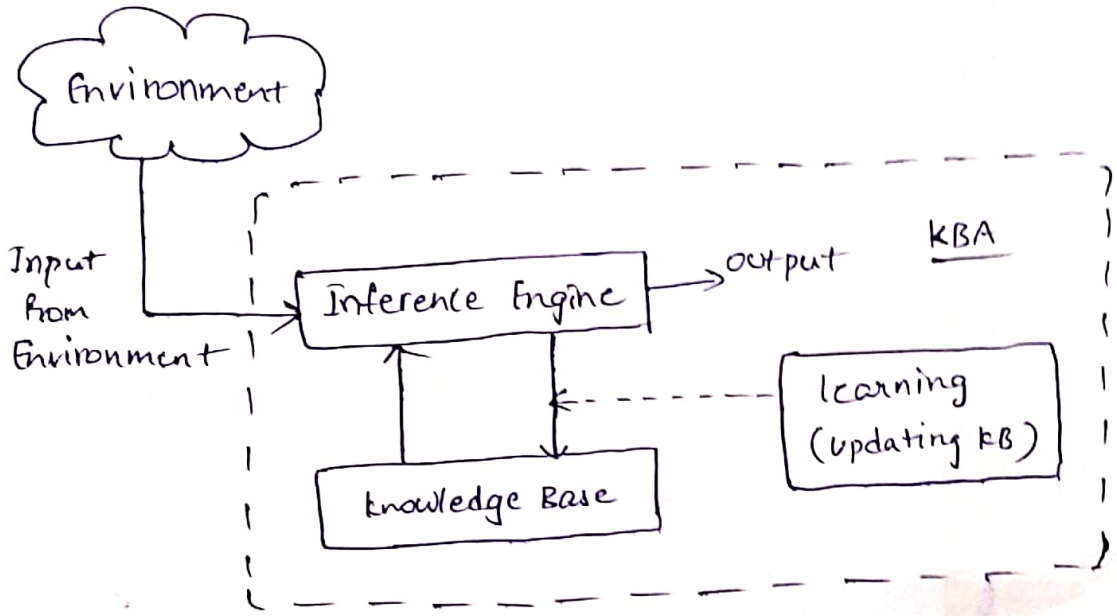
```
function KB-AGENT (percept) returns an Action
static KB, a knowledge base
       t, a counter, intially 0, indicating time
TELL ( KB, Make-PERCEPT-SENTENCE (percept, t) )
action ← ASK ( KB, MAKE-ACTION-QUERY (t) )
TELL ( KB, MAKE-ACTION-SENTENCE (action, t) )
t ← t+1
return action
```

A Simple knowledge Based Agent

The agent must be able to

→ Represent states, actions etc.
→ Incorporate new percepts.
→ Deduce hidden properties of the world
→ Deduce appropriate actions
→ Update internal representations of the world

Architecture of knowledge Based Agent



Types of Knowledge

Meta knowledge :- It is about information knowledge

Heuristic knowledge :- It is knowledge regarding a specific topic

procedural knowledge :- It gives information about acheiving something

Declarative knowledge :- It is information which describes a particular object and its attributes.

Structural knowledge :- It describes the knowledge b/w the objects.