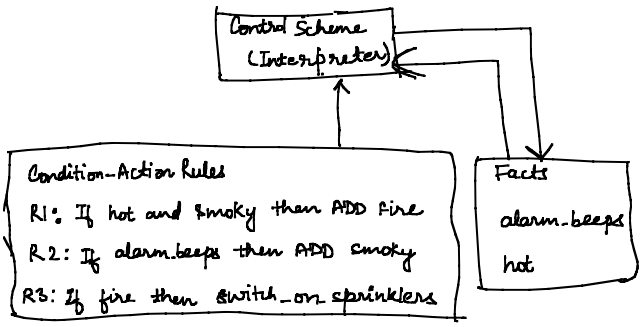
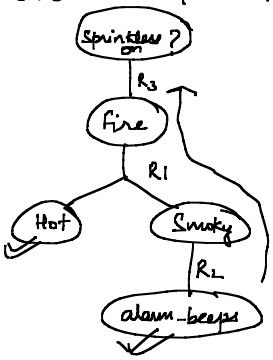
11/3/2021

Backward Chaining



Goal: Should we switch on sprinklers?



Basic Algo:

To prove goal G:

- → If G is in the initial facts then, G is proven
- → Otherwise, find a rule which can be used to conclude G and try to prove that rule's conditions.

Expert Systems

→ Systems acting in a particular domain and behaving like human experts therein.

→ Normally, expert systems are applied to problems where algorithmic solution does not exist.

→ Guided by domain specific rules.

→ Rule based systems have been widely used in expert systems.
e.g. Medical systems

Example:-

Is Q true ? Yes

$P \rightarrow Q$

$L \wedge M \rightarrow P$

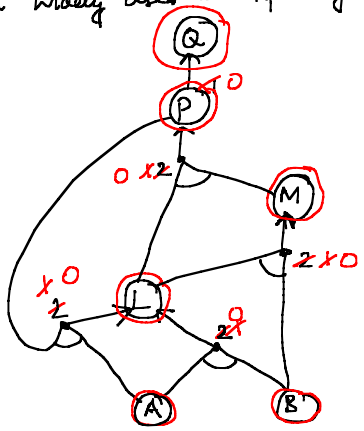
$B \wedge L \rightarrow M$

$A \wedge P \rightarrow L$

$A \wedge B \rightarrow L$

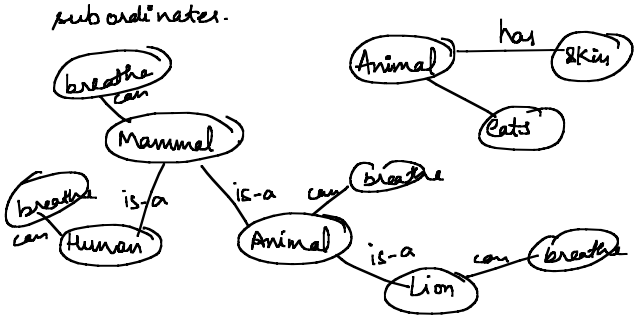
A

B L M ? Q

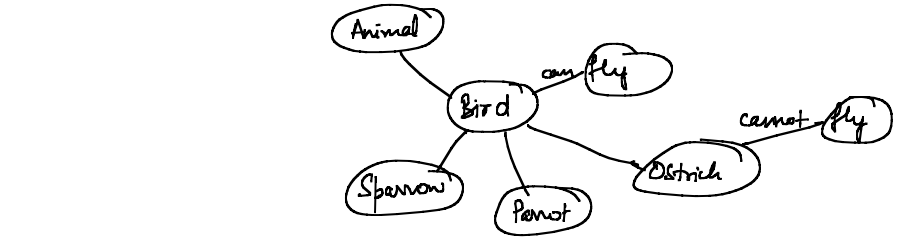


SEMANTIC NETS

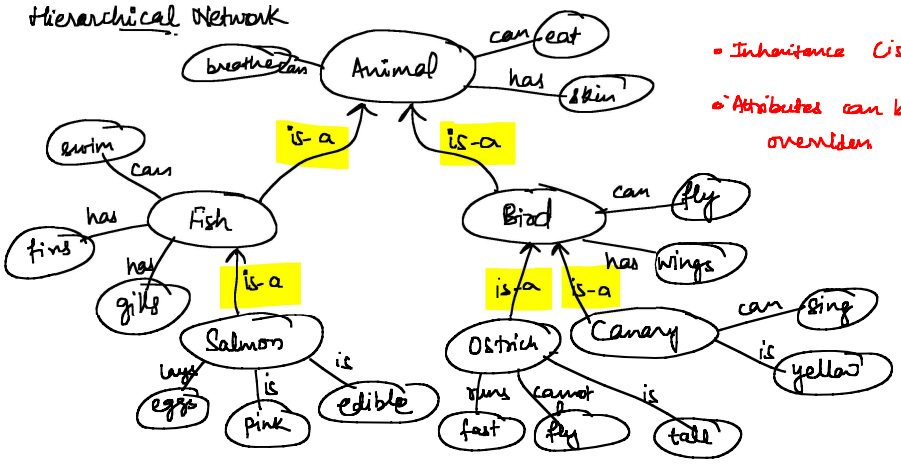
- Concepts can be represented as hierarchies of inter connected concept nodes.
- Any concept has a no. of associated attributes.
- Some concepts, nodes are superordinates of other nodes and some are subordinates.



- For reasons of cognitive economy, subordinates inherit all attributes of their superordinate concepts.
- Some instances of a concept are excepted from specific attributes



Hierarchical Network



- Inheritance (is-a)
- Attributes can be overridden

A semantic network is a structure for representing knowledge as a pattern of interconnected nodes and arcs.

Nodes :- represent concepts, entities, attributes, events, values.

Arcs :- relationships between concepts.