

❖ Knowledge: -

هي وحدة البناء الأساسية التي تسند عليه الذكاء الاصطناعي في عمليات البرمجة الخاصة بذكاء الإنسان وهي مستوى أعلى تطوراً من مستوى المعلومات والبيانات .

❖ Knowledge: - consist of (Facts, Rules, relation).

❖ How Knowledge should be representation: -

- 1- It captures generalization (العمومية)
- 2- It can be understanding to people that provide it.
- 3- It can easily be modified to correct errors and changes.
- 4- It can be used in great many situations even if it isn't totally accurate or complete.

❖ Knowledge of properties: -



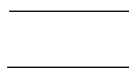

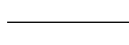

- 1- It is big size.
- 2- It is hard characterizing.
- 3- It is constantly changing.

❖ Knowledge Representation

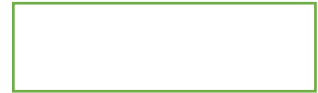
- There are many methods can be used for knowledge representation and they can be described as follows: -

- 1-Semantic net.
- 2-Conceptual graph.
- 3-Frames
- 4-Predicates logic.
- 5-Clause forms

1) Semantic Net

- It is consisting of a set of nodes and arcs, each node is represented as a rectangle to describe the objects, the concepts and the events. The arcs are used to connect the nodes and they divided to three parts: -
- Is a:  for objects & types
- Is:  To define the object or describe it
- Has a   to describe the properties of objects or the actions that the object can do
- can  

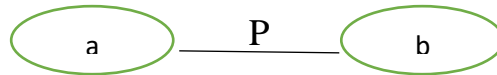
- To represent the actions, events and objects



- To represent the relation among objects



Example 1: - P(a,b)

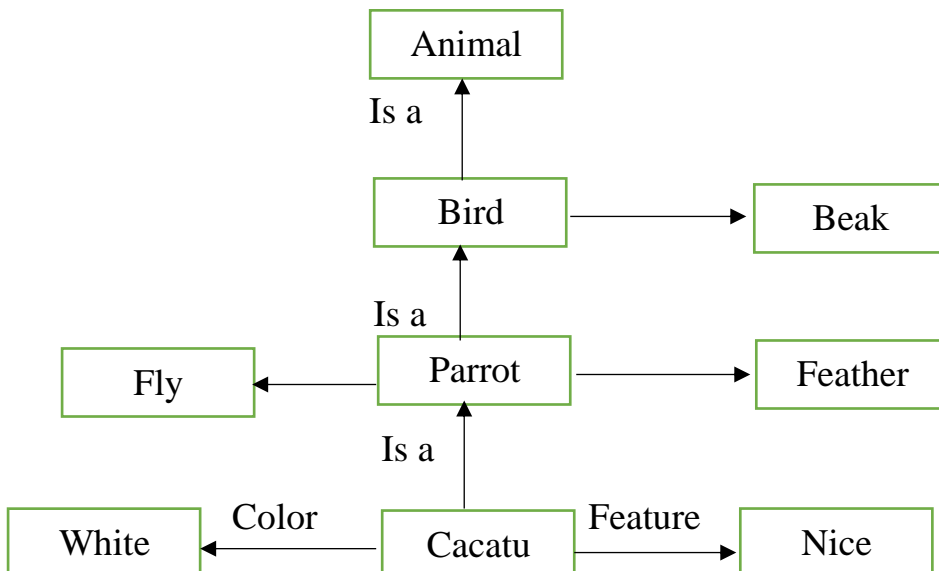


Example 2:- Ali like Ahmed



Like (ali, ahmed)

Example 3: - Cacatua is a nice white parrot, it can fly, and has a feather, bird is animal and has a beak.



1- is _a (Cacatu, Parrot).

2- is _a (Parrot, bird).

3-is _a (Bird, animal).

4-color (Cacatu, white).

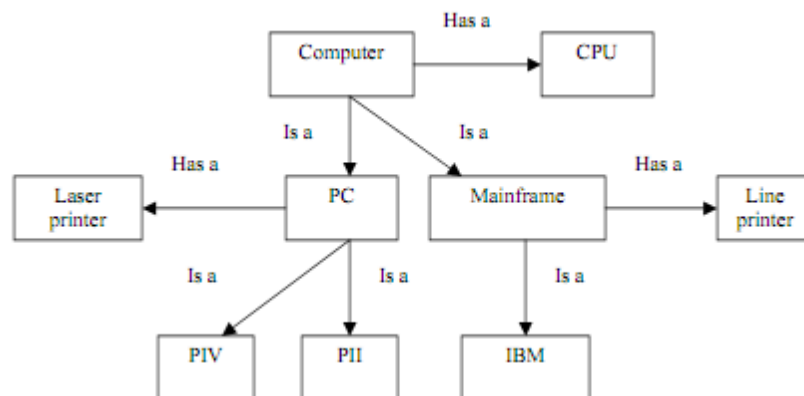
5-nice (Cacatu).

6-has _a (Bird, beak).

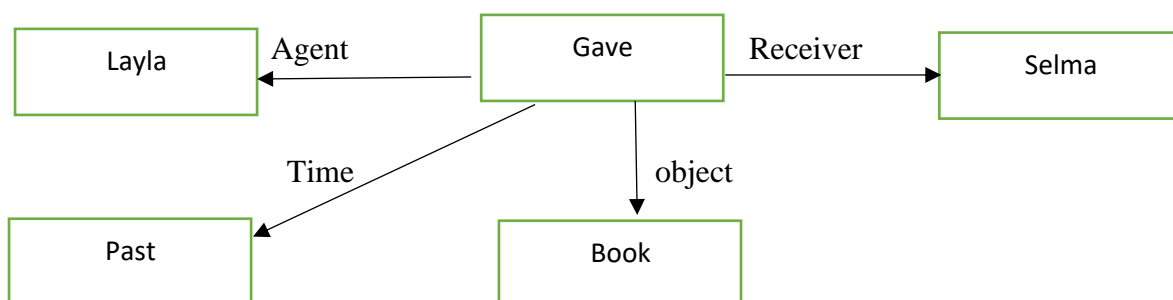
7-has _a (Parrot, feather).

8-fly (parrot).

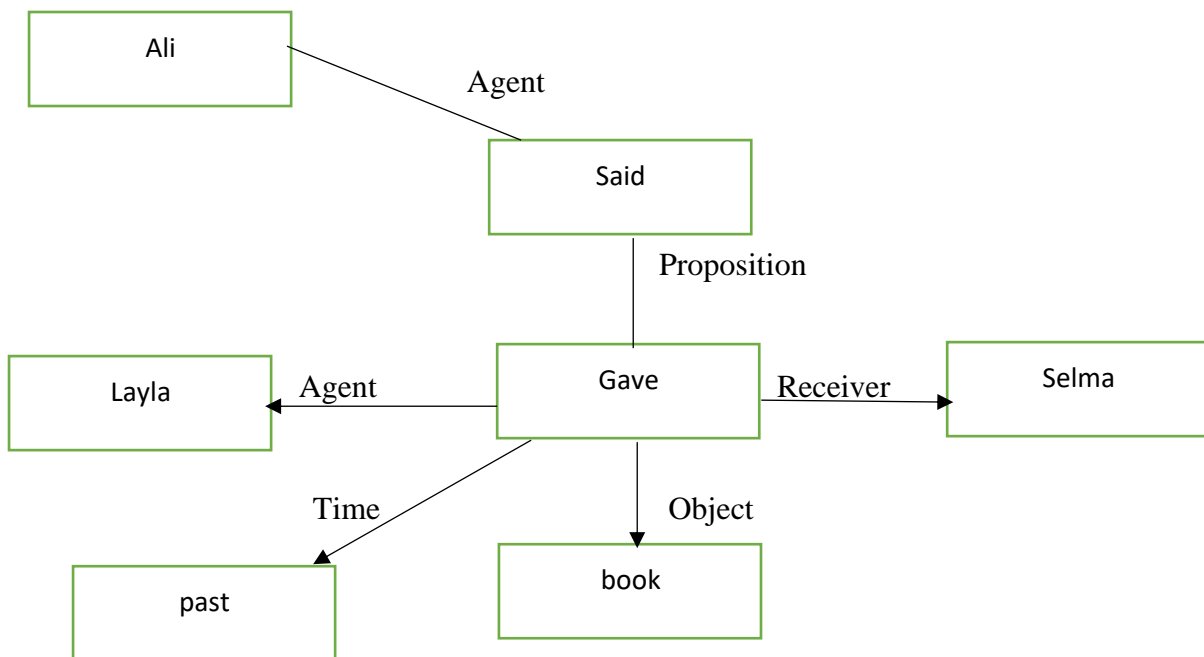
Example4: - Computer has much part like a CPU and the computer divided into two types, the first one is the mainframe and the second is the personal computer (PC), Mainframe has line printer with large sheet but the personal computer has laser printer, IBM as example to the mainframe and PII and PIV as example to the personal computer.



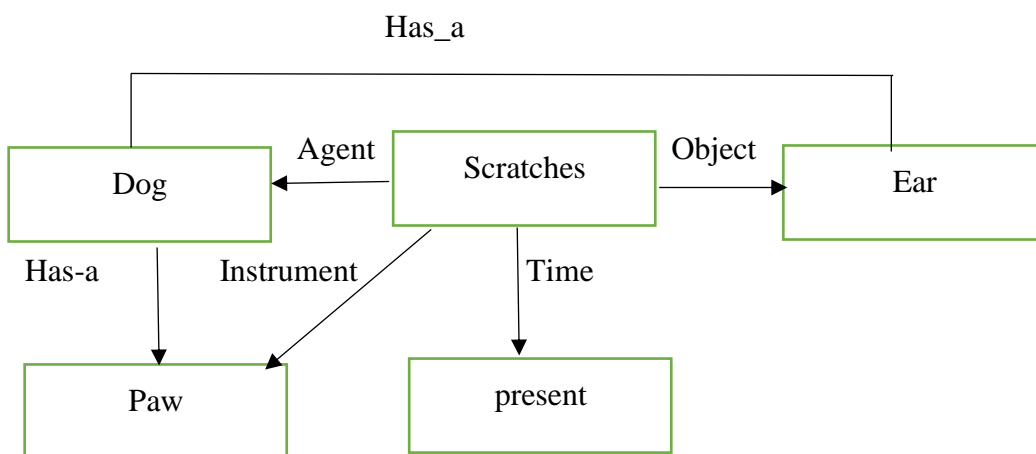
Example5: - Layla gave Selma a book.



Example 6: - Ali said: Layla gave the book to Selma.



Example 7: - The dog scratches its ear with its Paw.



H.W: - 1- Layla told Ali that she gave Selma a book.

2- Ali gave Ban a disk is Zaki bought.

3- My chair is brown and cover with leather.

4- John is taller than Bill and Tom, Tom is taller than Bill.

5- Animals have a skin and can breathe and move. Birds are animals that have wings and feathers and can fly. Canary is a bird that is yellow and can sing. Ostrich is also a bird that is tall and sing.