Frame and script

- A frame is a data structure whose components are called slots.
- Slots have names and accommodation information of various kinds.
- In slots we can find simple values ,references to other frames or even procedures that can compute the slot value from other information.
- A slot may also be left unfilled , unfilled slot can be filled through inference.

- When a frame represents a class of objects (such as canary) and another frame represents a superclass of this class (such as bird), then the class frame can inherent values from the superclass frame.
- Some knowledge about birds can be put into frames as follows:-

Frame : Bird
Kind of : animal
Moving- method : fly
Active-at : day light

- The frame stands for all birds

Frame : Canary
Kind of : bird
color : yellow
size : 50

Frame : albatross
Kind of : bird
color : black-and-white
size : 115

- Can also have a particular instance of a class for example an albatross called albert

Frame : albert
Instance of : albatross
size : 120

- Notice the difference between , the two relations a kind-of and instance-of the former is the relation between class and superclass while the latter is the relation two members of the class.

Frames and prolog

- Frames can be represented in prolog as a set of facts, one fact for each slot value. This can be done in various ways, we will choose the following format
- frame-name(slot , value)

- Where value is the value of slot (slot) in frame(frame).

- bird (kind-of, animal).
- Bird(moving-method, fly).
- Bird(active-at, daylight)
- albatross(kind-of, bird).
- albatross(color, black-and-white).
- albatross(size,115).
- % frame ross is an instance of a baby albatross
- ross(instance-of , albatross)
- ross(size,40).

Benefits of Frames

- Makes programming easier by grouping related knowledge
- Easily understood by non-developers
- Expressive power
- Easy to set up slots for new properties and relations
- Easy to include default information and detect missing values

Drawbacks of Frames

- No standards (slot-filler values)
- More of a general methodology than a specific representation:
  - Frame for a class-room will be different for a professor and for a maintenance worker
- No associated reasoning/inference mechanisms

Scripts

- Designed by Schank in 1977.
- A structured representation describing a stereotyped sequence of events in a particular context
- A means of organizing conceptual dependency structures
- Used in natural language understanding for organizing knowledge base in terms of the situation that the system is to understand.

Script Components

Scripts consists of a number of elements

- Entry conditions or descriptors of the world that must be true for the script to be called.
- Results or facts that are true once the script has terminated.
- Props or the “things” that support the content of the script.
- Roles are actions that the individual participants perform
- Scenes are a sequence of what represents a temporal aspect of the script.

- E.g. “sam went to a restaurant , the waiter gave a her a menu. She ordered pizza, when she left , she gave the waiter a large tip”

- Entry conditions:- restaurant open, customer have money, hungry
- Players :- customer , waiter , cashier
- Props :-restaurant ,table , menu, pizza ,bill, tip
- Results : customer not hungary

- Events
  - -Customer goes to restaurant
  - -Customer goes to the table
  - -Waiter bring menu
  - -Customer orders food
  - -Waiter brings food
  - -Customer eat food
  - -Waiter brings bill
  - -Customer pays cashier
  - -Customer leaves restaurant