

Problems in NLP →

(9)

Perception and Communication are essential components of intelligent-behaviour. Human-being interact with each other through his 5 basic Senses. but it's difficult for computer to understand these visual-sense.

NLP may contain an infinity of different-sentences. Also there is much ambiguity in natural language. Many words have several meanings.

NLP processing System

PN. 17.9.14

UNIT-2

Knowledge → (General Concepts & Definition)

(10)

Knowledge can be defined as the body of facts & principles accumulated by the human-kinds.

In other words —

"Knowledge contains of facts, concepts, rules, principles accumulated by human-kind."

Knowledge closely related with concepts, language, procedure, ideas, abstraction & facts.

Knowledge is also closely related with intelligence. Knowledge includes the use of data & information.

In computer, knowledge is stored as symbolic-structure in the form of collection of magnetic-spots & voltage-states.

Types of Knowledge →

There are following three types of knowledge.

- 1) Declarative Knowledge
- 2) Procedural Knowledge
- 3) Heuristic

(1) Declarative Knowledge →

Declarative-Knowledge is a passive knowledge expressed as statements of facts & about the world.

example → ⁽¹¹⁾ Personnel-data in a database is the type of declarative-Knowledge.

2) Procedural-Knowledge → Procedural-Knowledge is a Compiled Knowledge related to performance of some-task

example → Steps used to solve an algebraic-equation are expressed as Procedural-Knowledge.

3) Heuristic-Knowledge → Heuristic-Knowledge are used to make good judgments or strategies, tricks or rules to solve problems.

⇒ Knowledge and data both are the different terms. Data is fact and figure but Knowledge is Processed-data.

for example → A physician treating patient uses both data & knowledge. Data is a patient's record, including patient history, means measurement, drugs given, response to drugs and so on. whereas the knowledge - is what the physician has learned in medical-school, in the years of internship, practice & specialization.

Importance of Knowledge → ⁽¹²⁾ AI has given new meaning and importance to knowledge. Now for the first time, Reliable advisor that gives high level professional advice in specialized areas, such as - manufacturing-techniques, sound-financial strategies, ways to improve one's health, top-marketing sectors and strategies, optimal plans and many other important matters.

Knowledge Based Sim → In AI, During the 1960's the general purpose problems solved by using very limited no. of laws, rules & procedures, so they were too weak to solve complex-problems. i.e.

They were not able to perform the difficult-task. Then after, Sims were develop. These Sims depend on rich-base of knowledge to solve or perform the difficult-task. These Sims are known as "Knowledge-base Sims".

Edward F. Summarized this new thinking in a paper at the international joint conference on AI in 1977. He emphasized the fact that the real power of

of an expert SIM comes from the knowledge. (13)

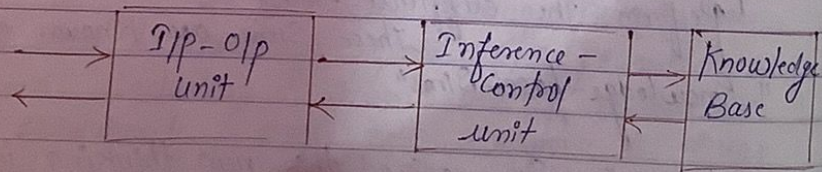
In AI, much of the work done has is related with knowledge so such kind of SIM is known as "Knowledge based-SIMS". It is including work in vision, learning & natural lang. understanding.

Knowledge-based SIMs get their power from the expert knowledge that has been coded into facts, Rules, heuristics & procedural form.

It's In the Knowledge-based SIM, it may be possible to add new knowledge or refine existing or old knowledge without recompiling the control & inferencing programs.

Following diagram shows construction & maintenance of Knowledge based SIMs.

Diagram →



"Components of a Knowledge Based SIM"

Representation of Knowledge → (14)

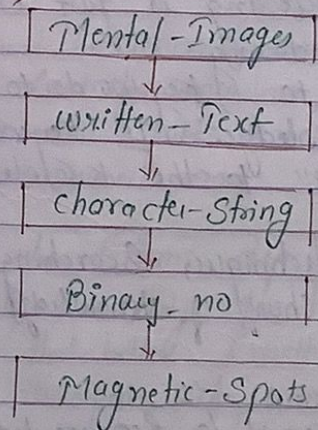
∴ Knowledge consists of facts, concepts, Rules and so-on. It can be represented by different-forms

- AS mental-images
- AS spoken or written words in some language
- AS graphical or other picture
- AS character-strings
- Collection of magnetic-spots in a computer.

The representation of knowledge will be concerned with in our study of AI and corresponding data-structure used for their internal-storage.

Any choice of representation will depend on the type of problem to be solved and the inference methods available.

Diagram →



* || Different Levels of Knowledge Representation || *