2. Intelligent agents(IA)

By: Alex S.

Feb, 2024

1. Intelligent agents

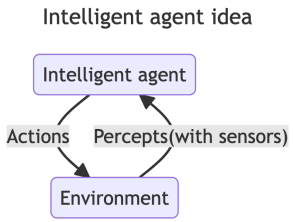


Figure 1: Simple intelligent agent representation

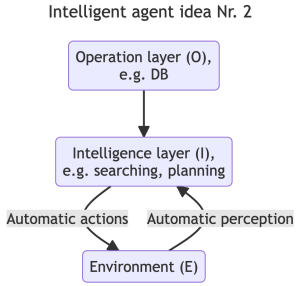


Figure 2: Extended intelligent agent representation

We can describe an intelligent agent as a mathematical function which maps perceptions to the specific action:

$$f : P \to A,$$

where P is a perception set and A is an action set.

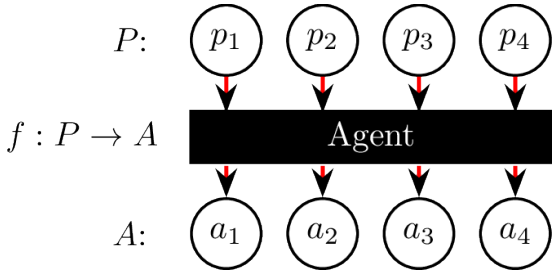
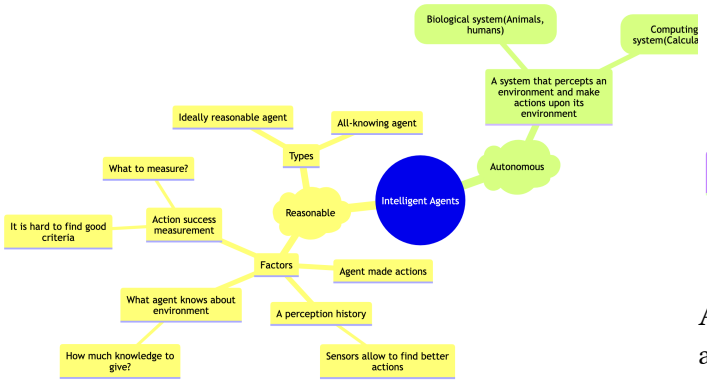


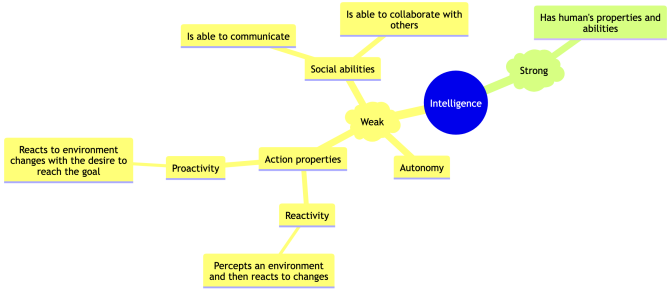
Figure 3: Agent as a function can be seen as a black box

Agent is a function that is a black box, i.e. we don't know how it produces its results. An agent receives information(perceptions) from sensors(P), processes them via function(f) and returns back an action(from set A) to execute.

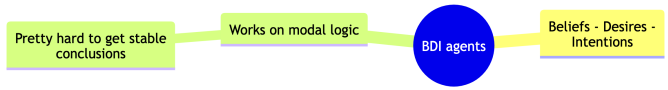
2. Intelligent agent types



3. IA intelligence



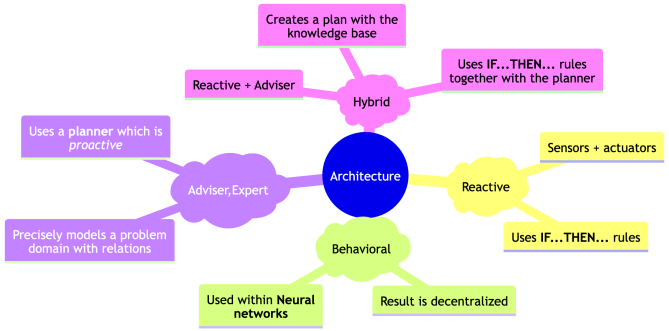
4. BDI agents



5. IA as a program

An agent can be described as a program:

agent = program + architecture(computing platform)



Architectural properties can be described with the abbreviations **PAGE** and **PEAS**.

- **PAGE** - percept, actions, goals and environment.
- **PEAS** - performance, environment, actuators and sensors.