

Discussion

Are the following statements true or false? Why?

a) An agent that senses only partial information about the state cannot be perfectly rational.

No. By definition rational behavior is “Doing the “right“ thing based on the available information“

b) There exist task environments in which no pure reflex agent can behave rationally.

True, as purely reflective behavior does not take the percept history into account, only the most recent percepts.



Discussion

Are the following statements true or false? Why?

c) There exists a task environment in which every agent is rational.

True, e.g. in very simple cases where the decisions taken do not influence the reward for the agent.

d) The input to an agent program is the same as the input to the agent function.

False, consider the percepts as inputs. In the function, this is the full history, in the program, only the most recent one.



Discussion

Are the following statements true or false? Why?

e) Every agent function is implementable by some program/machine combination.

False, consider a function specification where the task is to solve formally undecidable problems, e.g. the halting problem.

f) Suppose an agent selects its action uniformly at random from the set of possible actions. There exists a deterministic task environment in which this agent is rational.

True. The task could be to walk randomly in the environment.



Discussion

- f) Every agent is rational in an unobservable environment.
False. The agent could have a priori knowledge of the environment, and therefore actions could have different rewards which are known in advance.
- g) A perfectly rational poker-playing agent never loses.
False. The card distribution is random and therefore the opponent can win.

