

Environment

| Attributes of Environments | | | |
|------------------------------|--------------------------------|-------------------------------|------------------------------|
| Knowledge of the environment | Number of agents | Observability | Dynamic |
| Discrete or continuous | Static or dynamic | Known or unknown | Goal-based or non-goal-based |
| Single or multiple agents | Cooperative or non-cooperative | Partial or full observability | Stochastic or deterministic |

| Environment Representation | | |
|----------------------------|---------|------|
| State | Percept | Goal |

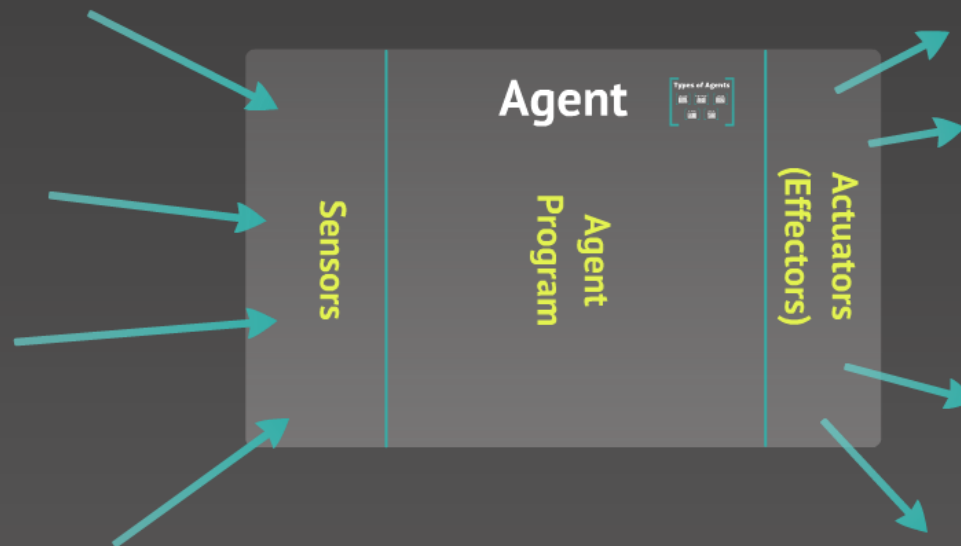


| Definitions | | |
|---|--|--|
| Percept The state of all information that the agent can observe at any given time. | Percept Sequence The sequence of percepts that the agent receives as it interacts with the environment. | Performance Metric A measure of the quality of the agent's performance, used to evaluate its behavior. |
| Reliability The degree to which the agent's actions are consistent and predictable, and whether they achieve the desired goals. | Information Gathering The process by which the agent acquires new information about the environment, either through sensors or by exploring. | Accuracy The degree to which the agent's actions are precise and match the intended goals. |

Environment

| Attributes of Environments | | | |
|----------------------------|---------------------------|---------------------------|-------------------|
| Discrete / Continuous | Static / Dynamic | Known / Unknown | Single / Multiple |
| Finite / Infinite | Accessible / Inaccessible | Observable / Unobservable | Simple / Complex |

| Environment Representation | | |
|---|---|---|
| Percepts | Actions | Goals |
|  |  |  |





Definitions

Percept t

The state of all
sensors at a given
time

Percept Sequence

The complete history
of all percepts so far

Performance Metric

Measurement of
success

Rationality

Making a choice that
results in the best expected
outcome for a given
percept sequence

Information Gathering

Exploration of the
environment in an attempt
to gain information

Autonomy

Ability to change
behavior based on the
environment

Percep t

**The state of all
sensors at a given
time**

Percept Sequence

**The complete history
of all percepts so far**

Performance Metric

**Measurement of
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**Making a choice that
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Information Gathering

**Exploration of the
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to gain information**

Autonomy

**Ability to change
behavior based on the
environment**

Attributes of Environments

Fully Observable
vs.
Partially Observable
vs.
Unobservable

Single Agent
vs.
Multiagent

Deterministic
vs.
Stochastic

Episodic
vs.
Sequential

Static
vs.
Dynamic

Discrete
vs.
Continuous

Known
vs.
Unknown

Fully Observable

vs.

Partially Observable

vs.

Unobservable

Single Agent vs. Multiagent

Deterministic
vs.
Stochastic

Episodic vs. Sequential

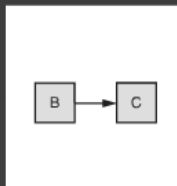
Static vs. Dynamic

Discrete
vs.
Continuous

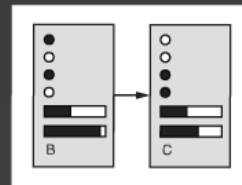
Known
vs.
Unknown

Environment Representation

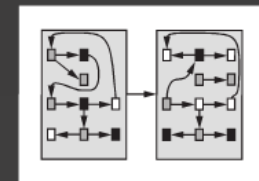
Atomic



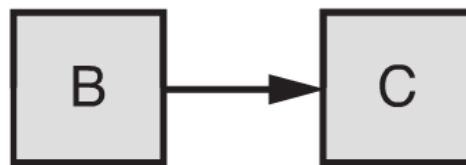
Factored



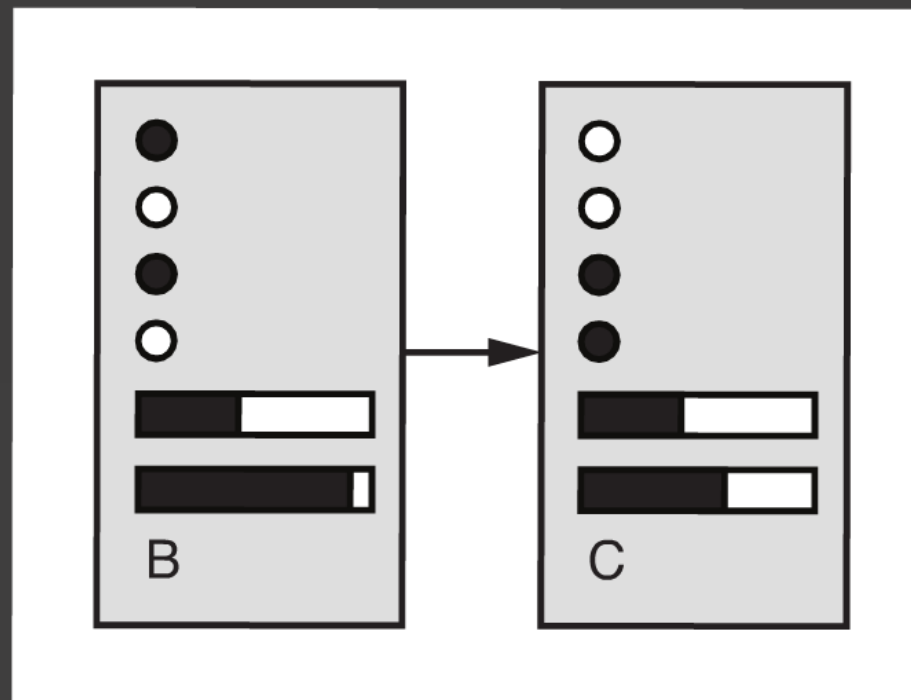
Structured



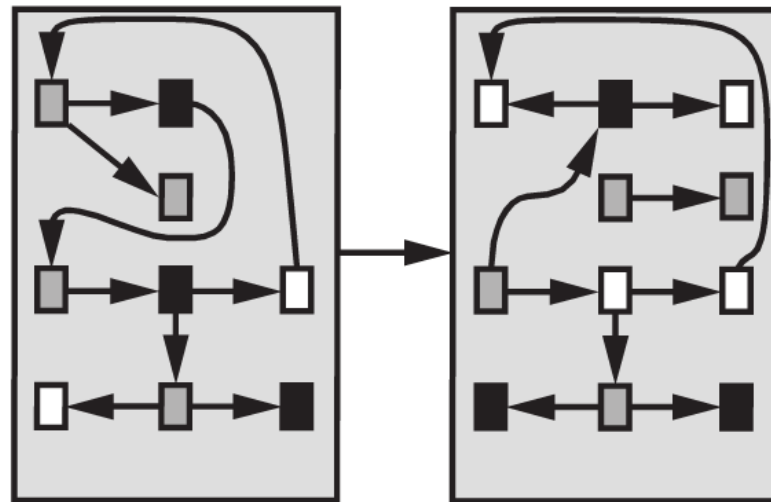
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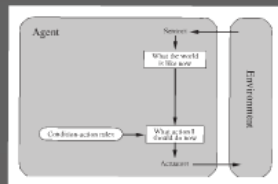


Structured



Types of Agents

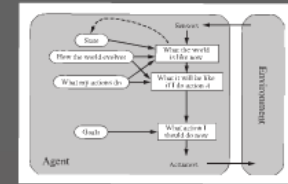
Simple Reflex



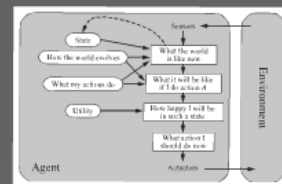
Model-Based Reflex



Goal-Based



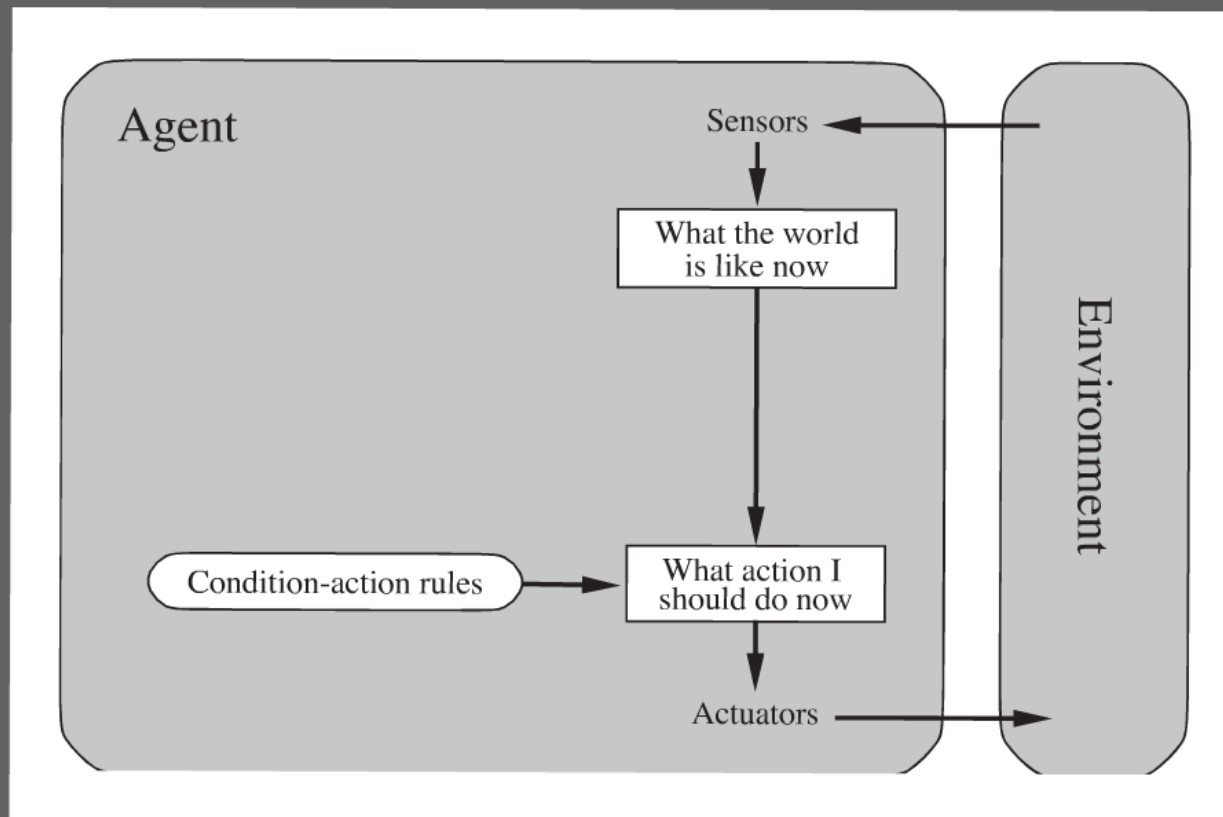
Utility-Based



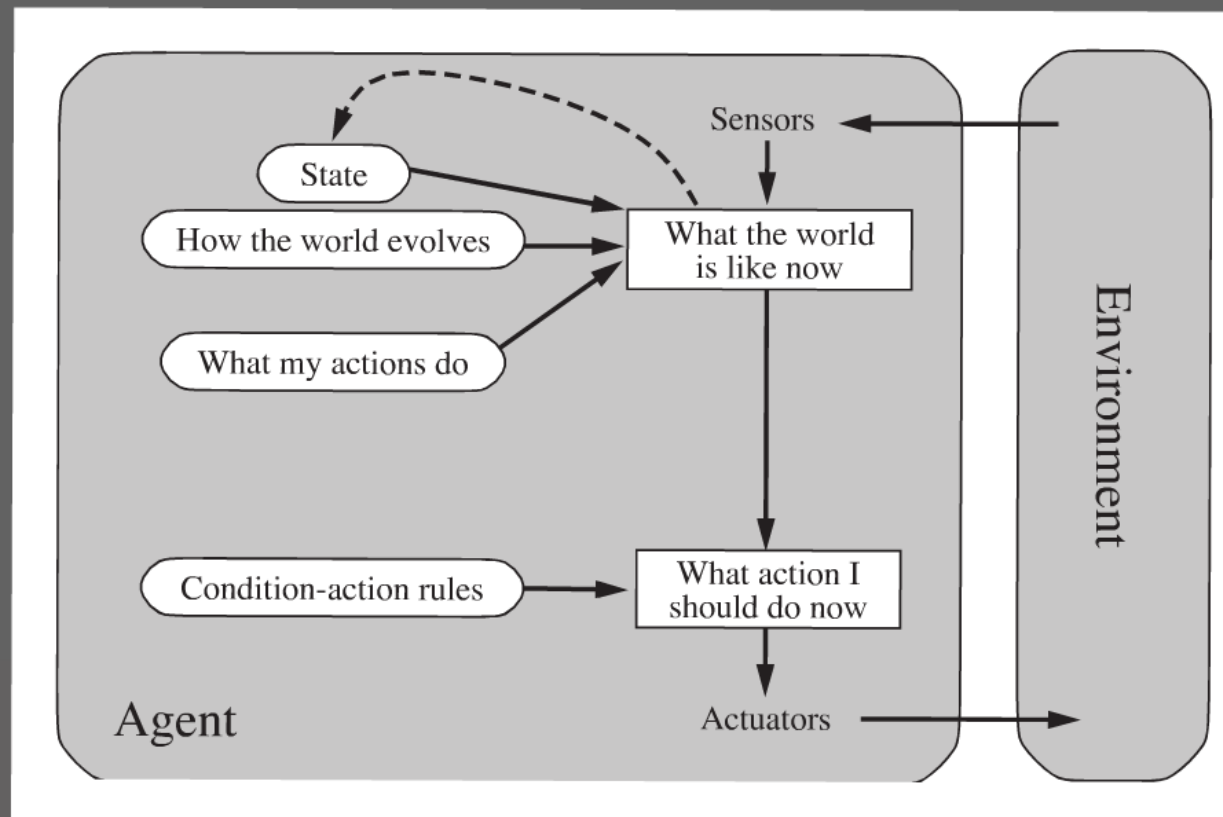
Learning



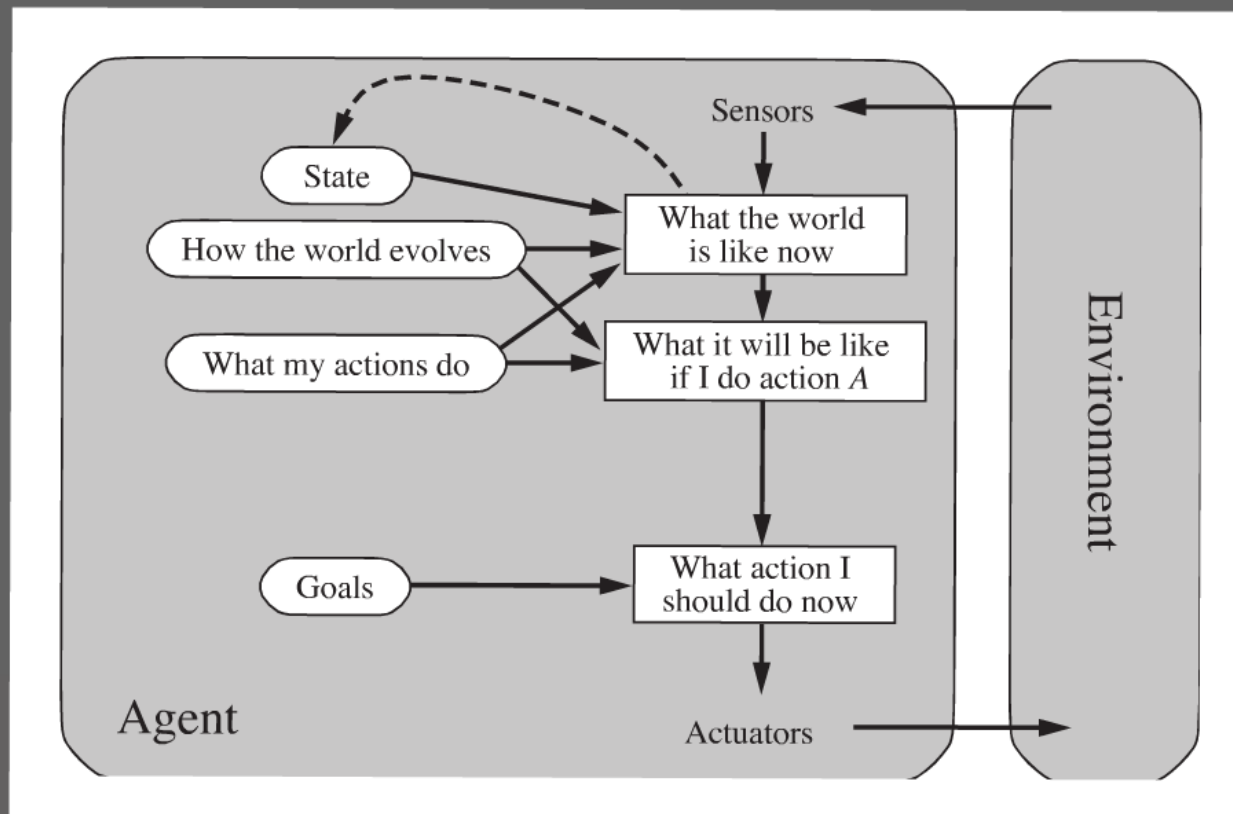
Simple Reflex



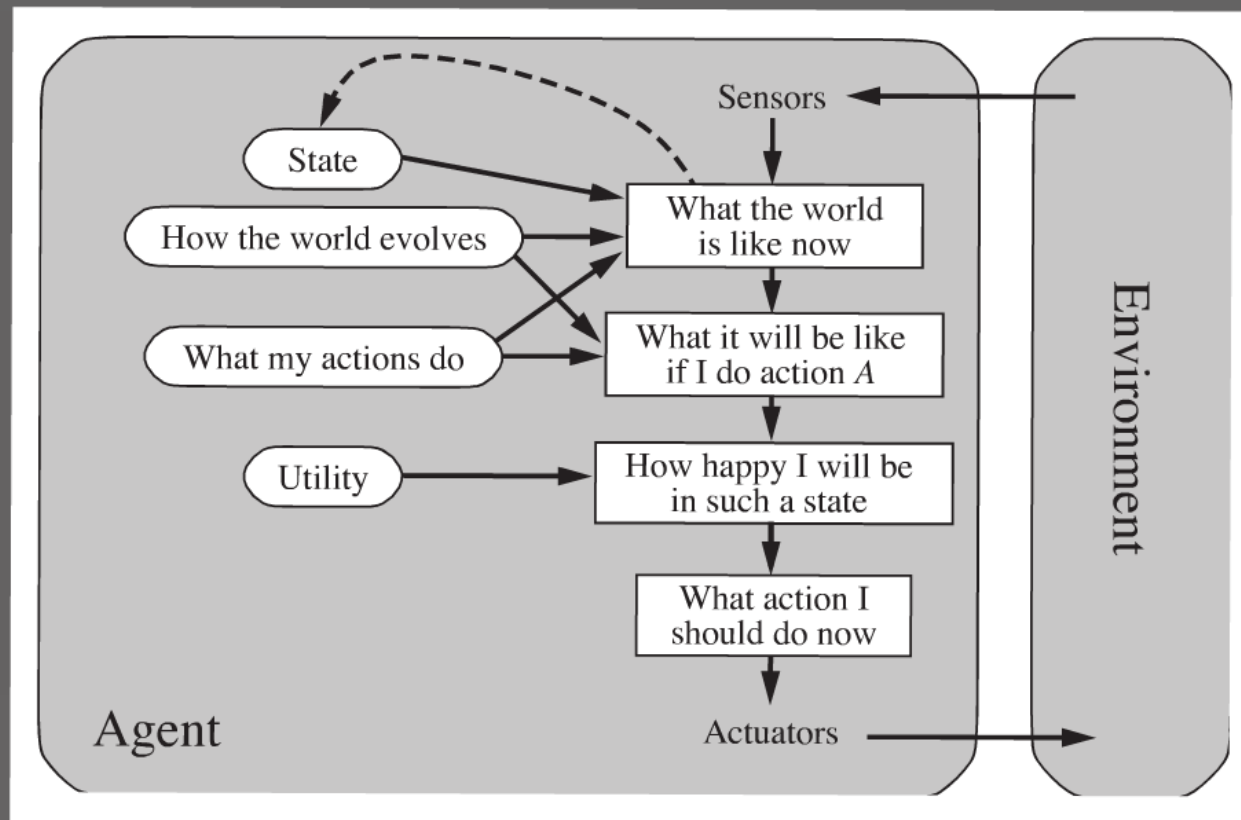
Model-Based Reflex



Goal-Based



Utility-Based



Learning

