

Towers of Hanoi

There are n discs with different diameters. We can slide these discs onto 3 perpendicular rods. It's important that if there is a disc under another one then it must be bigger in diameter. The goal is to move all the discs to destination rod.

PEAS description	
<i>Performance</i>	Minimum moves, Reach final state.
<i>Environment</i>	Disks, Rods.
<i>Actuators</i>	Display / move disks
<i>Sensors</i>	Camera/Keyboard/Mouse

Environment Characteristics:

<i>Observable (Fully vs. partially)</i>	Fully observable
<i>Deterministic vs. stochastic</i>	Deterministic
<i>Episodic vs. sequential</i>	Sequential
<i>Static vs. dynamic</i>	Semi-dynamic
<i>Discrete vs. continuous</i>	Discrete
<i>Agent (Single vs. multi)</i>	Single agent

Agent type:

Type	Suitable	Reason
<i>Simple reflex</i>	*X*	Memory needed
<i>Model-based reflex</i>	*X*	Goal needed
<i>Goal-based</i>	*X*	Optimality
<i>Utility-based</i>	Yes	M&G&O

Simple reflex, **why not?** The agent need to remember the current state of the environment because the next move depends on it.

Model-based reflex, **why not?** How the agent can decide which disc and where to move it. The agent needs a goal to choose actions that achieve it.

Goal-based, **why not?** How many steps needed to move 8-discs from the source the destination rod? The agent needs a performance measure to decide which actions will maximize the speed and reach the optimality.

Utility-based, **why fits?** The agent has a utility function that measures its performance, knows what the goal is and keeps track of the current state. The agent can now move all the discs to the destination rod with minimal moves / steps possible.