



Why

We want to talk about making a sequence of decisions.

Definition

Let S and A be finite sets. Let $T : S \times A \rightarrow (S \rightarrow [0, 1])$ so that for each $s \in S$ and $a \in A$, $T_{sa} : S \rightarrow [0, 1]$ is a probability distribution over S . We call the ordered triple (S, A, T) a *finite state-action process*.

A *trajectory* in the *state set* S and *action set* A is a sequence in $S \times A$.

Let $r : S \times A \times S \rightarrow \mathbf{R}$, $N \in \mathbf{N}$.

A *decision process* is a sequence (S, A, T, r, γ, N) , consists of two sets, a function set, an action

Other terminology

Decision processes are commonly called *markov decision processes*.¹

¹As usual, we avoid this terminology in connection with the projects guidelines against using particular names.

