Notice the minimum (-Inf) and maximum (Inf) values for both **Cart Velocity** and the **Pole Velocity at Tip**.

Since the entry in the array corresponding to each of these indices can be any real number, the state space $\mathcal{S}^+$ is infinite!

Action Space

The action space for the CartPole-v0 environment has type `Discrete(2)`. Thus, at any time point, there are only two actions available to the agent. You can look up what each of these numbers represents in this document (note that it is the same document you used to look up the observation space!). After opening the page, scroll down to the description of the action space.

Actions

Type: Discrete(2)

Num	Action
0	Push cart to the left
1	Push cart to the right

In this case, the action space $\mathcal{A}$ is a finite set containing only two elements.

Finite MDPs

Recall from the previous concept that in a finite MDP, the state space $\mathcal{S}$ (or $\mathcal{S}^+$, in the case of an episodic task) and action space $\mathcal{A}$ must both be finite.

Thus, while the CartPole-v0 environment does specify an MDP, it does not specify a **finite** MDP. In this course, we will first learn how to solve finite MDPs. Then, later in this course, you will learn how to use neural networks to solve much more complex MDPs!