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Reinforcement Learning could be looked deeper from other perspectives, for example psychology. Through the study of psychology, we can find out how the concepts of reinforcement learning (tasks, returns, and various algorithms) are applied in field of animal learning. Consider training an animal to do a specific task, trainer can set up items that the animal likes as a reward and dislikes as a penalty, the animal will tend to make decision that rewards them, just like how an agent behaves in reinforcement learning. In other terms, we can view prediction problems as “classical conditioning” which we observe outcomes without manipulating it, and control problems as “instrumental conditioning” which we use various methods to control the behavior of an individual.

Some questions to think about is does reward motivation always work? Could we simply connect two fields together and generalize a conclusion on how animals behave? Suppose your pet dog is very loyal to you, one day some intruder invades your home, and feed your dog with the exactly same food or toy you normally give (which is basically the same reward), will your dog treat the intruder friendly?

I should probably view this question and argue from different perspectives. I can say that the dog responds equally no matter who gives them reward, therefore it is related to reinforcement learning.

I can also argue that your dog does not like anyone other than you, regardless of the reward given, thus it is unrelated to reinforcement learning. Is this the case? Actually, the decision that your dog does not like anyone other than you is because the reward values are tied with the person who is feeding, which means your dog treat other people’s food as a lower value of reward. Which we still go back to the track of reinforcement learning.

In conclusion, there might still exist counterarguments to disprove the absolute relationship between psychology and reinforcement learning. Currently, these two subject areas are closely related. Reinforcement learning concepts are widely used in the study of psychology.