Deep Q-Learning: Episode vs Epoch

I am trying to understand the famous paper Playing Atari with Deep Reinforcement Learning. I am unclear about the difference between an Epoch and Episode. In algorithm 1, the outer loop is over Episodes while in Figure 2 the x-axis is labeled Epoch. In the context of Reinforcement learning im not clear what a Epoch means. Is an Epoch an outer loop around the Episode loop?

neural-networks terminology reinforcement-learning q-learning

edited Apr 22 at 16:09
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asked Dec 11 '16 at 17:45
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1 Answer

- one **episode** = one a sequence of states, actions and rewards, which ends with terminal state. For example, playing an entire game can be considered as one episode, the terminal state being reached when one player loses/wins/draws. Sometime, one may prefer to define one episode as several games (example: "each episode is a few dozen games, because the games go up to score of 21 for either player").
- one **epoch** = one forward pass and one backward pass of all the training examples, in the neural network terminology.

In the paper you mention, they seem to be more flexible regarding the meaning of epoch, as they just define one epoch as being a certain amount of weight updates. You can therefore view one epoch as being an outer loop around the episode loop, as you mentioned in the question.

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Community ♦
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answered Dec 11 '16 at 18:55
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