

Course > Week 8 > Lecture... > Quiz 5: ...

Quiz 5: Q-Learning

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2/2 points (ungraded)

Part 1

Which of the following equations is the Q-value iteration update:

$$ullet \ Q_{k+1}\left(s,a
ight) \leftarrow \sum_{s'} T\left(s,a,s'
ight) \left[R\left(s,a,s'
ight) + \gamma \max_{a'} Q_k\left(s',a'
ight)
ight] oldsymbol{\checkmark}$$

$$igcup Q_{k+1}\left(s,a
ight) \leftarrow \max_{s'} T\left(s,a,s'
ight) \left[R\left(s,a,s'
ight) + \gamma \sum_{a'} Q_k\left(s',a'
ight)
ight]$$

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ight) \leftarrow \sum_{s'} T\left(s,a,s'
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ight) + \gamma Q_k\left(s,a
ight)
ight]$$

$$igcup Q_{k+1}\left(s,a
ight) \leftarrow \max_{s'} T\left(s,a,s'
ight) \left[R\left(s,a,s'
ight) + \gamma Q_{k}\left(s,a
ight)
ight]$$

Part 2

Let's consider the Q-learning update after having experience (s, a, s', r):

$$Q\left(s,a
ight) \leftarrow \left(1-lpha
ight)Q\left(s,a
ight) + lpha\left[r + \gamma \max_{a'} Q\left(s',a'
ight)
ight]$$

Which of the following statements are true:

- \square If $\alpha=1$ no averaging will happen --- instead simply the value from the sample will be used.
- $ule{1}$ If lpha=0 then the sample will not influence the update.
- None of the above.



✓ Correct (2/2 points)

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