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Practice Quiz

Latest Submission Grade 100%

1. What is the target policy in Q-learning? **1 / 1 point**

- ϵ-greedy with respect to the current action-value estimates
- Greedy with respect to the current action-value estimates (selected)

Correct
Correct! Q-learning's target policy is greedy with respect to the current action-value estimates.

2. Which Bellman equation is the basis for the Q-learning update? **1 / 1 point**

- Bellman equation for state values
- Bellman equation for action values
- Bellman optimality equation for state values
- Bellman optimality equation for action values (selected)

Correct
Correct! The Q-learning update is based on the Bellman optimality equation for action values.

3. Which Bellman equation is the basis for the Sarsa update? **1 / 1 point**

- Bellman equation for state values
- Bellman equation for action values (selected)
- Bellman optimality equation for state values
- Bellman optimality equation for action values

Correct
Correct! The Sarsa update is based on the Bellman equation for action values.

4. Which Bellman equation is the basis for the Expected Sarsa update? **1 / 1 point**

- Bellman equation for state values
- Bellman equation for action values (selected)
- Bellman optimality equation for state values
- Bellman optimality equation for action values

Correct
Correct! The Expected Sarsa update is based on the Bellman equation for action values.

5. Which algorithm's update requires more computation per step? **1 / 1 point**

- Expected Sarsa (selected)
- Sarsa

Correct

Correct! Expected Sarsa computes the expectation over next actions.

6. Which algorithm has a higher variance target? **1 / 1 point**

- ○ Expected Sarsa
- ◉ Sarsa

Correct
Correct! We saw that Sarsa was more sensitive to the choice of step-size because its target has higher variance.

7. Q-learning does not learn about the outcomes of exploratory actions. **1 / 1 point**

- ◉ True
- ○ False

Correct
Correct! The update in Q-learning only learns about the greedy action. As demonstrated in Cliff World, it ignores the outcomes of exploratory actions.

8. Sarsa, Q-learning, and Expected Sarsa have similar targets on a transition to a terminal state. **1 / 1 point**

- ◉ True
- ○ False

Correct
Correct! The target in this case only depends on the reward.

9. Sarsa needs to wait until the end of an episode before performing its update. **1 / 1 point**

- ○ True
- ◉ False

Correct
Correct! Unlike Monte Carlo methods, Sarsa performs its updates at every time-step using the reward and the next action-value estimate.