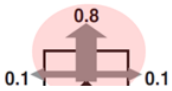
- Pick the action with the maximal expected utility (MEU)

$$\pi^*(s) = \underset{a \in A(s)}{\operatorname{argmax}} \sum_{s'} P(s' \mid s, a) U(s')$$



Up:
0.8(???)+ 0.1*{???) + 0.1*(???) = ???*
Down:
0.8(???)+ 0.1*{???) + 0.1*(???) = ???*
Left:
0.8(???)+ 0.1*{???) + 0.1*(???) = ???*
Right:
0.8(???)+ 0.1*{???) + 0.1*(???) = ???*

3	0.812	0.868	0.918	+1
2	0.762		0.660	−1
1	0.705	0.655	0.611	0.388
	1	2	3	4

Given the utilities shown in the figure above, select the action that the agent should take at state (4,1). Toward this end, you need to compute the expected utility (EU) for each of the four actions: Up, Down, Left, and Right.

Question 1: What is the expected utility of taking the action "Up" at state (4,1)?

Answer -0.7001

Question 2: What is the expected utility for taking the action "Down" at state (4,1)?

Answer 0.4103

Question 3: What is the expected utility for taking the action "Left" at state (4,1)?

Answer 0.4276

Question 4: What is the expected utility for taking the action "Right" at state (4,1)?

Answer 0.2492

Question 5: Which action should the agent take at state (4,1)?

Question 5 - Correct Answer3 Left