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**Q1:**

ai)

Assuming a1 and a2 were not terminal, number of conditional plans =

= = 27

Number of conditional plans starting with a3 = 27/3 = 9

ii)

[a3, if Percept = left then a1 else a2]

bi)

α[a1] = p(100) + (1-p)(-100) = 200p -100

α[a2] = (1-p)(100) + p(-100) = 100 – 200p

α[a3, if Percept=left then a1 else a2] = -10 + γ(100) = 90

bii)

From p = 0 to p = 0.05, the optimal conditional plan is [a2]

From p = 0.05 to p = 0.95, the optimal conditional plan is [a3, if Percept = left then a1 else a2]

From p = 0.95 to p = 1, the optimal conditional plan is [a1]

P = 0.05

P = 0.95

**Q2:**

Assume that P(s’|s, left) = 1, where s’ is left of s.

b’(s’) = αP(e|s’) P(s’|s,a) b(s)

b’ =

|  |  |  |  |
| --- | --- | --- | --- |
| α(0.1)(1/9) | α(0.1)(1/9) | 0 | 0 |
| 0 |  | 0 | 0 |
| α(0.1)(1/9) | α(0.1)(1/9) | α(0.9)(1/9) | 0 |

α(1/90)(4) + α(0.1) = 1

α = 90/13

b’ =

|  |  |  |  |
| --- | --- | --- | --- |
| 0.07692 | 0.07692 | 0 | 0 |
| 0 |  | 0 | 0 |
| 0.07692 | 0.07692 | 0.69231 | 0 |