高级算法作业 4

TRY 计算机科学与技术

P101 Exercise 5.8

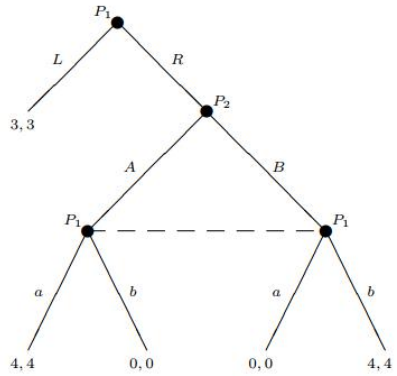

Figure 5.8 Game tree for Exercise 5.8.

解：• There are 2 subgames: (1) The whole tree, (2) The right sub-tree

• The simultaneous decision subgame has three Nash equilibria: (A, a), (B, b), and for mixed strategy, let p (or q) for player 1 (or player 2) to play ≡ a (or A) and 1-p (or 1-q) to play b (or B). The payoff for player 1 (or player 2) is:

$$\pi_1 = \pi_2 = 4pq + 4(1-p)(1-q) = 4 - 4q + 4p(2q-1)$$

So $6_1^* = 6_2^* = (\frac{1}{2}, \frac{1}{2}) = \frac{1}{2}Aa + \frac{1}{2}Bb$, and $\pi_1(6_1^*) = \pi_2(6_2^*) = 2$

• So the subgame perfect Nash equilibria are

(Ra, A), (Rb, B) and $(L6_1^*, 6_2^*)$