Exercise 5.8

Find all the subgame perfect Nash equilibria of the game shown in Figure 5.8.
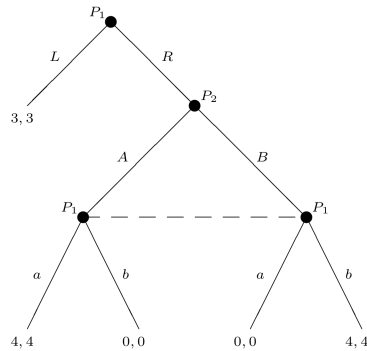

Figure 5.8 Game tree for Exercise 5.8.

(A, a), (B, b) 是 simultaneous subgame 的 Nash equilibria,

对于 mixed strategy.

设 P_2 选 A 概率 p , P_1 选 a 概率 q

∴ $\pi_1 = 4pq + 4(1-p)(1-q)$

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

当且仅当 $p = q = \frac{1}{2}$ 时 $\pi_1^* = \pi_2^* = 2$

∴ 设 $\sigma^* = (\frac{1}{2}, \frac{1}{2})$

(σ^*, σ^*) 也是 simultaneous subgame 的 Nash equilibria

∴ subgame perfect Nash equilibria 是 $(Ra, A), (Rb, B), (\sigma^*, \sigma^*)$