

- ⑥ (a) Player 2 can change outcome by only choosing I rather than J .
 But $u_2(N) = 1 < 2 = u_2(Q)$.

Player 1.

If choose R' get P .

$$u_1(P) = 2 < 3 = u_1(Q)$$

If choose a & L & L' get K .

$$u_1(K) = 2 < 3 = u_1(Q)$$

If choose a & R get J .

$$u_1(J) = 1 < 3 = u_1(Q)$$

Therefore Nash equilibrium.

- (b) Not a subgame perfect equilibrium because not a Nash equilibrium starting at A .

If P_2 chooses C get I

$$u_2(I) = 3 > 2 = u_2(K)$$

Therefore increase payoff by changing.

- ⑦ To check at $\{A, B\}$, let $p = P(L)$ in strategy.
 Using the beliefs.

$$\begin{aligned} E(\{A, B\}, p) &= \frac{2}{3}[4p + (1-p)6] + \frac{1}{3}[p/0 + (1-p)6] \\ &= \frac{2}{3}(6 - 2p) + \frac{1}{3}(6 + 4p) \\ &= 6 \end{aligned}$$

This is independent of p .

$$\text{Therefore } \frac{\partial}{\partial p} E(\{A, B\}, p) = \frac{\partial}{\partial p} 6 = 0$$

And it is constant.

Therefore, $p = \frac{1}{4}$ is a mixed strategy which is a Nash equilibrium.