

- 3.) Let p be weight for choice a & $1-p$ for b .

$$\text{Then } E(C) = p5 + (1-p)4 = 4 + p$$

$$E(D) = p4 + (1-p)5 = 5 - p.$$

Mark belief $q = \mu(C)$ the expectation of information set $\{C, D\}$ is

$$\begin{aligned} E(\{C, D\}) &= q(4+p) + (1-q)(5-p) \\ &= 5 - q + p(2q - 1) \end{aligned}$$

For $q > 0.5$ maximize by taking $p = 1$.

For $q < 0.5$ " " " " $p = 0$.

For $q = 0.5$, any choice of p works.

- 4.) It is not a subgame perfect equilibrium, because starting at A player 2 can improve his/her payoff by picking AC ; this gives G with payoff of 3 rather than I with payoff of 2.

For Nash:

Player 2 can only affect payoff by picking between BJ & BK . The choice of BK has larger payoff for player 2 so this is OK.

Player 1, can make choices to get to H, I , or K . For player 1, these have payoffs of 1, 2, 3. The highest is 3, so this is a Nash equilibrium.