Conquering an Island

Two opposed armies are ready to conquer an island. Each army's general can choose to either attack (A) not attack (N). In addition, each army is either strong or weak, and there is common knowledge that these two events are equally likely and independent. The island is worth M if captured and it is captured either by attacking when its opponent is not or by attacking when its rival does if its own army is strong and the rival is weak.

Matching Pennies, Revisited

Indifference Condition for Player 1:

$$Ev_1(H, s_2^*(\theta_2); \theta_1^*, \theta_2) = Ev_1(T, s_2^*(\theta_2); \theta_1^*, \theta_2)$$

Risk-Averse Bidders

Symmetric Bayesian Nash Equilibrium: $s_i^*(\theta_i) = k\theta_i + c$.

(1) Everyone except player 1 is playing $s_i^*(\theta_i) = k\theta_i + c$

(2) Find $Ev_1(b_1, s_{-1}(\theta_{-1}); \theta_1, \theta_{-1})$

(3) Find b_1^* such that $\frac{\partial Ev_1}{\partial b_1} = 0$

(4) In BNE, $b_1^* = k\theta_1 + c$