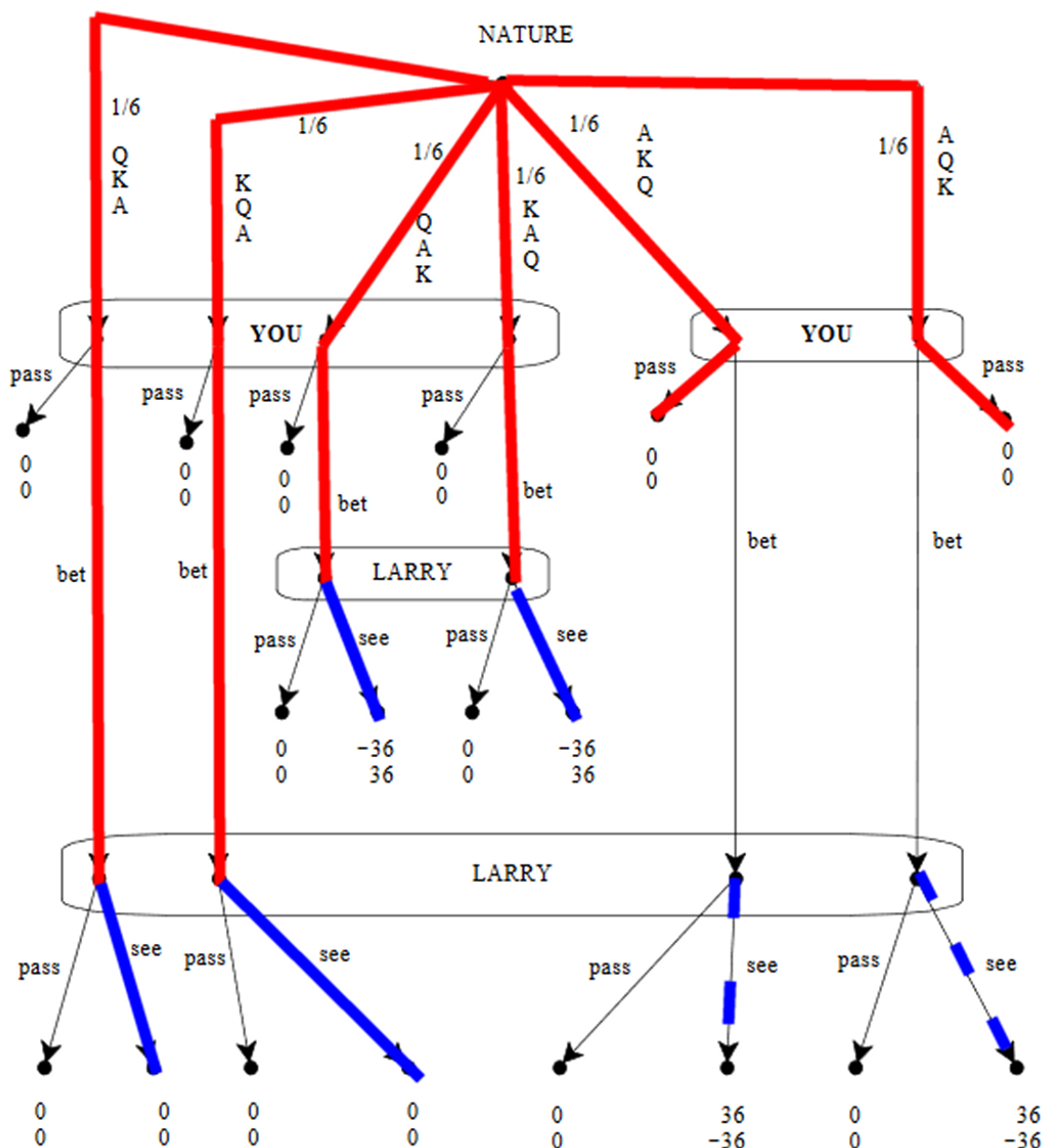


## Midterm 2 Practice, Q2 Payoffs

The key to figuring out the cells in the strategic form matrix is to use all of the probabilities to find the expected payoffs. For instance, consider (A Pass, not A bet) and (A see, not A see). We need to figure out

- What possible outcomes this strategy profile could lead to,
- The probability of each of those outcomes.

The solid thick lines are the outcomes that the strategy profile could possibly reach:



Each of those outcomes are reached with  $1/6$  probability as decided by Nature. Hence the payoff for that cell is

$$\frac{1}{6} \begin{bmatrix} 0 \\ 0 \end{bmatrix} + \frac{1}{6} \begin{bmatrix} 0 \\ 0 \end{bmatrix} + \frac{1}{6} \begin{bmatrix} -36 \\ 36 \end{bmatrix} + \frac{1}{6} \begin{bmatrix} -36 \\ 36 \end{bmatrix} + \frac{1}{6} \begin{bmatrix} 0 \\ 0 \end{bmatrix} + \frac{1}{6} \begin{bmatrix} 0 \\ 0 \end{bmatrix} = \begin{bmatrix} -12 \\ 12 \end{bmatrix}.$$

Then you repeat the procedure for all of the other cells – it could take a while! But before brute-force calculating your way through each cell, you can observe that a lot of them are  $0, 0$  without doing any calculation. For instance, any strategy profile in which Player 1 passes in both information sets is zero in all cases; same for Player 2.