AGTA Tutorial Sheet 5

Please attempt these questions before the next tutorial.

1. Consider the following finite extensive form game of perfect information (which we have already discussed briefly in class).

   There are two players. Each player receives 1 dollar at the beginning of the game. The two players then alternate moves, starting with player 1. In each move, the player whose turn it is to move either chooses `stop` or `give`. If a player chooses `give` then the referee takes 1 dollar from that player and gives 2 dollars to the other player. If it chooses `stop`, then the game stops immediately, and both players keep the money they have already accumulated.

   In any case, the game stops immediately if we reach a state where both players have accumulated exactly 4 pounds.

   (a) Draw the finite game tree for this game, indicating the payoffs to the two players at the leaves.

   (b) Compute a subgame perfect Nash Equilibrium (SPNE) for this game.

   (c) Is there more than one SPNE? Explain.

   (d) Are there any other NEs? Explain.

   (e) How would you play this game if you were, say, player 1? Is there a plausible game-theoretic explanation for how you would play it?

2. Compute a SPNE for the game depicted in Figure 1. Are there any other NEs for this game?
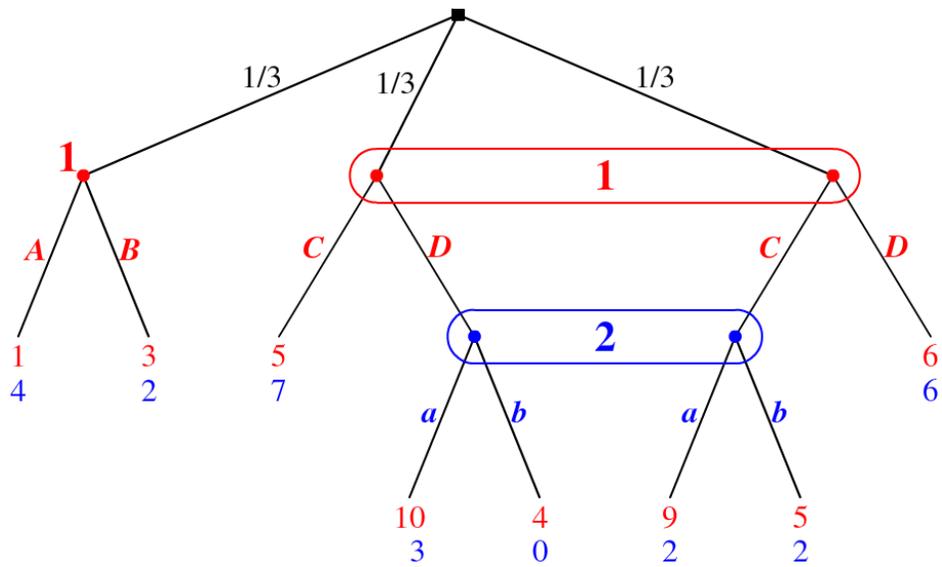
Figure 1: Question 2