

Problem Set 2

1.- There are two firms ($i=1,2$) in an industry. Each of them has a job opening. Firm i offers a wage w_i . There are two workers that decide simultaneously to which firm they apply (they can only apply to one). If only one worker applies to a given firm that worker gets the job; if the two workers apply to the same firm, the firm hires one of them randomly and the other remains unemployed (that has payoff zero).

- (a) Represent this game in extensive form.
- (b) Represent this game in normal form.

2.- Formulate the following parlor game as an extensive-form game with imperfect information. First player 1 receives a card that is either H or L with equal probabilities. Player 2 does not see the card. Player 1 may announce that her card is L and pay 1 dollar to player 2, or may claim that her card is H. In the latter, player 2 may choose to concede or to insist on seeing player 1's card. If player 2 concedes then he must pay 1 dollar to player 1. If he insists on seeing player 1's card then player 1 must pay him 4 dollars if her card is L and he must pay her 4 dollars if her card is H.

3.- A committee with three members, $\{1, 2, 3\}$, has to choose a new member of a club among a set of four candidates, $\{a, b, c, d\}$. Each member of the committee has veto power which is used in a successive way, starting by member 1, and finishing with member 3. Each member of the committee has to veto one and only one of the candidates that have not been vetoed yet.

- (a) Draw the extensive form of the game, writing in the terminal nodes the name of the elected candidate.
- (b) How many strategies does each player have? Do not try to write them (player 3 should have a lot).

4.- Do the games described in Figures 1, 2, 3 and 4 satisfy the "perfect recall" assumption? Represent the ones that do satisfy this property in normal form.

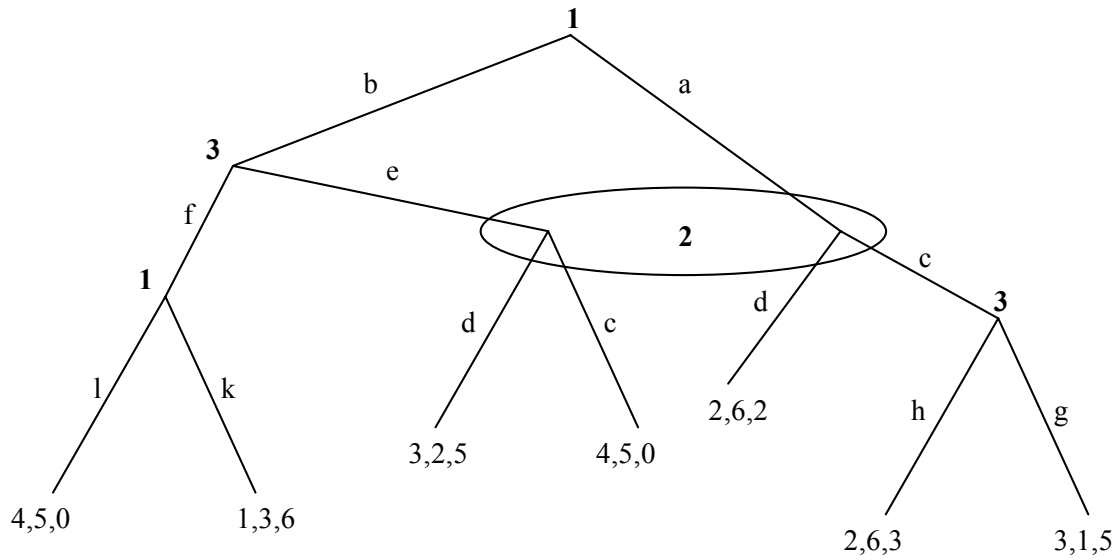


Figure 1

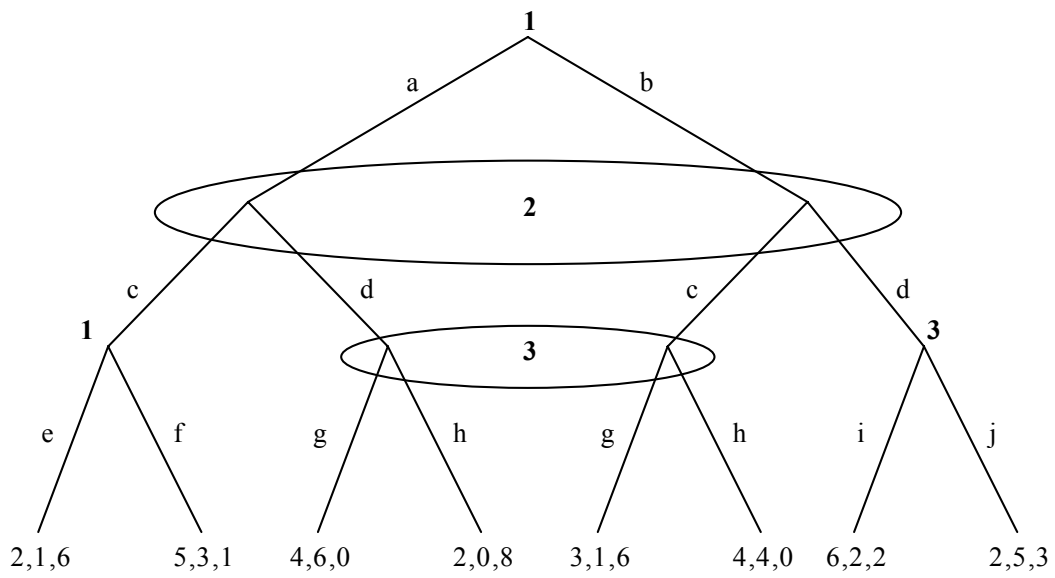


Figure 2

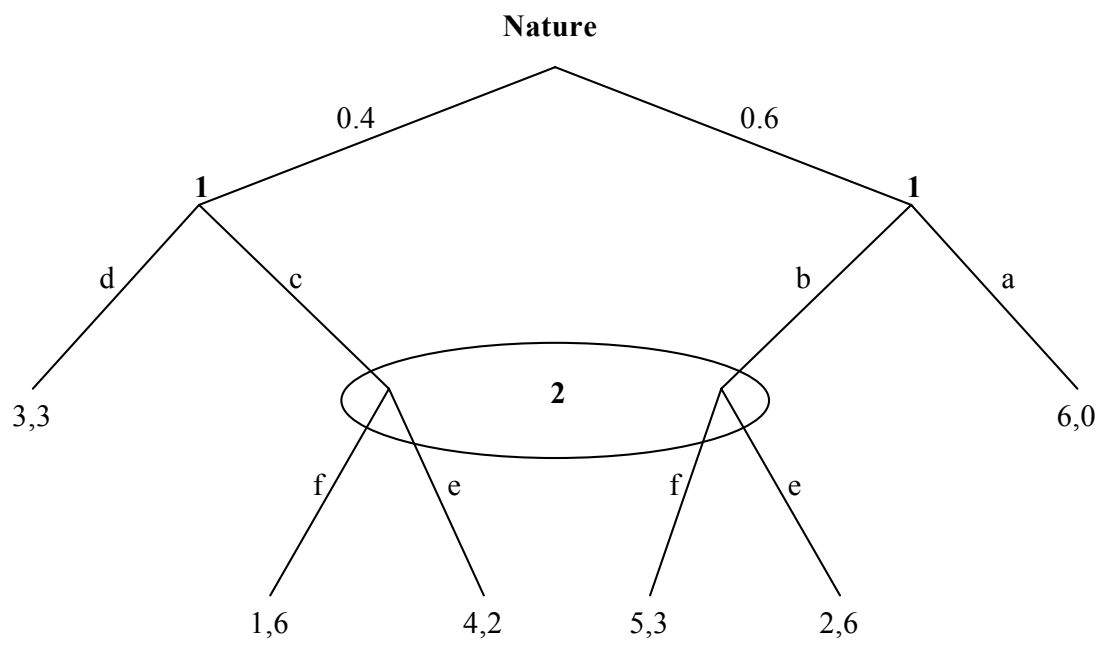


Figure 3

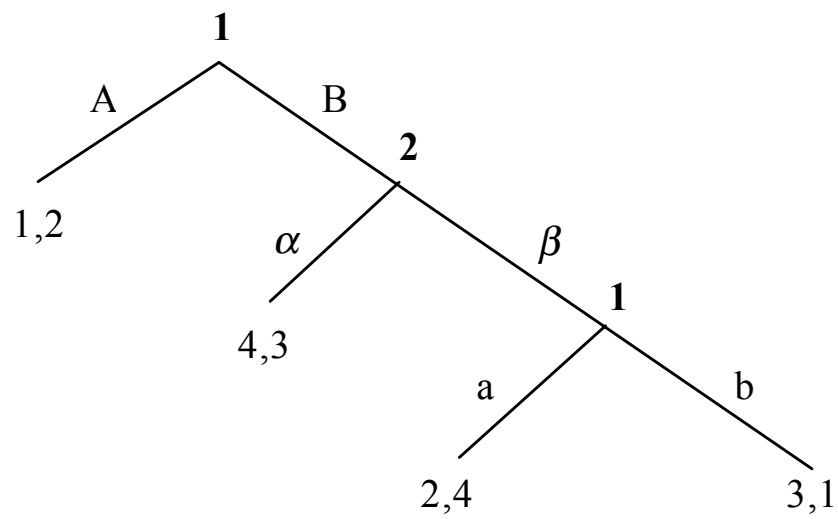


Figure 4