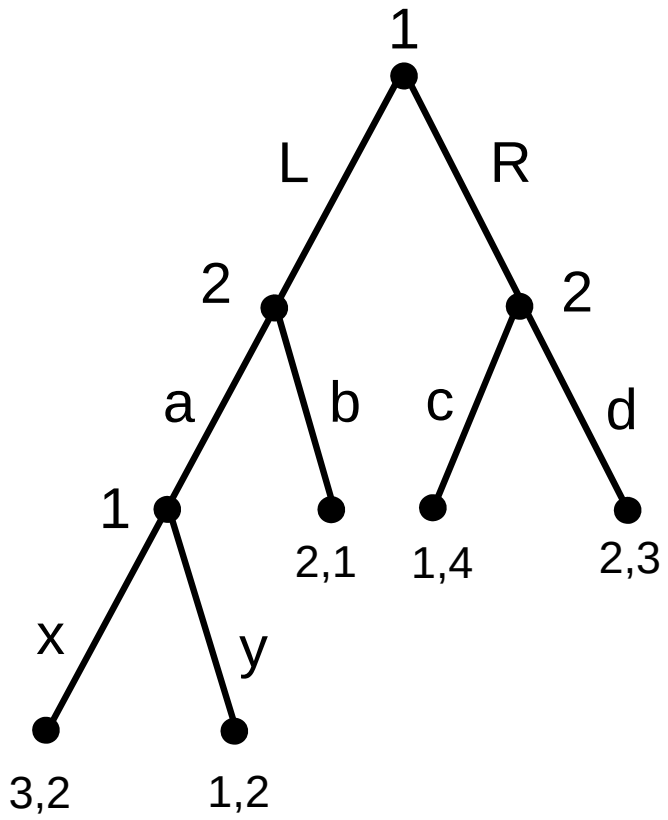
EC3322
Industrial Organization I
Semester 1, 2015-2016
Tutorial #6

You will receive full credit if you present your attempt at the solution during tutorial, whether or not you have the correct answer. Also, feel free to discuss the questions and answers with other students who have not yet attended tutorial. ***However, I request that you do not ask former students of this module or current students who attend an earlier tutorial than you for the answers before your own tutorial has taken place.***

1. Find a real world example of prisoner's dilemma and tell us about it. **No googling!**

2. (Final Exam, Sem 1, 2014-15) Consider the extensive form game below.



Find the normal form representation of this game and the Nash Equilibrium (or Equilibria if there is more than one).

3. For this question, we will use the lysine data provided by the book:

Firm	*Market Share*	*Marginal Cost*
Ajinomoto	32%	\$0.70
Archer Daniels Midland	32%	\$0.70
Kiyowa Hakko	14%	\$0.80
Sewon/Miwon	14%	\$0.80
Cheil Sugar	4%	\$0.85
Cargill	4%	\$0.85

Recall that the price elasticity of demand was -1.55.

Besides estimating the "counterfactual" price, the price that would have occurred if there had been no conspiracy, the Cournot model can be used to predict post-merger prices.

For each of the proposed mergers below report the post-merger HHI, the change in HHI, the post-merger weighted-average cost, and the post-merger price, and comment on what you find. If you need to make any assumptions, make sure they are reasonable.

(a) Ajinomoto and Archer Daniels Midland

(b) Kiyowa Hakko and Sewon/Miwon

(c) Archer Daniels Midland and Cargill

4. (Midterm 2012) The inverse demand curve for bottled water is

$$P = 30 - Q,$$

where Q is total market output and P is market price. Two firms have complete control of the supply of bottled water and both have zero costs. Find the Cournot-Nash equilibrium, price, and firm profits.

5. In an industry there are N firms producing a homogeneous product. Let q_i denote the output level of firm $i, i = 1, 2, \ldots, N$, and let Q denote the aggregate industry production level. That is, $Q = \sum_{i=1}^{N} q_i$. Assume that the demand curve facing the industry is $p = 100 - Q$. Suppose that the cost function of each firm i is given by:

$$TC(q_i) = \begin{cases} F + q_i^2 & \text{if } q_i > 0 \\ 0 & \text{if } q_i = 0. \end{cases}$$

   (a) Suppose that the number of firms in the industry is sufficiently small so that all N firms make positive profit. Calculate the output and profit levels of each firm in a Cournot equilibrium.

   (b) Now, assume that firms are allowed to enter and exit from the industry. Find the equilibrium number of firms in the industry as a function of F.