ECO 610
Final Exam
TEI Piraeus/University of Kentucky MBA Program
October 2011

Name Answer Key

e-mail address_____

Instructions: This exam consists of 9 questions. Answer each question in the space provided. Point values are indicated beside each question. 100 points total. You have four hours to complete this exam, so you should use your time wisely so that you are able to answer all questions. You may use your own textbook, class notes, handouts, or other written material from the course, but you may not borrow anything from another student during the exam. You may use your own calculator, but you may not borrow a calculator from another student. Talking with another classmate during the exam is forbidden! You may ask Petros if you have any questions. Please write clearly. Good luck!

Answer each of the following questions in the space provided. Point values are indicated beside each question. You have already gotten 2 points for signing your name on the cover sheet.

1. (10 pts.) Suppose that the U.S. government decides to end the program that subsidizes the use of ethanol, which leads to a sharp decrease in the demand for corn and a resulting decline in the price of corn. In the first diagram below indicate what effect this would have on the market for soybeans, an alternative crop for farmers. In the second diagram below indicate what effect this would have on the market for pork. (Corn is commonly fed to hogs to fatten them up.) Briefly explain each answer.

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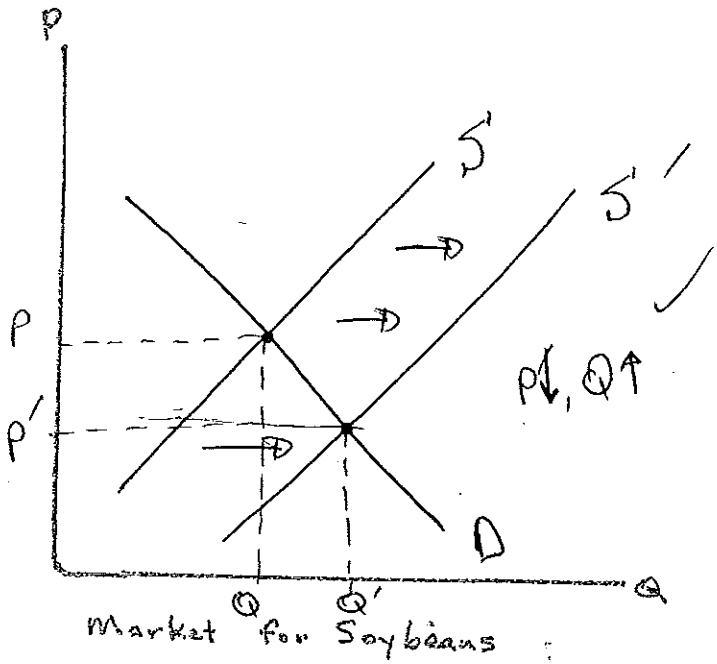
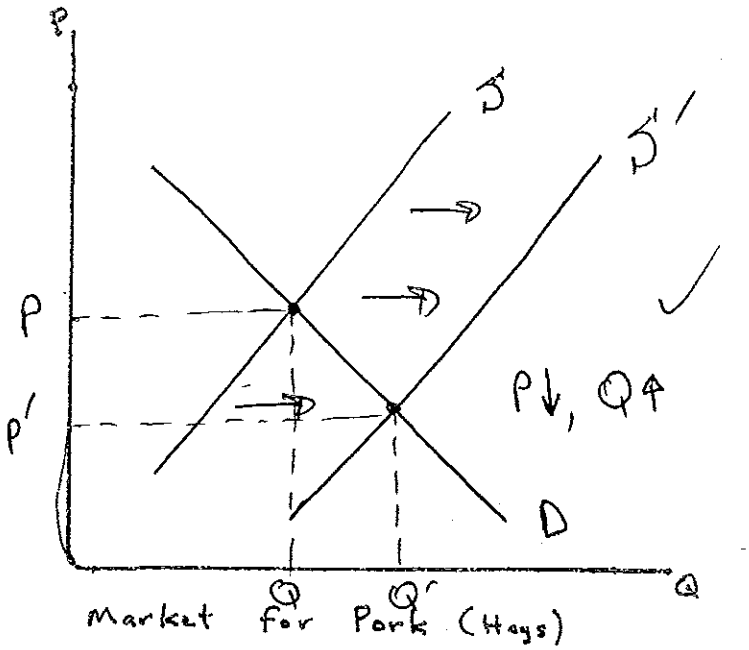


When the price for corn declines, farmers will supply more soybeans than before.



When the price for corn declines, farmers will turn to pork and try to supply more pork in the market by feeding them more.

2. (10 pts.) Currently there are dozens and dozens of restaurants in the Plaka that sell Greek salads, along with many other types of food. The usual price is 6 to 7 euros. Suppose that the Athens city government decides to impose a price ceiling (maximum price) on "Greek salads" in the Plaka district, and decrees that no restaurant can charge more than 4 euros for a Greek salad. Using the diagram below, illustrate and explain what will happen when they do that. Can you think of any unintended side effects such a law will have?

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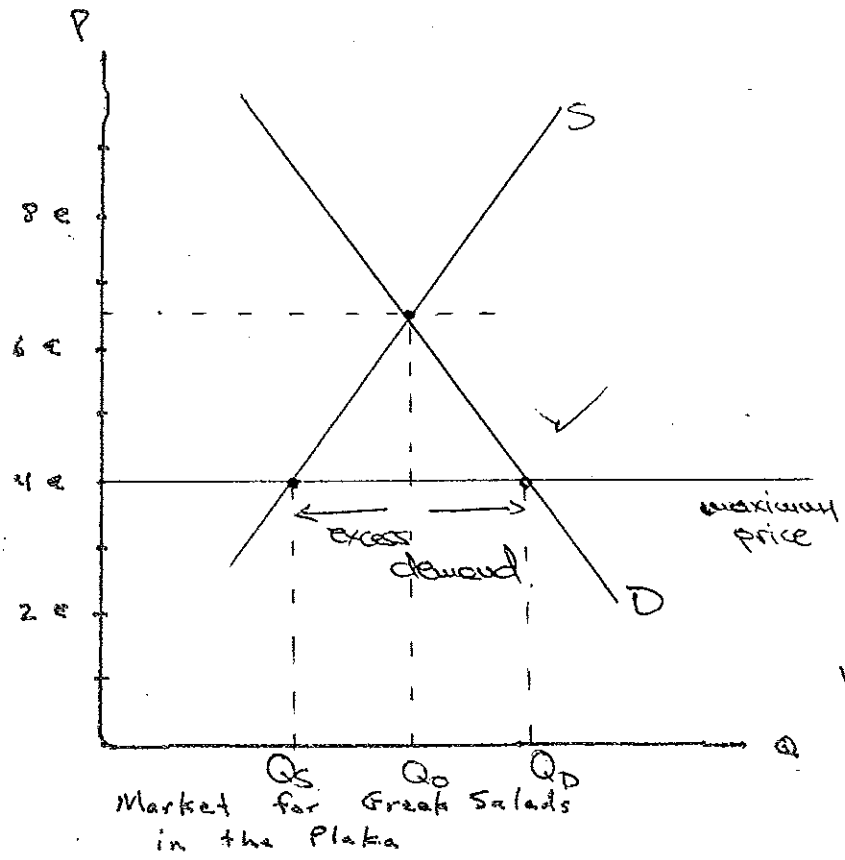

Market for Greek Salads in the Plaka

The price ceiling will create an increase in demand for Greek salad.

Restaurants will probably reduce the size of the Greek Salad. They will probably cut less tomatoes and cucumbers in each plate.

3. (10 pts.) A firm produces two products, X and Y. The production technology displays the following costs, where C(i, j) represents the cost of producing i units of X and j units of Y:

C(0,50) = 100	C(5,0) = 150
C(0,100) = 210	C(10,0) = 320
C(5,50) = 240	C(10,100) = 500

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a) Does this production technology display economies of scale? Explain.

b) Does this production technology display economies of scope? Explain.

a) they donot display economies of scale because when the production is doubled the cost is more than doubled. This is a characteristic of diseconomies of scale:

b) they display economies of scope, because the cost of prodicing them separetely is larger than producing them together.

$C(5,50) = 240 < C(0,50) + C(5,0) = 250$. ✓

$C(10,100) = 500 < C(0,100) + C(10,0) = 530$.

4. (10 pts.) Explain what asset specificity refers to, and give examples of each of the four types of specific assets. What is the hold-up problem and why does it often lead to vertical integration?

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a) Site specificity → refers to assets that are located side-by-side to economize on transportation or inventory cost or to take advantage of processing efficiencies. Traditional steel manufacturing offers a good example of site specificity. Side-by-Side location of blast furnaces, steelmaking furnaces, casting units, and mills saves fuel costs as the pig iron, molten steel, and semifinished steel do not have to be reheated before being moved to the next process.

b) Physical asset specificity → refers to assets whose physical or engineering properties are specifically tailored to a particular transaction. Glass container production requires molds that are custom tailored to particular container shapes and glass-making machines. Physical asset inhibits customers from switching suppliers.

c) Dedicated assets → is an investment in plant and equipment made to satisfy a particular buyer. Without the promise of that particular buyer's business, the investment would not be profitable. One facility for example might be designed with specialized bagging equipment to accomodate construction materials, whereas another may be equipped with concrete batching machines to handle marine aggregates.

d) Human asset Specificity → refers to cases in which a worker or group of workers has acquired skills, know-how and information that are more valuable inside a particular relationship than outside it. Human asset specificity not only includes tangible skills such as expertise with company-specific software, but it also encompasses intangible assets. For example every organization has unwritten "routine" and "operations". A manager who has become a skillful administrator within the context of one organization's routines may be less effective in an organization with completely different routines.

The hold up problem — If an asset was not relationship-specific, the profit the firm could get from using the asset in its best alternative and its next best alternative would be the same. Thus the associated quasi-rent would be zero. But when a firm invests in a relationship-specific asset, the quasi-rent must be positive- (to be continued →)

- it will always get more from ~~using the asset~~ its best alternative than from its second-best alternative. If the quasi-rent is large a firm stands to lose a lot if it has to turn to its second-best alternative. This opens the possibility that its trading partner could exploit this large quasi-rent, through hold up.

5. (8 pts.) You decide to drop of the MBA program and return to work on your family's farm, growing cotton. It is spring, and you need to plow the fields in order to plant a new crop of cotton. You are currently using a medium-sized tractor that you rent by the day from another farmer, and you have hired a worker to drive the tractor and plow the fields. Your neighbor has a larger tractor which you could rent for 50 euros per day more than you are currently paying for the medium-sized tractor. With the larger tractor you could plow 4 hectares more land in the same amount of time. You are currently employing the worker for eight hours each day. If you continued to use the medium-sized tractor but had the worker plow for an additional hour, you would have to pay 10 euros in additional wages, but 2 more hectares would get plowed. Are you using labor and capital efficiently? Use an equation to discuss whether you are using the efficient mix, or whether you should use either more labor and less capital or more capital and less labor.

8

We know that the necessary condition for cost minimization is:

combine L and K such that

$\frac{MP_L}{w} = \frac{MP_K}{v}$, where w = per unit cost of labor and v = per unit cost of capital

From the above information:

$\frac{MP_L}{w} = \frac{2}{10} = 0,2 \qquad \frac{MP_K}{v} = \frac{4}{50} = 0,08$

As we see, $\frac{MP_L}{w} \neq \frac{MP_K}{v}$, so we are not using the efficient mix.

We should use more labor and less capital in order to use our labor and capital efficiently.

6. (20 pts.) Filberts or Hazelnuts are a type of nut that is grown in the Mediterranean region, including Greece, as well as Oregon in the U.S. They are typically grown on small and medium-sized farms, and are consumed all over the world. A typical grower produces 50 tons per year. Last year approximately 1 million tons were produced, and the market price was roughly $1.00 per pound. Assume that the industry was in long-run equilibrium at that price and output.

   a) In the diagrams below illustrate this situation, and label the outcomes for the market and for the individual firm with (a).

   b) Now suppose that there is a permanent change of tastes away from hazelnuts and towards pecans, as consumers all over the world discover how good and healthy pecans are. Illustrate this situation in your diagrams, and label with (b). Be sure to explain what happens to market price and output, and to each firm's profits.

   c) If the demand for hazelnuts stays permanently depressed, what will eventually happen in this industry? Explain the adjustment process that will occur, and illustrate in your diagrams. Label the new long-run equilibrium with (c).

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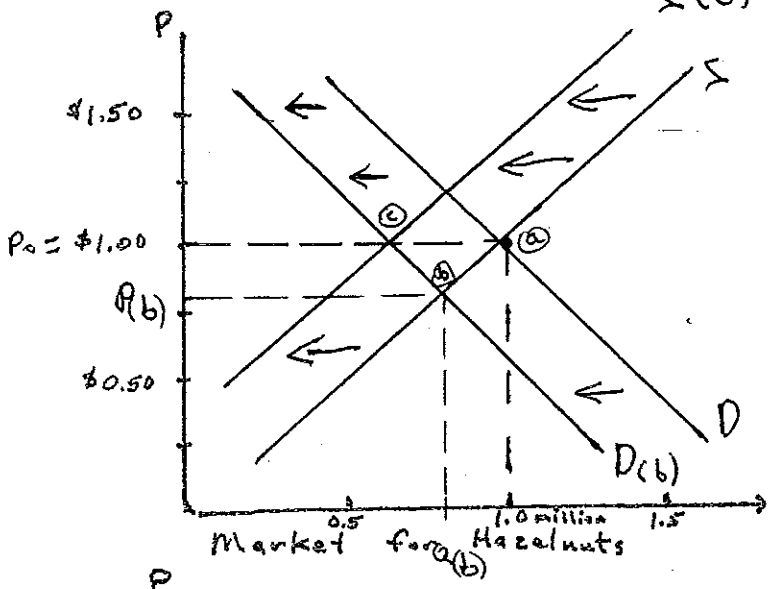

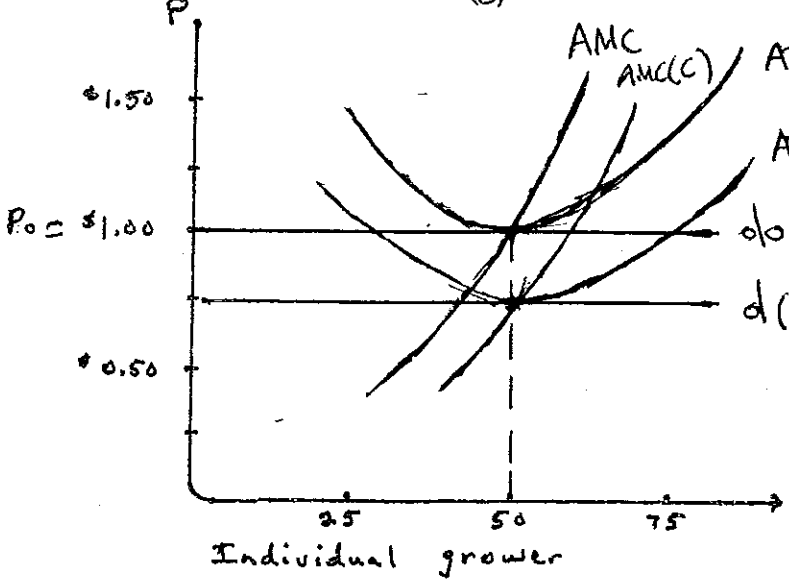

(a) $Q_D = Q_S$ at P_o
econ $\Pi = 0$
$P = \min ATC$

(b) The market demand curve will shift to the left (decrease), which means that the price and quantity of hazelnuts will decrease.
The horizontal demand curve of the individual grower will decrease, which means that individual growers will suffer economic losses. (ATC > d).

(c) Economic losses will cause many individual farmers to exit the industry. As farmers exit, the market supply curve will shift to the left and the price will rise. After that, the price is expected to return to its original level.

7. (10 pts.) The Electra Palace has two types of customers, foreigners and Greeks. As its manager you know that these two categories of customers have different demand curves for lodging in Athens. The demand curves for Greeks and non-Greeks are illustrated in the diagram below. Assume that the costs of providing lodging to a customer do not vary, and are equal to 40 euros per night. Determine what the profit-maximizing price and output are for each market segment, and calculate how much profit you will earn from each group. Illustrate in your diagram. How might you identify and sort customers into the appropriate demand category so that you can price discriminate in this way?

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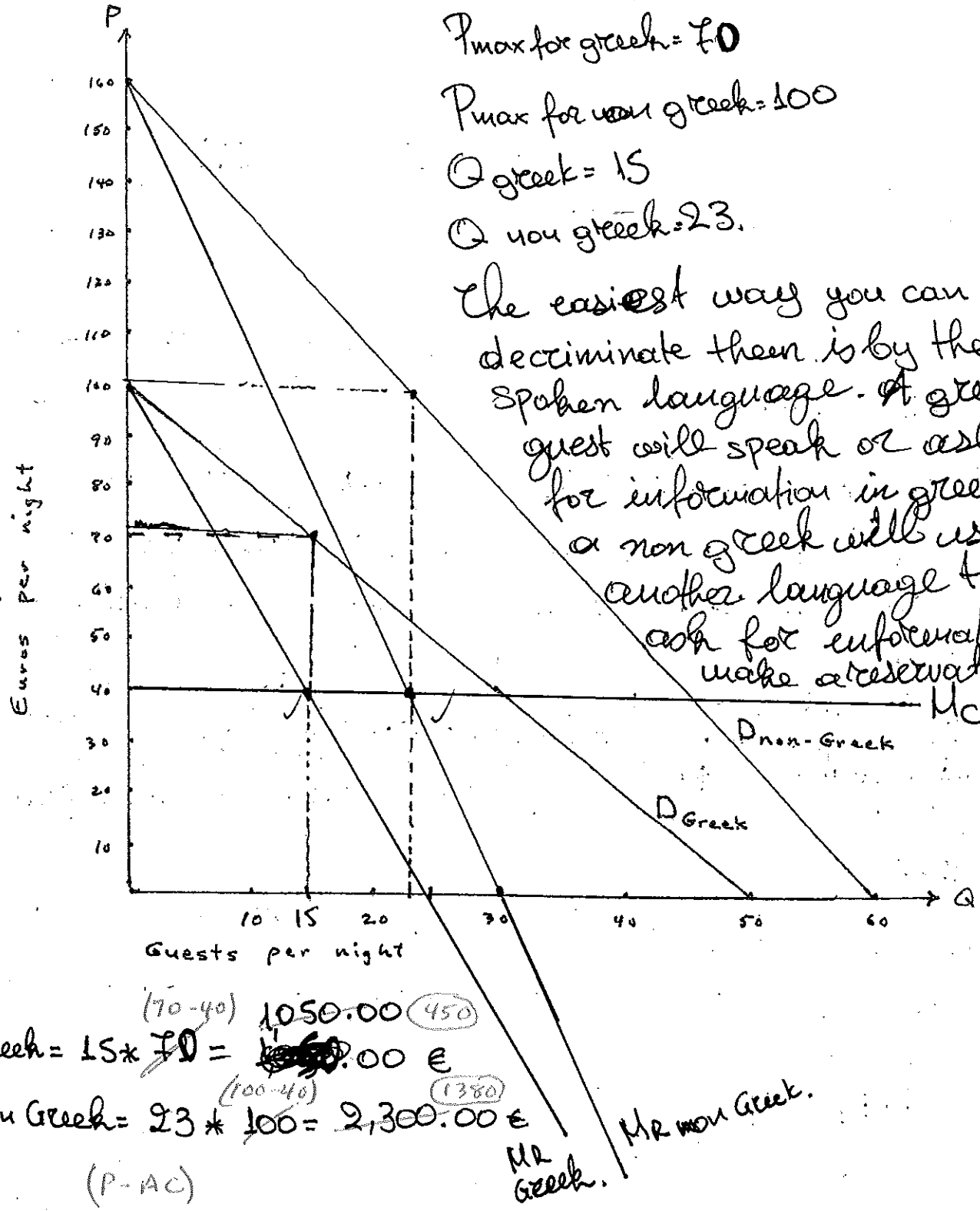

Pmax for greek = 70

Pmax for non greek = 100

Q greek = 15

Q non greek = 23.

The easiest way you can decriminate them is by their spoken language. A greek guest will speak or ask for information in greek, while a non greek will use another language to ask for information or make a reservation ✓

$\Pi_{Greek} = 15 * \cancel{70} = \cancel{1050.00}$ (70-40) (450)

$\Pi_{non\ Greek} = 23 * \cancel{100} = 2,300.00$ € (100-40) (1380)

(P - AC)

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8. (10 pts.) Consider the following two-player game. The strategy options and payoffs for the row and column players are contained in the payoff matrix below:

	C1	C2	C3	C4
R1	10, 7	8, 8	0, 6	2, 6
R2	6, 5	2, 3	5, 1	7, 4
R3	0, 4	5, 8	3, 7	5, 10
R4	4, 6	9, 8	6, 9	1, 1

Using the solution strategies we studied in class (dominant strategies, dominated strategies, rationalizable strategies), find the Nash equilibrium. Explain how the sequence of reasoning that you use to arrive at your answer.

1) Both Row and Column players do not have a dominant strategy.

2) The row player would never play R3 because it is dominated by R4. So we eliminate it. So now the column player would never play C4 because it is dominated by C3.

So in the new matrix

	C1	C2	C3
R1	10, 7	8, 8	0, 6
R2	6, 5	2, 3	5, 1
R4	4, 6	9, 8	6, 9

The row player would not play R2 because it is dominated by R4 and the column player would not play C1 because it is dominated by C3. So we eliminate them.

So in the 2x2 matrix:

	C2	C3
R1	8, 8	0, 6
R4	9, 8	6, 9

So the row player has a dominant strategy of R4 and will play it. The column player doesn't have a dominant strategy so the Nash equilibrium is R4, C3 and the are no regrets for the column player given the circumstances.

9. (10 pts.) Players 1 and 2 play a sequential game. Player 2 moves first, then player 1 moves second, and finally player 2 moves again. Their strategy choices and payoffs are illustrated in the game tree below. **Note that player 1's payoff is listed first and player 2's payoff is listed second.**
   a) What do you predict the outcome of the game will be? Explain why.
   b) Suppose player 1 tells player 2 that she will play a_2 on the second move if he plays b_1 on the first move. Now what do you predict will be the outcome of the game? Why?

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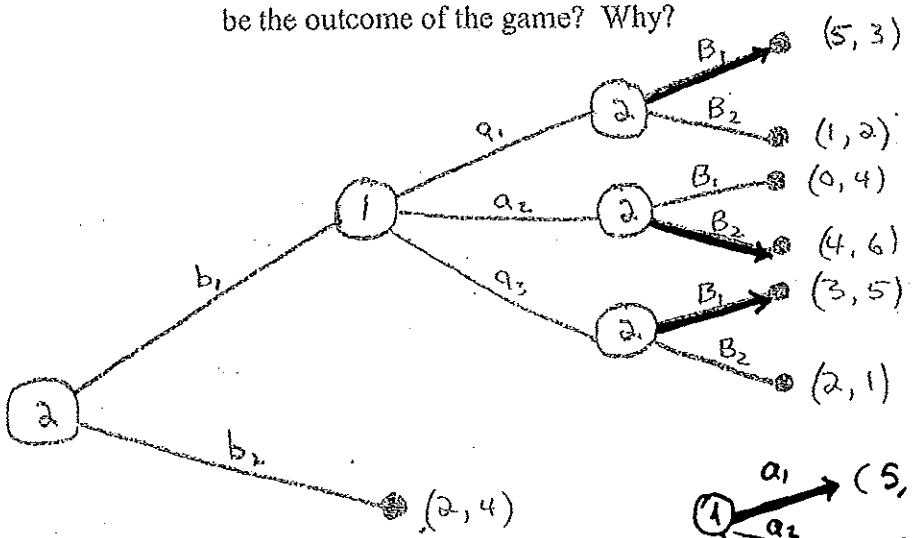
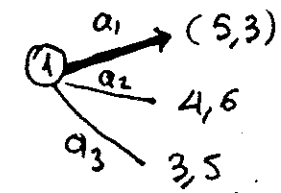
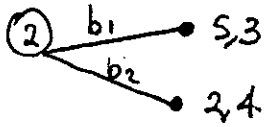
a)





The second player will choose b_2 ✓



b) We can't say that the promise of the 1st player to play a_2 is credible ✓ cause the choice would be in this position a_1 leaving to the player 2nd with a payoff of 3.

To avoid this outcome player 2 will stay in the original strategy choice : b_2