INSTRUCTIONS {These are the instructions for the seller role in treatment S_{10}; other instructions will be sent on request}

Welcome to this experiment on decision-making. Please read the following instructions carefully. When everyone has finished reading the instructions and before the experiment starts, you will receive a handout with a summary of the instructions. During the experiment you will be asked to make a number of decisions. Your decisions and the decisions of other participants will determine how much money you earn. At the start of the experiment you will receive a starting capital of 5000 points. In addition you will earn money with your decisions. The experiment consists of two parts. Below you will find the instructions for the first part. After part one has been completed you will receive instructions for the second part. Part one consists of 40 periods. In each period, your earnings will be denoted in points. Your earnings in the experiment will be equal to the sum of the starting capital, your earning in the 40 periods of part one and your earnings in part two. At the end of the experiment, your earnings in points will be transferred into money. For each 100 points you earn, you will receive 40 eurocent. Hence, 250 points are equal to 1 euro. Your earnings will be privately paid to you in cash.

In each of the 40 periods of part one all participants are coupled in pairs. One participant within a pair has the role of seller, the other participant performs the role of buyer. In all 40 periods you keep the same role.

Your role in part one is: SELLER

In each period you and the buyer with whom you are coupled with may trade one unit of a particular good. This good can either be of low or of high QUALITY. As a seller you know the exact quality of your product. The buyer only knows the probabilities of low and high quality level (this will be explained below). As a seller you will always earn more when the buyer buys your product than when the buyer does not. The buyer, however, obtains a positive profit only if (s)he buys a product of high quality. Buying a low quality product leads to a loss for her/him. Before the buyer decides whether to buy your product, you have the possibility of sending a noisy signal to the buyer.

SEQUENCE OF EVENTS IN A PERIOD

At the beginning of each period, you will learn the quality of your product: either low or high. The actual quality level is determined at random, with the probability that the low quality applies equal to 50% and the probability of high quality also equal to 50%. Having observed actual quality, you choose your SIGNAL COST, an (integer) amount in between 0 and 400. After you have made this choice, the computer adds a RANDOM NOISE term to the signal cost that you chose. That is,

signal = signal cost + random noise term

The buyer with whom you are coupled observes the SIGNAL, but does NOT observe the signal cost nor the random noise term. Hence when (s)he observes a very high signal, (s)he does not know for sure whether this is due to a high signal cost chosen by you, or to a high random noise term drawn by the computer (or both). After having observed the signal, the buyer decides whether to buy your product. After that the period is finished.

PERIOD EARNINGS

In each period you can earn or lose points. Your period earnings depend on whether the buyer buys your product, the quality of your product (if sold), and the signal cost that you chose. In particular, your period earnings equal:
(i) If the buyer does not buy your product, you earn: 0 – signal cost
(ii) If the buyer buys and your product is of low quality, you earn: 90 – signal cost
(iii) If the buyer buys and your product is of high quality, you earn: 400 – signal cost

Note that you always pay the signal cost. Besides that, you obtain gross earnings of 90 when you sell a low quality product and 400 when you sell a high quality product.

The period earnings of the buyer equal:

(i) If the buyer does not buy your product, the buyer earns: 0

(ii) If the buyer buys a low quality product from you, the buyer earns: –450

(iii) If the buyer buys a high quality product from you, the buyer earns: 300

The buyer's earnings are thus independent of the signal received and only depend on whether your product (if bought) is of low or high quality. Recall that the buyer does not observe the quality of your product when (s)he decides whether to buy or not (but (s)he does observe the signal). The buyer is informed of the possible outcomes for the seller, in the same way as you are informed of the possible outcomes for the buyer.

RANDOM NOISE TERM

As explained before, the buyer with whom you are coupled just observes the signal, which is the sum of signal cost chosen by you and the random noise term drawn by the computer. This (integer) random noise term is drawn in such a way that on average it equals zero and negative and positive values are equally likely. In the figure that you find on your table, you can see for each value between –35 and 35 how likely it is that the noise term falls in a particular range.

The figure reveals that values around 0 are most likely. The probability that the noise term is exactly equal to zero is about 4%. Loosely speaking this means that in (about) 4 of the 100 cases the noise term will be exactly equal to 0. The area below the thick line can be used to obtain the probability that the noise term falls in a particular range. For example, the probability that the noise term is in between –15 and 15 is about 87%. Loosely speaking this means that in (about) 87 of the 100 cases the value of signal is within 15 units of the value of signal cost.

In 50% of the cases (an average of 50 on 100 cases) the noise term will be between –7 and 7.

In 75% of the cases (an average of 75 on 100 cases) the noise term will lie between –12 and 12.

In 95% of the cases (an average of 95 on 100 cases) the noise term will lie between –20 and 20.

For the participants with knowledge of statistics: the noise terms are drawn from a normal distribution with mean 0 and standard deviation 10. It does not matter if this does not mean anything to you: it only matters that you understand "qualitatively" how often different values of the noise term occur.

There is a very small probability that the noise term is smaller than –35: in 2 of the 10.000 cases the value is smaller than –35. Likewise, there is a very small probability that the noise term is greater than 35: in 2 of the 10.000 cases the noise term is greater than 35 (you cannot infer this from the figure).

Each seller's noise term is independently determined in the way described above. This means that the noise term in a seller's signal is (very likely) different from the noise terms in the signal of the other sellers. It also means that a noise term in the one period does not depend on the noise terms in any other period.

MATCHING PROCEDURE

In each period you will be randomly matched to another participant with the role of buyer. You will never learn with whom you are matched. The random matching scheme is chosen such that you will never be coupled to the same buyer in two subsequent periods.

INFORMATION

When you decide about your signal cost, you do not know the value of the random noise term. At the end of a period you will learn the signal the buyer received and whether (s)he decided to buy your product or not. You will also be informed about the number of points you have earned in that period.

How often do specific noise terms occur?
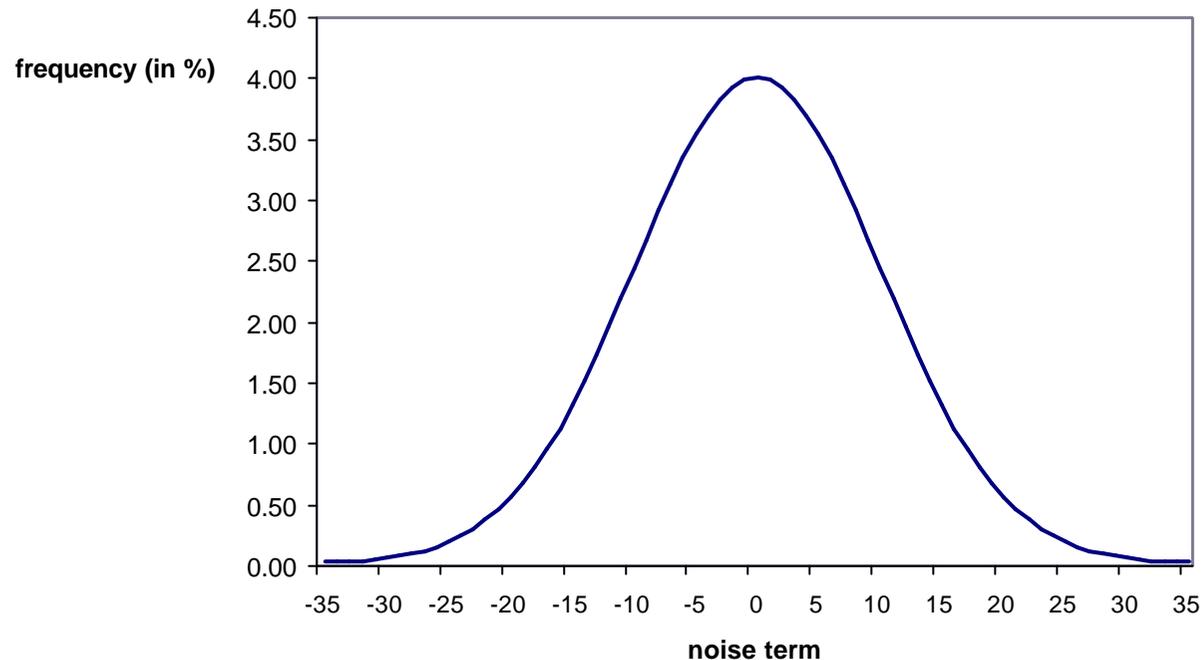
Explanation of the figure (s10)

• In the figure you can see how often each noise term between –35 and 35 occurs.

- In **50%** of the cases (on average 50 out of 100 cases) the noise term will lie in between **-7** and **7**.
  In **75%** of the cases (on average 75 out of 100 cases) the noise term will lie in between **-12** and **12**.
  In **95%** of the cases (on average 95 out of 100 cases) the noise term will lie in between **-20** and **20**.
  In **99%** of the cases (on average 99 out of 100 cases) the noise term will lie in between **-26** and **26**.

• There is a very small probability that the noise term is smaller than –35: in 2 out of 10.000 cases is the noise term smaller than -35. Likewise, there is a very small probability of a noise term larger than 35: in 2 out of 10.000 cases is the noise term larger than 35.

HISTORY OVERVIEW
The lower part of the screen provides an overview of the results of periods already completed. If less than 10 periods have been completed, this history overview contains results of all completed periods. In case more than 10 periods have already been completed, the history overview is restricted to the 10 most recent periods.

Apart from your own results in the previous periods, the history overview also contains the results of three other sellers. In total you are thus informed about the past results of the same group of four sellers (one of which is yourself).

Below you see an example of the history overview. The first column in the overview labeled ROW NUMBER just numbers the past observations. If the cell in which the row number is depicted has a light gray color, the row corresponds to your own past results in one of the previous periods. In the example below this applies for the second row.

The second column signal cost gives the signal cost chosen by the seller in question. The third column reports the corresponding signal the buyer observed, while the fourth column gives the decision the buyer took after observing this signal. (Recall that the buyer in question did not observe the signal cost when taking the buying decision.) The final column gives the actual quality of the seller's product.

[Here we displayed Figure 1b]

The past observations in the history overview have been ordered on the basis of signal cost. The higher the signal cost, the higher the particular observation in the history overview. When signal cost is the same for two or more different past observations, these observations have been ordered on the basis of signal, from high to low. In the example above, this applies to the first and the second row, where two different sellers both chose a signal cost equal to 142 (but the corresponding buyers received a different signal). More generally, observations have been ordered first on signal cost, then on signal, then on buyer buys? and finally on quality.

Please answer the following questions:

1. Is the following statement correct? In each period I am coupled with the same buyer.

2. Is the following statement correct? The signal cost that I choose will be observed by the buyer before (s)he makes the decision whether to buy the product or not.

3. The following numbers are chosen so that you can answer the question more easily. THE NUMBERS DO NOT INDICATE WHAT YOU SHOULD DO IN THE EXPERIMENT. Consider a period in which the quality of your product is high. You choose signal cost equal to 190. The signal the buyer observes equals 207 (so the random noise term equals 17) and the buyer decides to buy your product.

(A) What are your own earnings in this period?

(B) How much does the buyer earn to whom you are connected?

4. The following numbers are chosen so that you can answer the question more easily. THE NUMBERS DO NOT INDICATE WHAT YOU SHOULD DO IN THE EXPERIMENT. Consider a period in which the quality of your product is low. You choose signal cost equal to 25. The signal the buyer observes is 22 (so the random noise term equals –3) and the buyer decides to buy your product.

(A)What are your own earnings in this period?

(B) How much does the buyer earn to whom you are connected?

5. Is the following statement correct? Noise terms larger than 0 will occur more often than noise terms smaller than 0.

6. Is the following statement correct? Noise terms in between –15 and –5 occur as often as noise terms in between 5 and 15.

7. The probability that the noise term falls in between –20 and 20 is about: 15% / 40% / 95%?

INSTRUCTIONS PART TWO

Part two of the experiment has a similar setup as part one. It consists of 10 periods. In each of these periods all participants are again coupled in pairs of seller and buyer. You keep the same role as you had in part one, namely the role of seller.

Each period has exactly the same setup as before. That is, you and the buyer with whom you are coupled with in that period may trade one unit of a particular good. This good can either be of low or of high quality. You know the exact quality of your product, but the buyer does not. The buyer only knows that low quality occurs with 50% probability and high quality also with 50% probability. Before the buyer decides whether to buy your product, (s)he receives a signal. This signal equals the sum of the signal cost chosen by you and a random noise term.

The period earnings are just like before. For these you thus can consult the summary of the instructions of part one. Similarly so, the random noise term is drawn according to exactly the same probability distribution as in part one. You can thus make use of the same figure.

DECISION RULE

The single important difference with part one is that, rather than making choices in each separate period, in this part you choose a decision rule in advance. This decision rule determines the choices you make in ALL ten periods.

The decision rule for you as a seller is restricted to the following format.

"If quality is high, I choose signal cost equal to:...."

"If quality is low, I choose signal cost equal to: ....."

Your decision rule thus consists of two numbers: the (integer) signal cost you choose if quality is low and the (integer) signal cost you choose in case quality is high. It is up to you to decide whether you want to choose the same signal costs for high and low quality, or whether you want to choose different signal costs for high and low quality. As explained above, this decision rule will be applied in all ten periods.

Buyers also specify a decision rule in advance. For them the decision rule is restricted to the following format:

"I buy if signal is larger than or equal to:....."

"I do not buy if signal is smaller than:...."

The two numbers buyers can fill in at the blanks are forced to be the same. Buyers thus effectively choose one (integer) number, which gives the cutoff value for the signal received below which they do not buy the product. Note that buyers can only condition their buying decision on the signal, NOT on the signal cost. A buyer may decide to buy for any signal. If (s)he wants to do this, (s)he has to fill out –35 in the blanks above. Similarly, a buyer can choose never to buy. If (s)he wants to do this, (s)he has to fill out 435 in the blanks. By choosing a number between –35 and 435, the buyer indicates that (s)he only wants to buy if (s)he receives a signal higher than or equal to that number.

ACTUAL PLAY OF THE TEN PERIODS

Once every participant has specified her/his decision rule, the ten periods are automatically played for you by the computer. That is, in each period you are randomly matched to a buyer and the quality of your product is randomly chosen. Given actual quality (observed only by you as a seller), the decision rule that you specified determines the signal cost that you choose in that period. The computer adds a random noise term to your signal cost, yielding the signal that the buyer to whom you are matched observes. The decision rule specified by this buyer

then determines whether trade takes place or not. The decisions generated in this way determine your period earnings. Then a new period starts in which you are matched to another buyer, and so on. This continues until all ten periods are completed.

Your overall earnings in part two equal the sum of the earnings in each of the ten periods. These earnings are added to the earnings you already obtained from part one. On the next screen you will be requested to answer some control questions. Please answer these questions now.

Please answer the following questions:

1. Is the following statement correct? In each period, I am coupled with the same buyer.

2. Is the following statement correct? In each period, the quality of my product is the same.

3. Is the following statement correct? In each period, the random noise term that will be added to my signal cost is the same.

4. Is the following statement correct? My decision rule forces me to choose the same signal cost in all periods in which my product is of low quality.

5. Is the following statement correct? The buyer cannot base her/his decision rule on the signal cost chosen by me.