

**PARTICIPANT INSTRUCTIONS FOR**

**Turocy and Cason (2015),  
Bidding in first-price and second-price interdependent-values auctions:  
A laboratory experiment**

**Treatment FPA-PV**

## **INSTRUCTIONS**

This is an experiment in the economics of market decision making. Various agencies have provided funds for this research. If you follow the instructions and make appropriate decisions, you can earn an appreciable amount of money. At the end of today's session you will be paid in private and in cash.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

We will now describe the session in more detail. Please follow along with these instructions as they are read aloud.

## **MARKETS**

In today's session there are eight (8) participants. Today's session will last for a total of forty (40) periods.

In every period, participants will be divided into four (4) markets, each with two (2) participants. At the beginning of each period you will be randomly assigned to one of the four markets.

The assignment of participants to markets will be done in such a way that your chance of being in a given market in a given period does not depend on the market assignments you received in previous periods, or those you will receive in subsequent periods. Also, you will be assigned to markets in such a way that your chances of being in a market with another given participant are the same, regardless of whether you were assigned to the same market as that participant in a previous period.

## **THE MARKET**

Each period, the experimenter will have one unit of commodity to sell in each market. If you purchase the commodity in your market, the value of the commodity to you is indicated by your Resale Value. The Resale Value is the price that the experimenter will pay you to buy back the commodity if you purchase a unit during the market period. Each participant's Resale Value will change from period to period.

The Market Price in a market for a given period is determined by the choices of the participants in the market in that period. The Market Price for a given market is independent of the Market Prices of other markets in the same period, and of Market Prices for the same market in other periods.

Your Earnings for a period will depend on whether you purchase the commodity in your market, and on the Market Price.

If you purchase a unit of the commodity, your earnings for that period will be calculated according to the equation

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

If you do not purchase a unit of the commodity, then your earnings for that period will be £0.00.

## **EARNINGS EXAMPLES**

### **Example 1.**

Suppose your Resale Value is £15.00, and you purchase a unit of the commodity in your market at a Market Price of £10.00. Your earnings for the period will be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £15.00 - £10.00 = £5.00$$

Thus, your earnings for that period are £5.00.

### **Example 2.**

Suppose your Resale Value is £8.00, the Market Price in your market is £11.00, and you do not purchase the unit of the commodity in your market. In this case, since you did not purchase a unit of the commodity, your earnings for that period are £0.00.

## **SIGNALS AND RESALE VALUES**

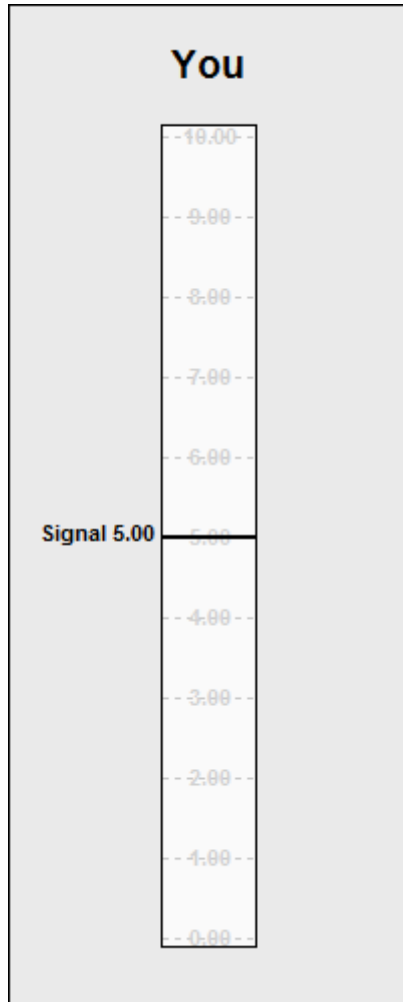
In each period, each participant will receive a Signal about the value of the unit of commodity for sale. This Signal will be labeled Your Signal on the computer display.

Your Signal in each period is your private information. When participating in the market in each period, you will know Your Signal, but you will not know the signal received by the other participant in your market, nor will the other participant know your signal.

Your Signal determines your Resale Value in that period. If, for example, Your Signal is £8.20, then your Resale Value is £8.20. If Your Signal is £3.60, then your Resale Value is £3.60.

Note that the signal received by the other participant in your market does not affect your Resale Value, nor does Your Signal affect the Resale Value of the other participant in your market.

## **PARTICIPATING IN THE MARKET**



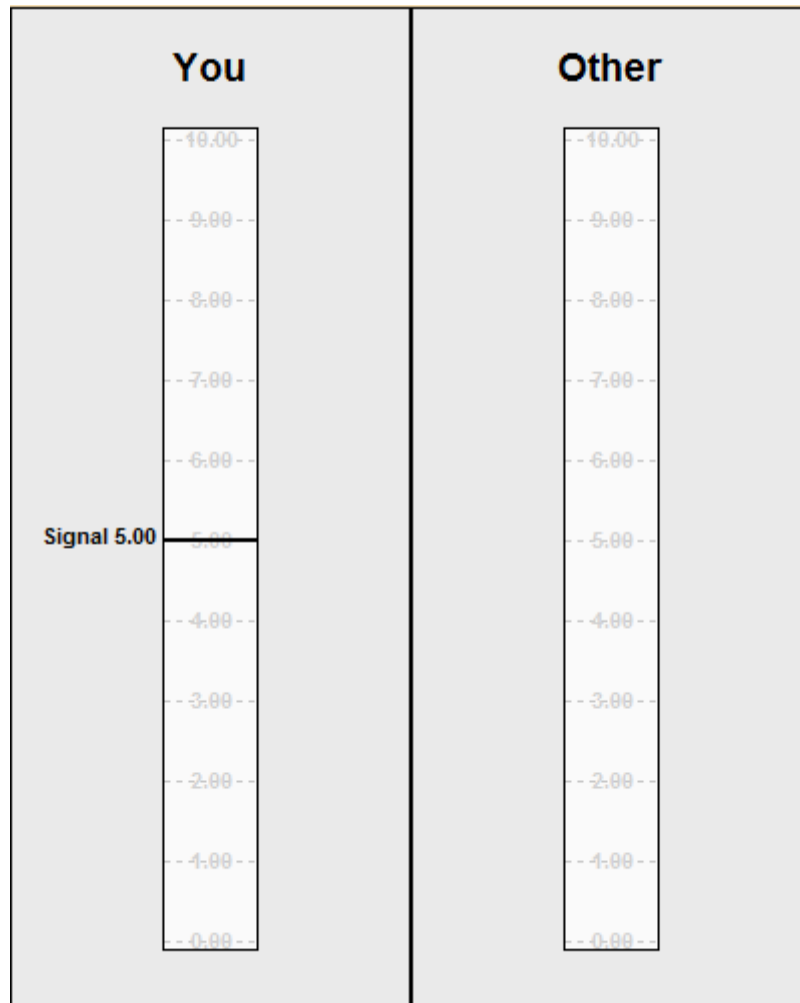
On the page to the left of these instructions is the display you will use to participate in the market. The rectangle will be referred to as a clock. On the clock are marked amounts in pounds and pence. Above the clock is the word “You,” because this display organises your information in the market.

In each period, the clock will display your private signal for that period. In the example at the left, this signal is £5.00. You will use the clock to indicate a price at which you would be willing to purchase the unit of commodity the experimenter is selling.

After you have selected a price, you confirm your decision by clicking a button labeled Confirm Bid, which will be located beneath the clock. The price which you select and confirm will be referred to as Your Bid. Until the time you click the Confirm Bid button, you will have the ability to change the price you have selected. Once the Confirm Bid button has been clicked, you will not be able to change your selected price for that period.

The participant in each market who selects the highest price will be the one to purchase the unit of commodity, and the price that participant selected will be the Market Price for that market for that period.

In the event that this highest price is selected by both participants in the same market (i.e., a tie), one of those participants will be chosen at random to purchase the unit at the Market Price.



## RESULTS OF THE MARKET

On the screen next to the clock labeled “You” will be another rectangle with the label “Other.” This rectangle will be used to display the results of each market from the perspective of the other participant in your market.

While you are participating in each market, the rectangle labeled “Other” will remain blank, because during the market period, you will not know the signal received by the other participant, nor will you know the bid the other participant selects.

At the end of each market period, both the clock labeled “You” and the rectangle labeled “Other” will be used to display the results of the market period. The clock labeled “You” will display information about your signal, your resale value, your bid, and your earnings. The rectangle labeled “Other” will display information about the other participant’s signal, resale value, bid, and earnings. The other participant in your market will see the exact same information as you see, except the information shown under “You” will appear under “Other” for them, and vice versa.

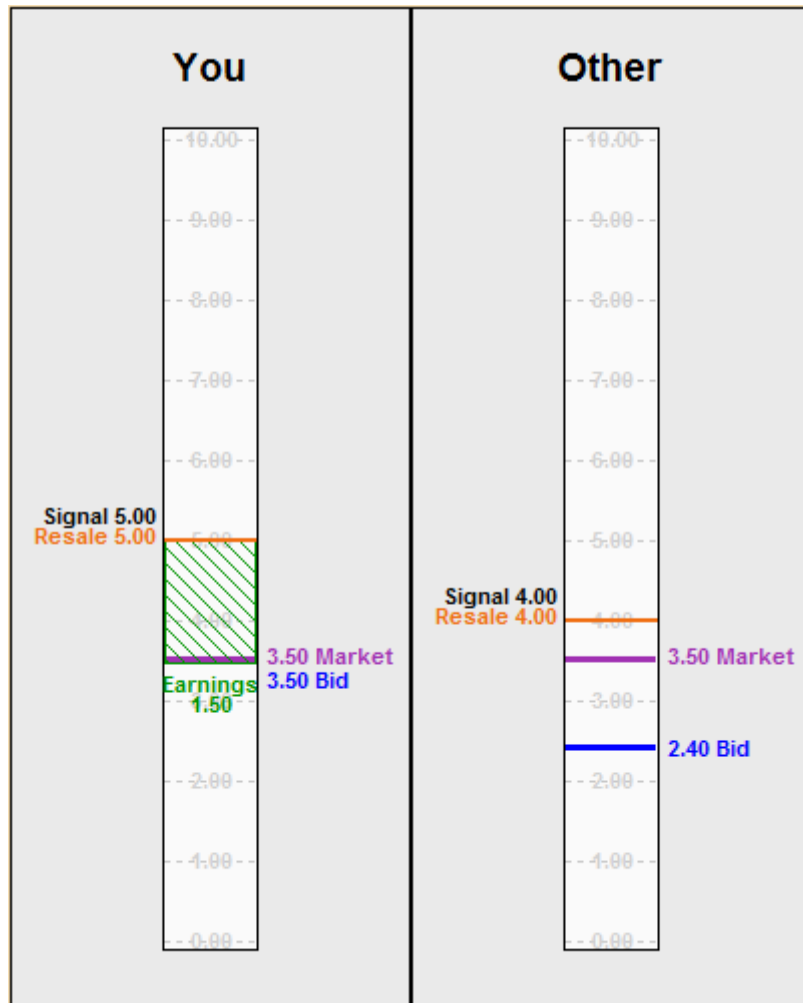


Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

## RECORD SHEET

On your screen during the session will be a record sheet similar to the one on this page.

Your record sheet will show information from all previous periods. After the markets have completed each period, your record sheet will be updated with information on Your Signal in the period, your bid, the signal received by the other participant in your market, the bid of the other participant in your market, whether or not you purchased the object, the Resale Value of the object to you in that period, and your earnings for that period.



## EXAMPLE PERIOD 1

Suppose your signal is £5.00 and you select a bid of £3.50 for the unit. The other participant in your market receives a signal of £4.00 and selects a bid of £2.40 for the unit.

Because £3.50 is the higher bid, you would therefore purchase the unit, and the market price would be £3.50. Your resale value is £5.00, equal to your signal. Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £5.00 - £3.50 = £1.50$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

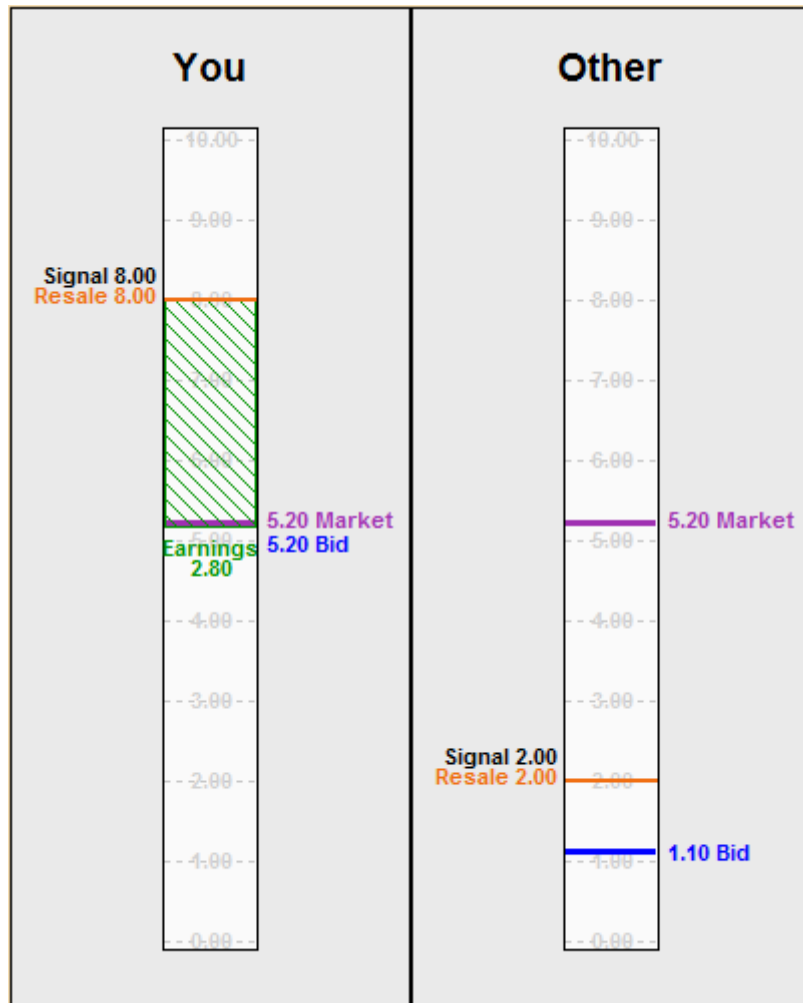
## EXAMPLE PERIOD 1 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	5.00	1.50
2							
3							
4							
5							

The record sheet summarises the results of the period. Proceeding from left to right, the columns display

- The period number (period 1)
- Your signal (£5.00)
- Your bid (£3.50)
- The other participant's signal (£4.00)
- The other participant's bid (£2.40)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£5.00)
- Your earnings for the period (£1.50, computed as Resale Value – Market Price).



## EXAMPLE PERIOD 2

Suppose your signal is £8.00 and you select a bid of £5.20 for the unit. The other participant in your market receives a signal of £2.00 and selects a bid of £1.10 for the unit.

Because £5.20 is the higher bid, you would therefore purchase the unit, and the market price would be £5.20. Your resale value is £8.00, equal to your signal. Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £8.00 - £5.20 = £2.80$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

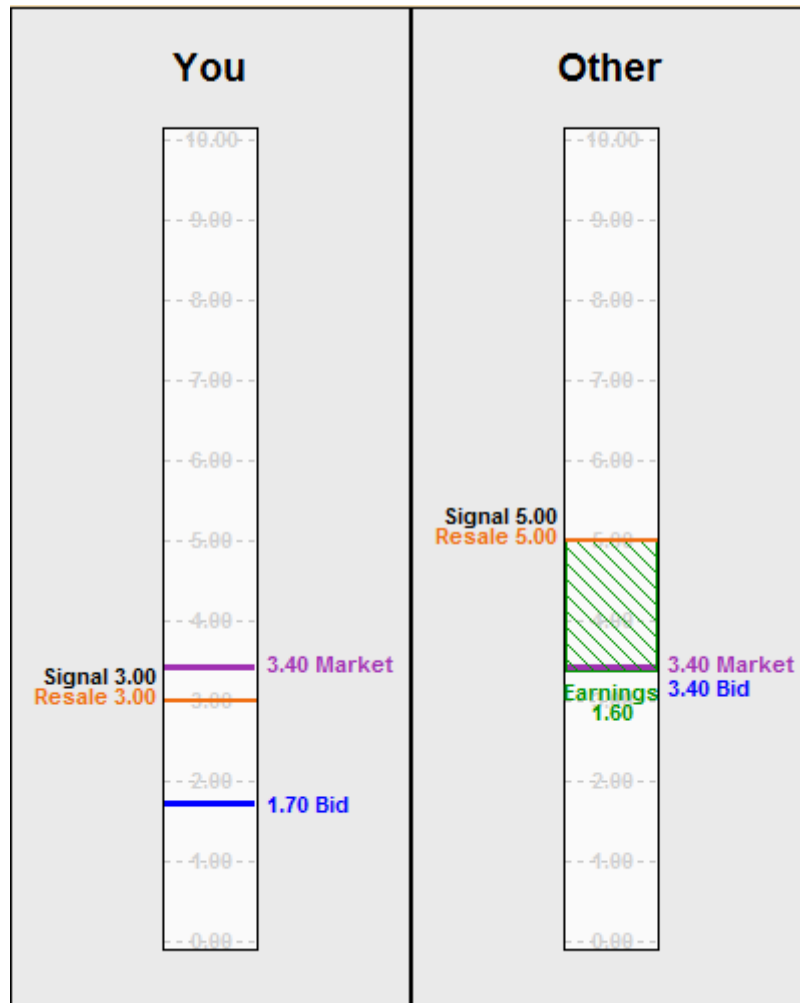
## EXAMPLE PERIOD 2 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	5.00	1.50
2	8.00	5.20	2.00	1.10	Yes	8.00	2.80
3							
4							
5							

Proceeding from left to right, the columns display

- The period number (period 2)
- Your signal (£8.00)
- Your bid (£5.20)
- The other participant's signal (£2.00)
- The other participant's bid (£1.10)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£8.00)
- Your earnings for the period (£2.80, computed as Resale Value – Market Price).



### EXAMPLE PERIOD 3

Suppose your signal is £3.00 and you select a bid of £1.70 for the unit. The other participant in your market receives a signal of £5.00 and selects a bid of £3.40 for the unit.

Because £3.40 is the higher bid, the other participant would therefore purchase the unit, and the market price would be £3.40. Because you did not purchase the unit, your earnings for the period would be £0.00.

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, and the market price are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

### EXAMPLE PERIOD 3 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	5.00	1.50
2	8.00	5.20	2.00	1.10	Yes	8.00	2.80
3	3.00	1.70	5.00	3.40	No	3.00	0.00
4							
5							

Proceeding from left to right, the columns display

- The period number (period 3)
- Your signal (£3.00)
- Your bid (£1.70)
- The other participant's signal (£5.00)
- The other participant's bid (£3.40)
- Whether you purchased the unit (No since you did not)
- Your resale value for the unit (£3.00)
- Your earnings for the period (£0.00, because you did not purchase the unit).

## **DETERMINING SIGNALS**

Recall that during today's session you will each receive a signal each period.

These signals will be selected at random from the 50 signals £0.20, £0.40, £0.60, ..., £9.60, £9.80, £10.00. Each of these signals is equally likely to be chosen for each participant in each period.

The likelihood that another participant receives any of these signals is not affected by the signal assigned to any other participant in that period, or in any previous or future periods.

That means it is possible for you to receive the same signal two or more periods in a row, and it is possible for two or more participants, even participants in the same market, to receive the same signal in the same period.



## **OPERATION OF THE MARKET**

Each period will begin with a five second countdown. During this time you will be able to view your signal for the upcoming period and your record sheet with information from the previously completed periods.

After the countdown concludes, you will be able to select your bid for the period. Bids may be selected from the 100 values £0.10, £0.20, £0.30, ..., £9.80, £9.90, £10.00. That is, bids may be selected from the values between £0.10 and £10.00 in increments of £0.10.

Remember that once you have selected your bid for a period, you must click the button labeled Confirm bid to send the bid to the market.

## **SELECTING PERIODS FOR PAYMENT**

Your earnings for today's session will depend on the decisions that you and the other participants make. We will conduct a total of forty (40) market periods. When all periods have been completed, an experimenter will take a bag and fill it with tokens numbered from 1 through 40. From this bag, 10 tokens will be drawn. The numbers of the tokens drawn will determine the 10 market periods which will be used to determine your earnings.

Your earnings for the session, then, will be the total of your earnings from the 10 market periods selected.

## **SUMMARY**

During today's session we will be conducting a series of markets. There will be a total of 40 market periods. In each period, you will be randomly placed into one of four markets. Each market will have exactly two participants.

Each period you will receive a signal randomly drawn from the 50 values £0.20, £0.40, ... £9.80, £10.00, for a unit of commodity that the experimenter is selling.

Your resale value for the unit is equal to the signal you receive.

If you purchase the unit then your earnings are calculated as  $\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$ . If you do not purchase the unit your earnings for that period are zero.

For each market, the Market Price is determined by the highest bid selected by a participant in that market.

If the highest bid in a market is selected by both participants, one of them will be chosen at random to purchase the unit.

Your record sheet is updated each period with the information from that period.

At the end of the session, we will select 10 of the 40 periods at random by drawing numbered tokens from a bag. Your earnings for today's experiment will be computed by adding up your earnings from those 10 periods.

**PARTICIPANT INSTRUCTIONS FOR**

**Turocy and Cason (2015),  
Bidding in first-price and second-price interdependent-values auctions:  
A laboratory experiment**

**Treatment FPA-IV**

## **INSTRUCTIONS**

This is an experiment in the economics of market decision making. Various agencies have provided funds for this research. If you follow the instructions and make appropriate decisions, you can earn an appreciable amount of money. At the end of today's session you will be paid in private and in cash.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

We will now describe the session in more detail. Please follow along with these instructions as they are read aloud.

For today's session, you will receive an initial payment of £4.00.

## **MARKETS**

In today's session there are eight (8) participants. Today's session will last for a total of forty (40) periods.

In every period, participants will be divided into four (4) markets, each with two (2) participants. At the beginning of each period you will be randomly assigned to one of the four markets.

The assignment of participants to markets will be done in such a way that your chance of being in a given market in a given period does not depend on the market assignments you received in previous periods, or those you will receive in subsequent periods. Also, you will be assigned to markets in such a way that your chances of being in a market with another given participant are the same, regardless of whether you were assigned to the same market as that participant in a previous period.

## **THE MARKET**

Each period, the experimenter will have one unit of commodity to sell in each market. If you purchase the commodity in your market, the value of the commodity to you is indicated by your Resale Value. The Resale Value is the price that the experimenter will pay you to buy back the commodity if you purchase a unit during the market period. Each participant's Resale Value will change from period to period.

The Market Price in a market for a given period is determined by the choices of the participants in the market in that period. The Market Price for a given market is independent of the Market Prices of other markets in the same period, and of Market Prices for the same market in other periods.

Your Earnings for a period will depend on whether you purchase the commodity in your market, and on the Market Price.

If you purchase a unit of the commodity, your earnings for that period will be calculated according to the equation

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

If you do not purchase a unit of the commodity, then your earnings for that period will be £0.00.

## **EARNINGS EXAMPLES**

### **Example 1.**

Suppose your Resale Value is £15.00, and you purchase a unit of the commodity in your market at a Market Price of £10.00. Your earnings for the period will be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £15.00 - £10.00 = £5.00$$

Thus, your earnings for that period are £5.00.

### **Example 2.**

Suppose your Resale Value is £8.00, the Market Price in your market is £11.00, and you do not purchase the unit of the commodity in your market. In this case, since you did not purchase a unit of the commodity, your earnings for that period are £0.00.

## **SIGNALS AND RESALE VALUES**

In each period, each participant will receive a Signal about the value of the unit of commodity for sale. This Signal will be labeled Your Signal on the computer display.

Your Signal in each period is your private information. When participating in the market in each period, you will know Your Signal, but you will not know the signal received by the other participant in your market, nor will the other participant know your signal.

Your Signal and the signal of the other participant in your market determine your Resale Value in that period. Your Resale Value is determined by the formula

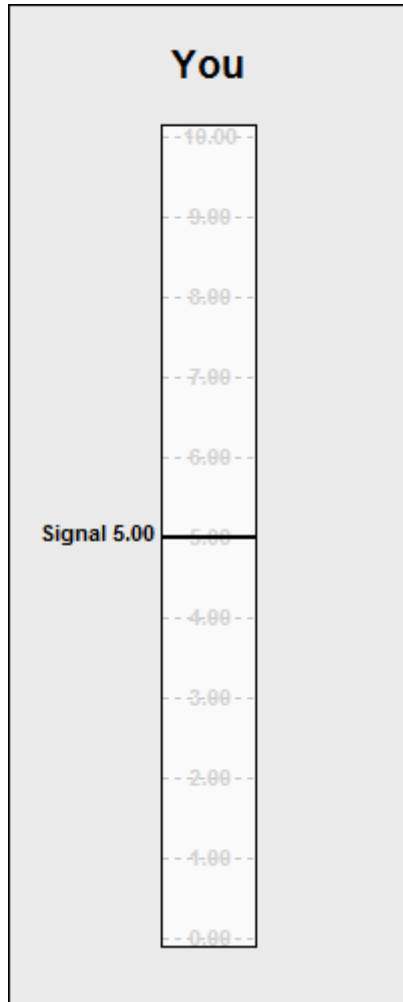
$$(3/4) * \text{Your Signal} + (1/4) * \text{Other participant's Signal}$$

If, for example, Your Signal is £8.20, and the other participant's signal is £3.60, then your Resale Value is £7.05, computed as  $(3/4) * 8.20 + (1/4) * 3.60$ .

Note that this means that the Resale Values of both you and the other participant will depend on both your signal and the other participant's signal. The signals you and the other participant will receive are determined independently, and you will only know your own signal when you participate in the market.



## PARTICIPATING IN THE MARKET



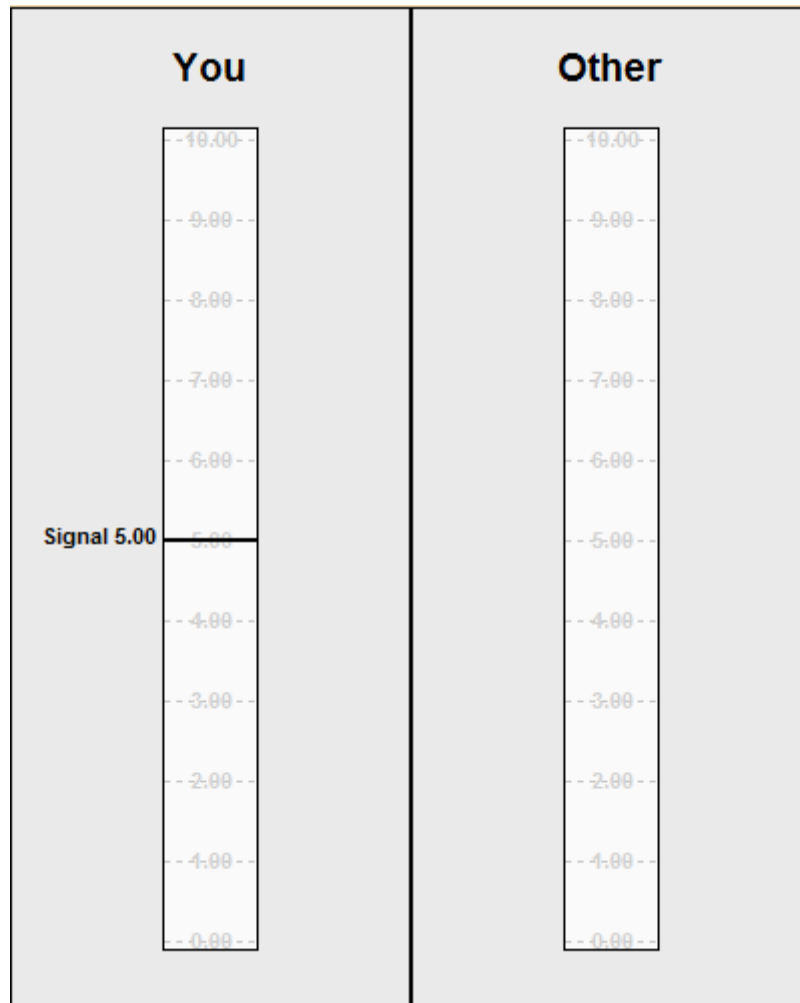
On the page to the left of these instructions is the display you will use to participate in the market. The rectangle will be referred to as a clock. On the clock are marked amounts in pounds and pence. Above the clock is the word “You,” because this display organises your information in the market.

In each period, the clock will display your private signal for that period. In the example at the left, this signal is £5.00. You will use the clock to indicate a price at which you would be willing to purchase the unit of commodity the experimenter is selling.

After you have selected a price, you confirm your decision by clicking a button labeled Confirm Bid, which will be located beneath the clock. The price which you select and confirm will be referred to as Your Bid. Until the time you click the Confirm Bid button, you will have the ability to change the price you have selected. Once the Confirm Bid button has been clicked, you will not be able to change your selected price for that period.

The participant in each market who selects the highest price will be the one to purchase the unit of commodity, and the price that participant selected will be the Market Price for that market for that period.

In the event that this highest price is selected by both participants in the same market (i.e., a tie), one of those participants will be chosen at random to purchase the unit at the Market Price.



## RESULTS OF THE MARKET

On the screen next to the clock labeled “You” will be another rectangle with the label “Other.” This rectangle will be used to display the results of each market from the perspective of the other participant in your market.

While you are participating in each market, the rectangle labeled “Other” will remain blank, because during the market period, you will not know the signal received by the other participant, nor will you know the bid the other participant selects.

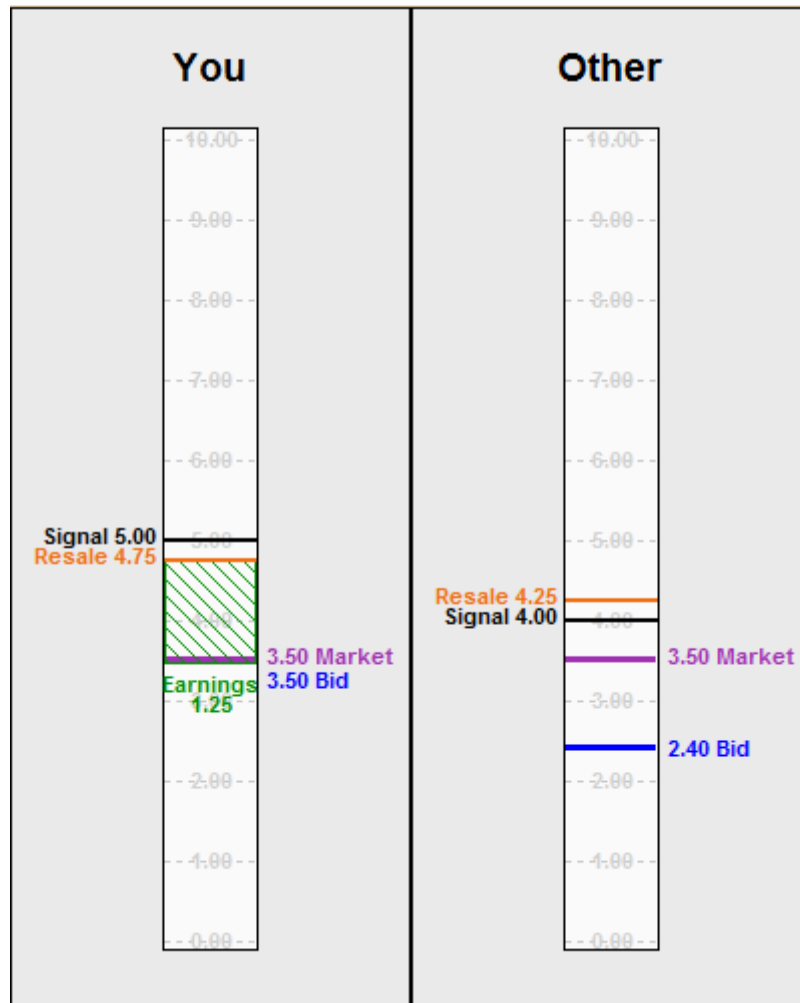
At the end of each market period, both the clock labeled “You” and the rectangle labeled “Other” will be used to display the results of the market period. The clock labeled “You” will display information about your signal, your resale value, your bid, and your earnings. The rectangle labeled “Other” will display information about the other participant’s signal, resale value, bid, and earnings. The other participant in your market will see the exact same information as you see, except the information shown under “You” will appear under “Other” for them, and vice versa.

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

## RECORD SHEET

On your screen during the session will be a record sheet similar to the one on this page.

Your record sheet will show information from all previous periods. After the markets have completed each period, your record sheet will be updated with information on Your Signal in the period, your bid, the signal received by the other participant in your market, the bid of the other participant in your market, whether or not you purchased the object, the Resale Value of the object to you in that period, and your earnings for that period.



## EXAMPLE PERIOD 1

Suppose your signal is £5.00 and you select a bid of £3.50 for the unit. The other participant in your market receives a signal of £4.00 and selects a bid of £2.40 for the unit.

Because £3.50 is the higher bid, you would therefore purchase the unit, and the market price would be £3.50. Your resale value is £4.75, computed as  $(3/4) * 5.00 + (1/4) * 4.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £4.75 - £3.50 = £1.25$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

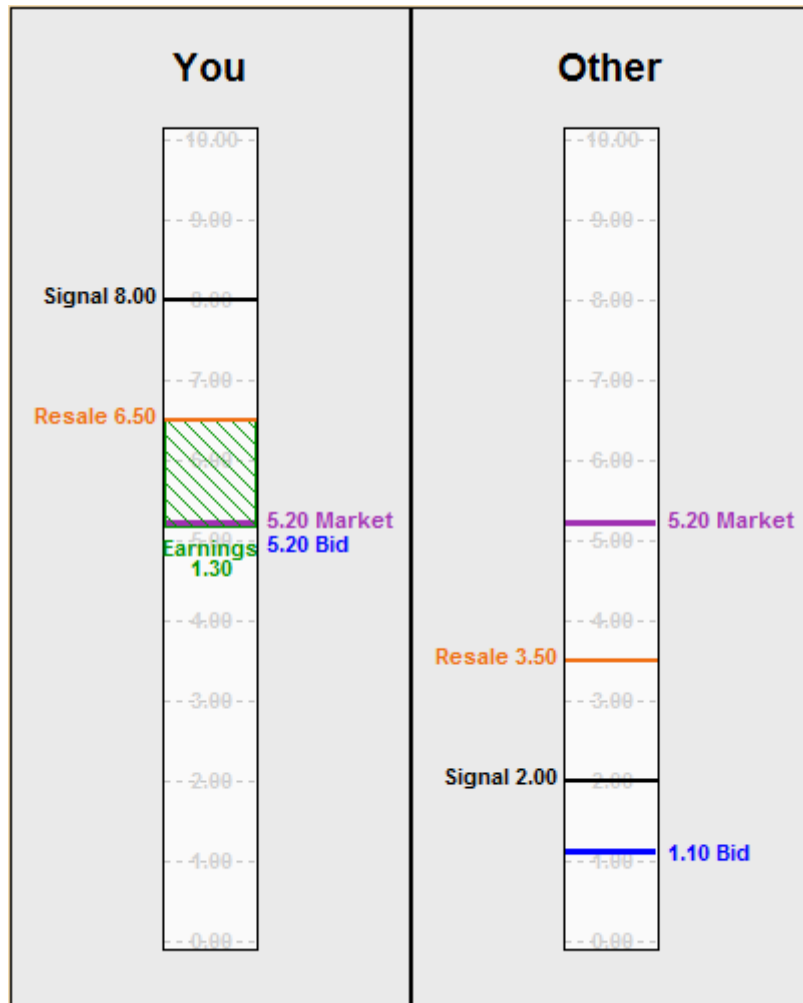
## EXAMPLE PERIOD 1 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.75	1.25
2							
3							
4							
5							

The record sheet summarises the results of the period. Proceeding from left to right, the columns display

- The period number (period 1)
- Your signal (£5.00)
- Your bid (£3.50)
- The other participant's signal (£4.00)
- The other participant's bid (£2.40)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£4.75)
- Your earnings for the period (£1.25, computed as Resale Value – Market Price).



## EXAMPLE PERIOD 2

Suppose your signal is £8.00 and you select a bid of £5.20 for the unit. The other participant in your market receives a signal of £2.00 and selects a bid of £1.10 for the unit.

Because £5.20 is the higher bid, you would therefore purchase the unit, and the market price would be £5.20. Your resale value is £6.50, computed as  $(3/4) * 8.00 + (1/4) * 2.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £6.50 - £5.20 = £1.30$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

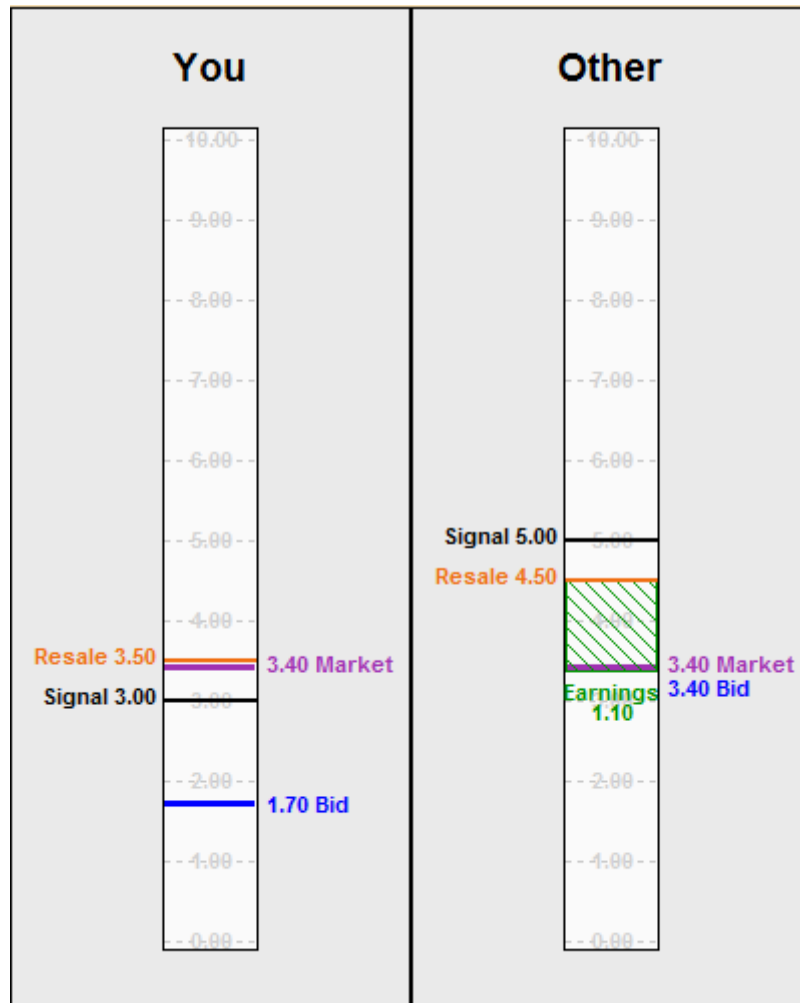
## EXAMPLE PERIOD 2 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.75	1.25
2	8.00	5.20	2.00	1.10	Yes	6.50	1.30
3							
4							
5							

Proceeding from left to right, the columns display

- The period number (period 2)
- Your signal (£8.00)
- Your bid (£5.20)
- The other participant's signal (£2.00)
- The other participant's bid (£1.10)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£6.50)
- Your earnings for the period (£1.30, computed as Resale Value – Market Price).



### EXAMPLE PERIOD 3

Suppose your signal is £3.00 and you select a bid of £1.70 for the unit. The other participant in your market receives a signal of £5.00 and selects a bid of £3.40 for the unit.

Because £3.40 is the higher bid, the other participant would therefore purchase the unit, and the market price would be £3.40. Because you did not purchase the unit, your earnings for the period would be £0.00.

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, and the market price are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.



### EXAMPLE PERIOD 3 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.75	1.25
2	8.00	5.20	2.00	1.10	Yes	6.50	1.30
3	3.00	1.70	5.00	3.40	No	3.50	0.00
4							
5							

Proceeding from left to right, the columns display

- The period number (period 3)
- Your signal (£3.00)
- Your bid (£1.70)
- The other participant's signal (£5.00)
- The other participant's bid (£3.40)
- Whether you purchased the unit (No since you did not)
- Your resale value for the unit (£3.50)
- Your earnings for the period (£0.00, because you did not purchase the unit).

## **DETERMINING SIGNALS**

Recall that during today's session you will each receive a signal each period.

These signals will be selected at random from the 50 signals £0.20, £0.40, £0.60, ..., £9.60, £9.80, £10.00. Each of these signals is equally likely to be chosen for each participant in each period.

The likelihood that another participant receives any of these signals is not affected by the signal assigned to any other participant in that period, or in any previous or future periods.

That means it is possible for you to receive the same signal two or more periods in a row, and it is possible for two or more participants, even participants in the same market, to receive the same signal in the same period.

## **OPERATION OF THE MARKET**

Each period will begin with a five second countdown. During this time you will be able to view your signal for the upcoming period and your record sheet with information from the previously completed periods.

After the countdown concludes, you will be able to select your bid for the period. Bids may be selected from the 100 values £0.10, £0.20, £0.30, ..., £9.80, £9.90, £10.00. That is, bids may be selected from the values between £0.10 and £10.00 in increments of £0.10.

Remember that once you have selected your bid for a period, you must click the button labeled Confirm bid to send the bid to the market.

## **SELECTING PERIODS FOR PAYMENT**

Your earnings for today's session will depend on the decisions that you and the other participants make. We will conduct a total of forty (40) market periods. When all periods have been completed, an experimenter will take a bag and fill it with tokens numbered from 1 through 40. From this bag, 10 tokens will be drawn. The numbers of the tokens drawn will determine the 10 market periods which will be used to determine your earnings.

Your earnings for the session, then, will be calculated as your initial payment of £4.00, plus the total of your earnings from the 10 market periods selected.

## **SUMMARY**

During today's session we will be conducting a series of markets. There will be a total of 40 market periods. In each period, you will be randomly placed into one of four markets. Each market will have exactly two participants.

Each period you will receive a signal randomly drawn from the 50 values £0.20, £0.40, ... £9.80, £10.00, for a unit of commodity that the experimenter is selling.

Your resale value for the unit is equal to  $(3/4) * \text{your signal} + (1/4) * \text{other participant's signal}$ .

If you purchase the unit then your earnings are calculated as  $\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$ . If you do not purchase the unit your earnings for that period are zero.

For each market, the Market Price is determined by the highest bid selected by a participant in that market.

If the highest bid in a market is selected by both participants, one of them will be chosen at random to purchase the unit.

Your record sheet is updated each period with the information from that period.

At the end of the session, we will select 10 of the 40 periods at random by drawing numbered tokens from a bag. Your earnings for today's experiment will be computed by adding up your earnings from those 10 periods, plus your £4.00 initial payment.

**PARTICIPANT INSTRUCTIONS FOR**

**Turocy and Cason (2015),  
Bidding in first-price and second-price interdependent-values auctions:  
A laboratory experiment**

**Treatment FPA-CV**

## **INSTRUCTIONS**

This is an experiment in the economics of market decision making. Various agencies have provided funds for this research. If you follow the instructions and make appropriate decisions, you can earn an appreciable amount of money. At the end of today's session you will be paid in private and in cash.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

We will now describe the session in more detail. Please follow along with these instructions as they are read aloud.

For today's session, you will receive an initial payment of £8.00.

## **MARKETS**

In today's session there are eight (8) participants. Today's session will last for a total of forty (40) periods.

In every period, participants will be divided into four (4) markets, each with two (2) participants. At the beginning of each period you will be randomly assigned to one of the four markets.

The assignment of participants to markets will be done in such a way that your chance of being in a given market in a given period does not depend on the market assignments you received in previous periods, or those you will receive in subsequent periods. Also, you will be assigned to markets in such a way that your chances of being in a market with another given participant are the same, regardless of whether you were assigned to the same market as that participant in a previous period.

## **THE MARKET**

Each period, the experimenter will have one unit of commodity to sell in each market. If you purchase the commodity in your market, the value of the commodity to you is indicated by your Resale Value. The Resale Value is the price that the experimenter will pay you to buy back the commodity if you purchase a unit during the market period. Each participant's Resale Value will change from period to period.

The Market Price in a market for a given period is determined by the choices of the participants in the market in that period. The Market Price for a given market is independent of the Market Prices of other markets in the same period, and of Market Prices for the same market in other periods.

Your Earnings for a period will depend on whether you purchase the commodity in your market, and on the Market Price.

If you purchase a unit of the commodity, your earnings for that period will be calculated according to the equation

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

If you do not purchase a unit of the commodity, then your earnings for that period will be £0.00.



## **EARNINGS EXAMPLES**

### **Example 1.**

Suppose your Resale Value is £15.00, and you purchase a unit of the commodity in your market at a Market Price of £10.00. Your earnings for the period will be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £15.00 - £10.00 = £5.00$$

Thus, your earnings for that period are £5.00.

### **Example 2.**

Suppose your Resale Value is £8.00, the Market Price in your market is £11.00, and you do not purchase the unit of the commodity in your market. In this case, since you did not purchase a unit of the commodity, your earnings for that period are £0.00.

## **SIGNALS AND RESALE VALUES**

In each period, each participant will receive a Signal about the value of the unit of commodity for sale. This Signal will be labeled Your Signal on the computer display.

Your Signal in each period is your private information. When participating in the market in each period, you will know Your Signal, but you will not know the signal received by the other participant in your market, nor will the other participant know your signal.

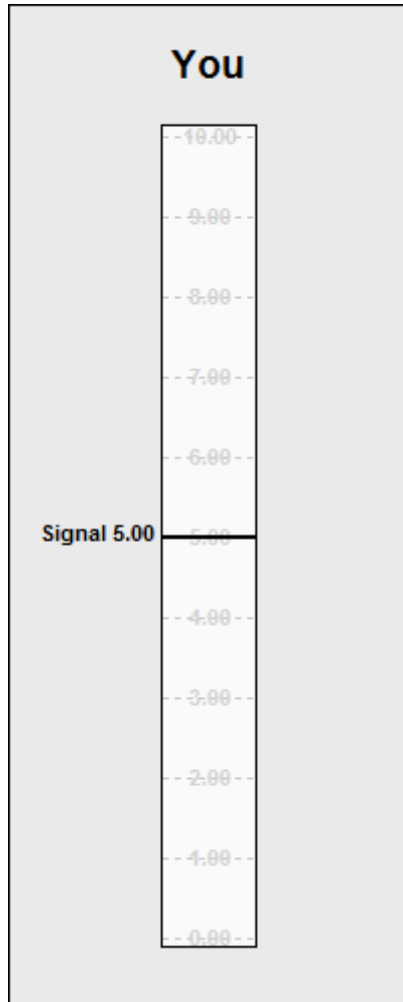
Your Signal and the signal of the other participant in your market determine your Resale Value in that period. Your Resale Value is determined by the formula

$$(1/2) * \text{Your Signal} + (1/2) * \text{Other participant's Signal}$$

In other words, your Resale Value is the average of your signal and the other participant's signal. If, for example, Your Signal is £8.20, and the other participant's signal is £3.60, then your Resale Value is £5.90, computed as  $(1/2) * 8.20 + (1/2) * 3.60$ .

Note that this means that the Resale Values of both you and the other participant in the market are the same. Although the Resale Values are the same, the signals you and the other participant will receive are determined independently, and you will only know your own signal when you participate in the market.

## PARTICIPATING IN THE MARKET



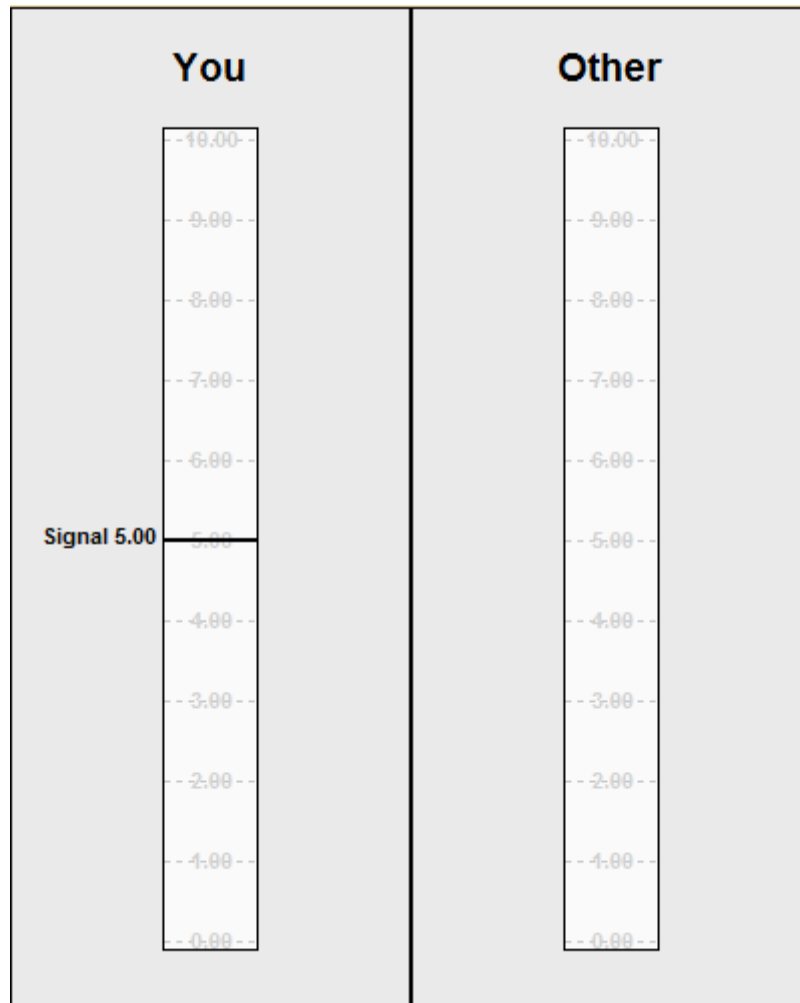
On the page to the left of these instructions is the display you will use to participate in the market. The rectangle will be referred to as a clock. On the clock are marked amounts in pounds and pence. Above the clock is the word “You,” because this display organises your information in the market.

In each period, the clock will display your private signal for that period. In the example at the left, this signal is £5.00. You will use the clock to indicate a price at which you would be willing to purchase the unit of commodity the experimenter is selling.

After you have selected a price, you confirm your decision by clicking a button labeled Confirm Bid, which will be located beneath the clock. The price which you select and confirm will be referred to as Your Bid. Until the time you click the Confirm Bid button, you will have the ability to change the price you have selected. Once the Confirm Bid button has been clicked, you will not be able to change your selected price for that period.

The participant in each market who selects the highest price will be the one to purchase the unit of commodity, and the price that participant selected will be the Market Price for that market for that period.

In the event that this highest price is selected by both participants in the same market (i.e., a tie), one of those participants will be chosen at random to purchase the unit at the Market Price.



## RESULTS OF THE MARKET

On the screen next to the clock labeled “You” will be another rectangle with the label “Other.” This rectangle will be used to display the results of each market from the perspective of the other participant in your market.

While you are participating in each market, the rectangle labeled “Other” will remain blank, because during the market period, you will not know the signal received by the other participant, nor will you know the bid the other participant selects.

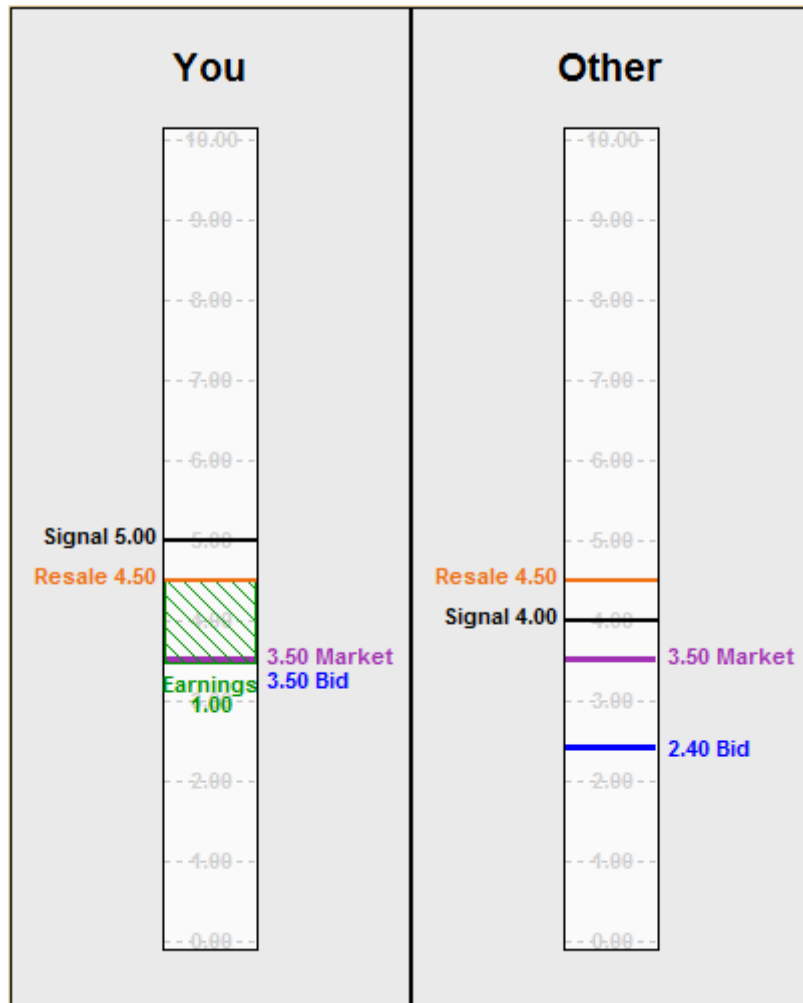
At the end of each market period, both the clock labeled “You” and the rectangle labeled “Other” will be used to display the results of the market period. The clock labeled “You” will display information about your signal, your resale value, your bid, and your earnings. The rectangle labeled “Other” will display information about the other participant’s signal, resale value, bid, and earnings. The other participant in your market will see the exact same information as you see, except the information shown under “You” will appear under “Other” for them, and vice versa.

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

## RECORD SHEET

On your screen during the session will be a record sheet similar to the one on this page.

Your record sheet will show information from all previous periods. After the markets have completed each period, your record sheet will be updated with information on Your Signal in the period, your bid, the signal received by the other participant in your market, the bid of the other participant in your market, whether or not you purchased the object, the Resale Value of the object to you in that period, and your earnings for that period.



## EXAMPLE PERIOD 1

Suppose your signal is £5.00 and you select a bid of £3.50 for the unit. The other participant in your market receives a signal of £4.00 and selects a bid of £2.40 for the unit.

Because £3.50 is the higher bid, you would therefore purchase the unit, and the market price would be £3.50. Your resale value is £4.50, computed as  $(1/2) * 5.00 + (1/2) * 4.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £4.50 - £3.50 = £1.00$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

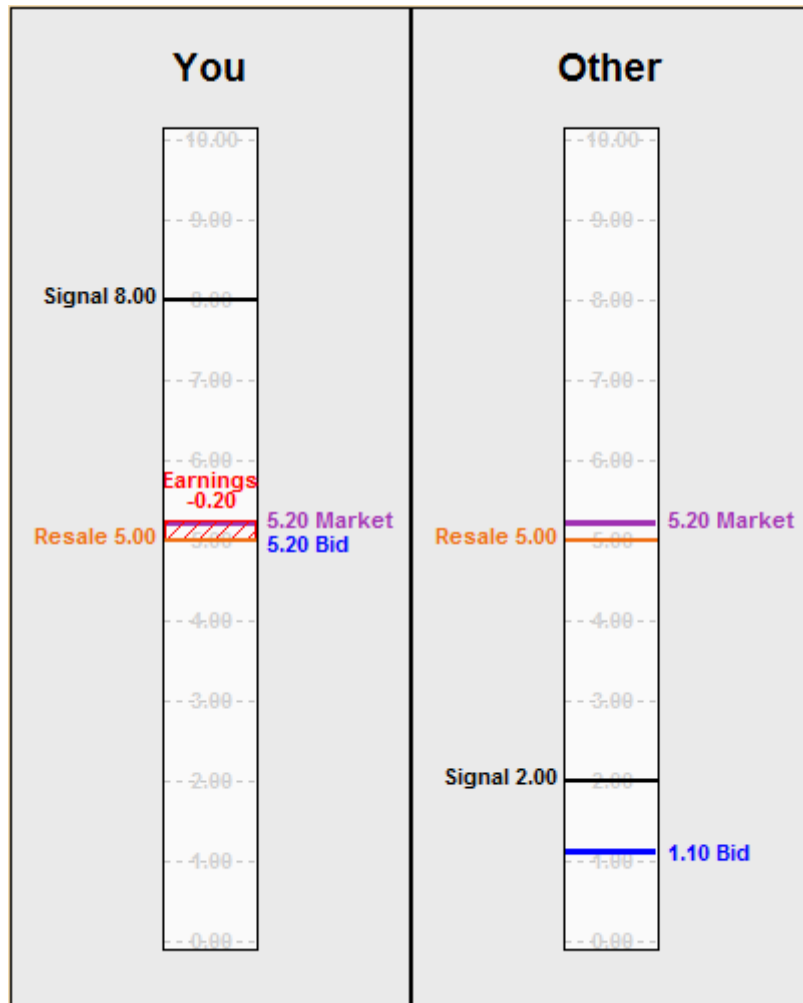
## EXAMPLE PERIOD 1 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.50	1.00
2							
3							
4							
5							

The record sheet summarises the results of the period. Proceeding from left to right, the columns display

- The period number (period 1)
- Your signal (£5.00)
- Your bid (£3.50)
- The other participant's signal (£4.00)
- The other participant's bid (£2.40)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£4.50)
- Your earnings for the period (£1.00, computed as Resale Value – Market Price).



## EXAMPLE PERIOD 2

Suppose your signal is £8.00 and you select a bid of £5.20 for the unit. The other participant in your market receives a signal of £2.00 and selects a bid of £1.10 for the unit.

Because £5.20 is the higher bid, you would therefore purchase the unit, and the market price would be £5.20. Your resale value is £5.00, computed as  $(1/2) * 8.00 + (1/2) * 2.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £5.00 - £5.20 = -£0.20$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.



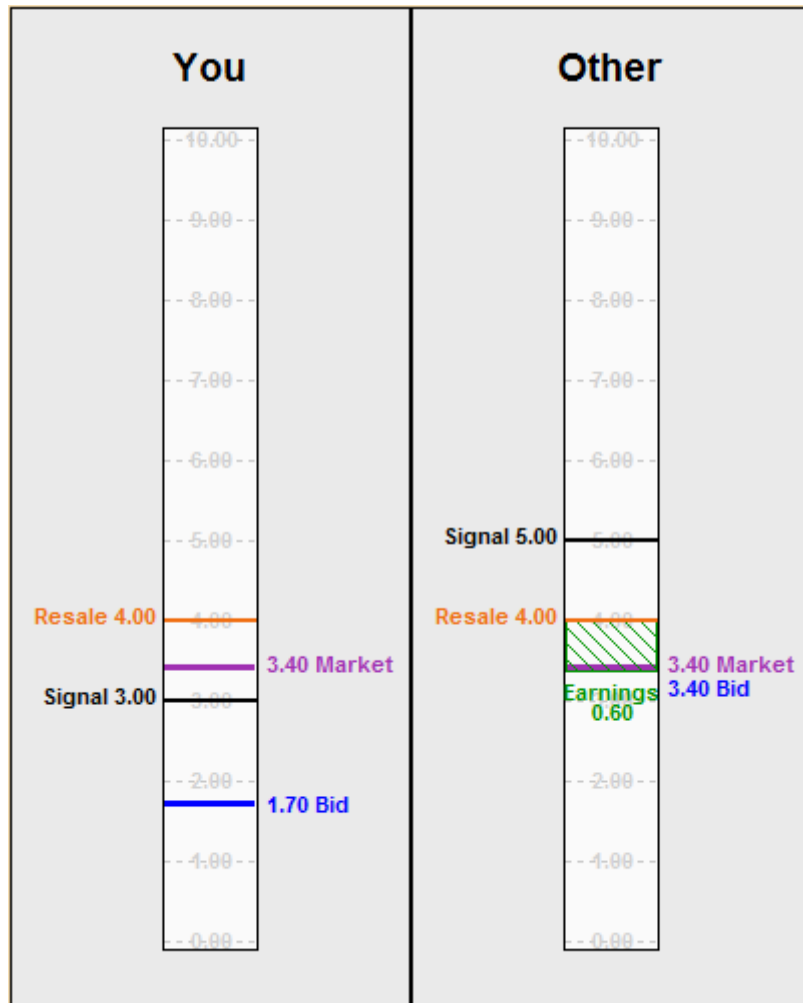
## EXAMPLE PERIOD 2 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.50	1.00
2	8.00	5.20	2.00	1.10	Yes	5.00	-0.20
3							
4							
5							

Proceeding from left to right, the columns display

- The period number (period 2)
- Your signal (£8.00)
- Your bid (£5.20)
- The other participant's signal (£2.00)
- The other participant's bid (£1.10)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£5.00)
- Your earnings for the period (-£0.20, computed as Resale Value – Market Price).



### EXAMPLE PERIOD 3

Suppose your signal is £3.00 and you select a bid of £1.70 for the unit. The other participant in your market receives a signal of £5.00 and selects a bid of £3.40 for the unit.

Because £3.40 is the higher bid, the other participant would therefore purchase the unit, and the market price would be £3.40. Because you did not purchase the unit, your earnings for the period would be £0.00.

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, and the market price are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

### EXAMPLE PERIOD 3 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.50	1.00
2	8.00	5.20	2.00	1.10	Yes	5.00	-0.20
3	3.00	1.70	5.00	3.40	No	4.00	0.00
4							
5							

Proceeding from left to right, the columns display

- The period number (period 3)
- Your signal (£3.00)
- Your bid (£1.70)
- The other participant's signal (£5.00)
- The other participant's bid (£3.40)
- Whether you purchased the unit (No since you did not)
- Your resale value for the unit (£4.00)
- Your earnings for the period (£0.00, because you did not purchase the unit).

## **DETERMINING SIGNALS**

Recall that during today's session you will each receive a signal each period.

These signals will be selected at random from the 50 signals £0.20, £0.40, £0.60, ..., £9.60, £9.80, £10.00. Each of these signals is equally likely to be chosen for each participant in each period.

The likelihood that another participant receives any of these signals is not affected by the signal assigned to any other participant in that period, or in any previous or future periods.

That means it is possible for you to receive the same signal two or more periods in a row, and it is possible for two or more participants, even participants in the same market, to receive the same signal in the same period.

## **OPERATION OF THE MARKET**

Each period will begin with a five second countdown. During this time you will be able to view your signal for the upcoming period and your record sheet with information from the previously completed periods.

After the countdown concludes, you will be able to select your bid for the period. Bids may be selected from the 100 values £0.10, £0.20, £0.30, ..., £9.80, £9.90, £10.00. That is, bids may be selected from the values between £0.10 and £10.00 in increments of £0.10.

Remember that once you have selected your bid for a period, you must click the button labeled Confirm bid to send the bid to the market.

## **SELECTING PERIODS FOR PAYMENT**

Your earnings for today's session will depend on the decisions that you and the other participants make. We will conduct a total of forty (40) market periods. When all periods have been completed, an experimenter will take a bag and fill it with tokens numbered from 1 through 40. From this bag, 10 tokens will be drawn. The numbers of the tokens drawn will determine the 10 market periods which will be used to determine your earnings.

Your earnings for the session, then, will be calculated as your initial payment of £8.00, plus the total of your earnings from the 10 market periods selected.

## **SUMMARY**

During today's session we will be conducting a series of markets. There will be a total of 40 market periods. In each period, you will be randomly placed into one of four markets. Each market will have exactly two participants.

Each period you will receive a signal randomly drawn from the 50 values £0.20, £0.40, ... £9.80, £10.00, for a unit of commodity that the experimenter is selling.

Your resale value for the unit is equal to  $(1/2) * \text{your signal} + (1/2) * \text{other participant's signal}$ .

If you purchase the unit then your earnings are calculated as  $\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$ . If you do not purchase the unit your earnings for that period are zero.

For each market, the Market Price is determined by the highest bid selected by a participant in that market.

If the highest bid in a market is selected by both participants, one of them will be chosen at random to purchase the unit.

Your record sheet is updated each period with the information from that period.

At the end of the session, we will select 10 of the 40 periods at random by drawing numbered tokens from a bag. Your earnings for today's experiment will be computed by adding up your earnings from those 10 periods, plus your £8.00 initial payment.

**PARTICIPANT INSTRUCTIONS FOR**

**Turocy and Cason (2015),  
Bidding in first-price and second-price interdependent-values auctions:  
A laboratory experiment**

**Treatment SPA-PV**

## **INSTRUCTIONS**

This is an experiment in the economics of market decision making. Various agencies have provided funds for this research. If you follow the instructions and make appropriate decisions, you can earn an appreciable amount of money. At the end of today's session you will be paid in private and in cash.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

We will now describe the session in more detail. Please follow along with these instructions as they are read aloud.



## **MARKETS**

In today's session there are eight (8) participants. Today's session will last for a total of forty (40) periods.

In every period, participants will be divided into four (4) markets, each with two (2) participants. At the beginning of each period you will be randomly assigned to one of the four markets.

The assignment of participants to markets will be done in such a way that your chance of being in a given market in a given period does not depend on the market assignments you received in previous periods, or those you will receive in subsequent periods. Also, you will be assigned to markets in such a way that your chances of being in a market with another given participant are the same, regardless of whether you were assigned to the same market as that participant in a previous period.

## **THE MARKET**

Each period, the experimenter will have one unit of commodity to sell in each market. If you purchase the commodity in your market, the value of the commodity to you is indicated by your Resale Value. The Resale Value is the price that the experimenter will pay you to buy back the commodity if you purchase a unit during the market period. Each participant's Resale Value will change from period to period.

The Market Price in a market for a given period is determined by the choices of the participants in the market in that period. The Market Price for a given market is independent of the Market Prices of other markets in the same period, and of Market Prices for the same market in other periods.

Your Earnings for a period will depend on whether you purchase the commodity in your market, and on the Market Price.

If you purchase a unit of the commodity, your earnings for that period will be calculated according to the equation

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

If you do not purchase a unit of the commodity, then your earnings for that period will be £0.00.

## **EARNINGS EXAMPLES**

### **Example 1.**

Suppose your Resale Value is £15.00, and you purchase a unit of the commodity in your market at a Market Price of £10.00. Your earnings for the period will be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £15.00 - £10.00 = £5.00$$

Thus, your earnings for that period are £5.00.

### **Example 2.**

Suppose your Resale Value is £8.00, the Market Price in your market is £11.00, and you do not purchase the unit of the commodity in your market. In this case, since you did not purchase a unit of the commodity, your earnings for that period are £0.00.

## **SIGNALS AND RESALE VALUES**

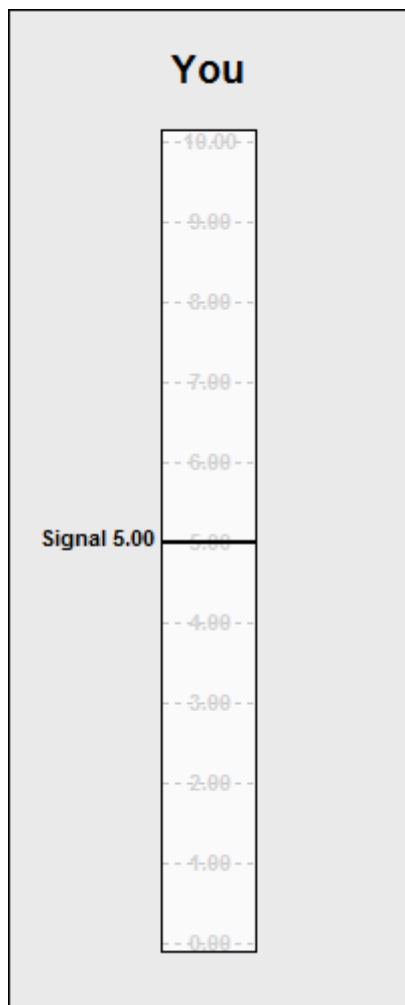
In each period, each participant will receive a Signal about the value of the unit of commodity for sale. This Signal will be labeled Your Signal on the computer display.

Your Signal in each period is your private information. When participating in the market in each period, you will know Your Signal, but you will not know the signal received by the other participant in your market, nor will the other participant know your signal.

Your Signal determines your Resale Value in that period. If, for example, Your Signal is £8.20, then your Resale Value is £8.20. If Your Signal is £3.60, then your Resale Value is £3.60.

Note that the signal received by the other participant in your market does not affect your Resale Value, nor does Your Signal affect the Resale Value of the other participant in your market.

## PARTICIPATING IN THE MARKET



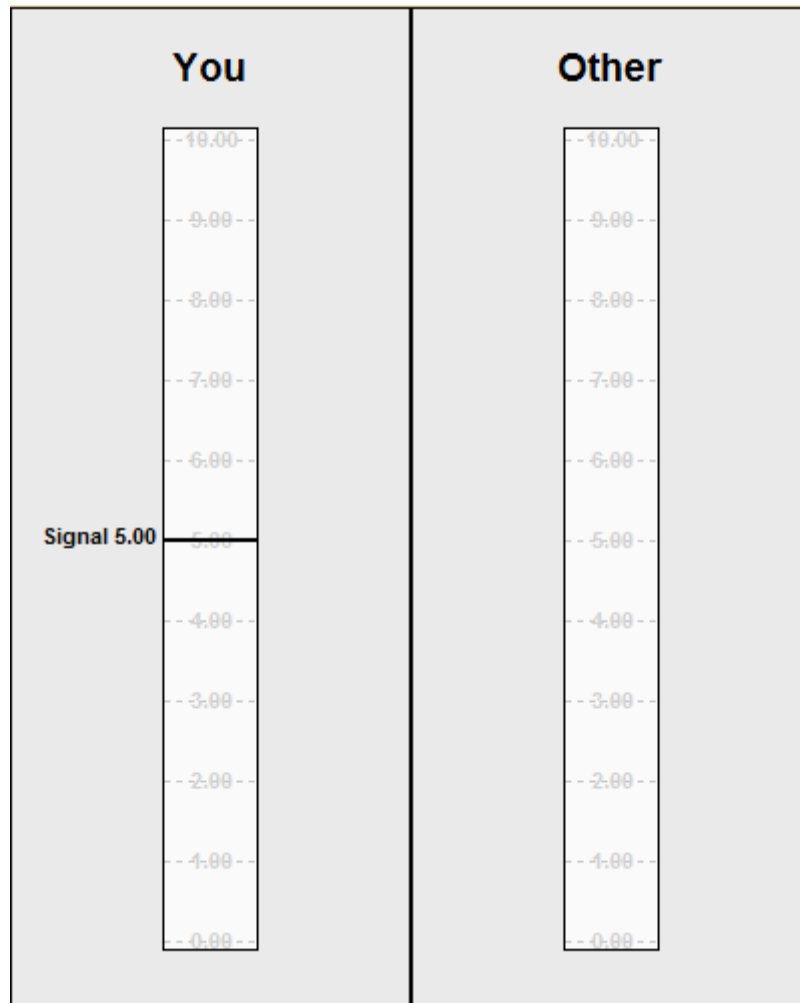
On the page to the left of these instructions is the display you will use to participate in the market. The rectangle will be referred to as a clock. On the clock are marked amounts in pounds and pence. Above the clock is the word “You,” because this display organises your information in the market.

In each period, the clock will display your private signal for that period. In the example at the left, this signal is £5.00. You will use the clock to indicate a price at which you would be willing to purchase the unit of commodity the experimenter is selling.

After you have selected a price, you confirm your decision by clicking a button labeled Confirm Bid, which will be located beneath the clock. The price which you select and confirm will be referred to as Your Bid. Until the time you click the Confirm Bid button, you will have the ability to change the price you have selected. Once the Confirm Bid button has been clicked, you will not be able to change your selected price for that period.

The participant in each market who selects the highest price will be the one to purchase the unit of commodity. The Market Price will be determined by the second-highest price selected in the market.

In the event that this highest price is selected by both participants in the same market (i.e., a tie), one of those participants will be chosen at random to purchase the unit at the Market Price.



## RESULTS OF THE MARKET

On the screen next to the clock labeled “You” will be another rectangle with the label “Other.” This rectangle will be used to display the results of each market from the perspective of the other participant in your market.

While you are participating in each market, the rectangle labeled “Other” will remain blank, because during the market period, you will not know the signal received by the other participant, nor will you know the bid the other participant selects.

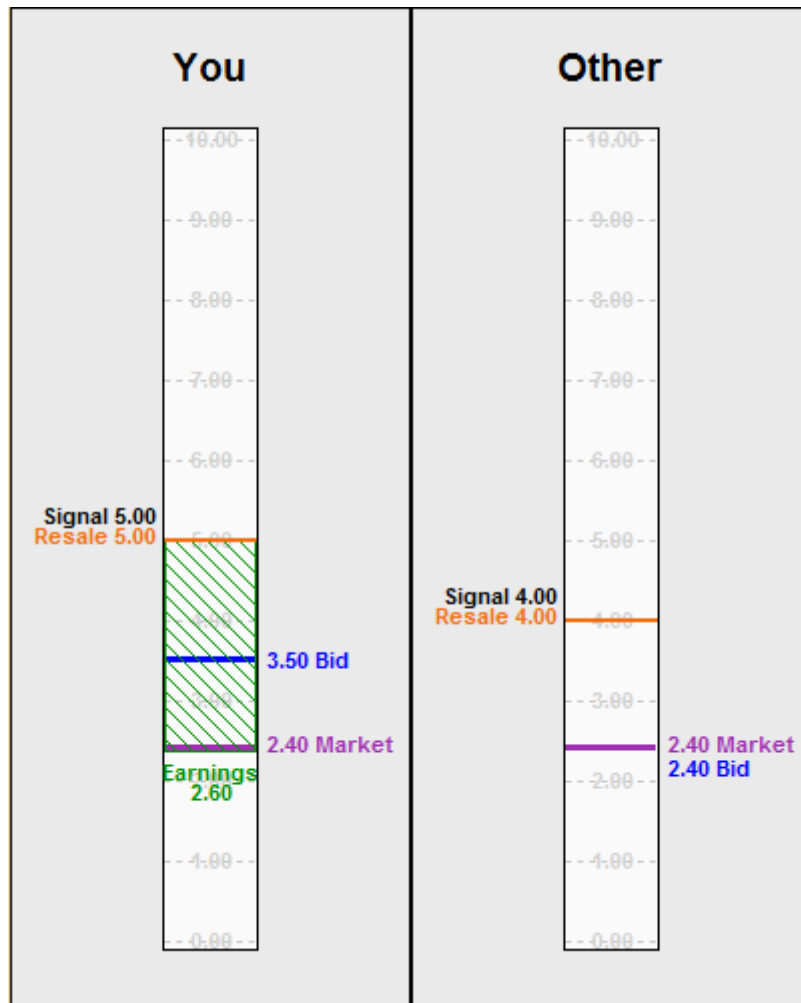
At the end of each market period, both the clock labeled “You” and the rectangle labeled “Other” will be used to display the results of the market period. The clock labeled “You” will display information about your signal, your resale value, your bid, and your earnings. The rectangle labeled “Other” will display information about the other participant’s signal, resale value, bid, and earnings. The other participant in your market will see the exact same information as you see, except the information shown under “You” will appear under “Other” for them, and vice versa.

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

## RECORD SHEET

On your screen during the session will be a record sheet similar to the one on this page.

Your record sheet will show information from all previous periods. After the markets have completed each period, your record sheet will be updated with information on Your Signal in the period, your bid, the signal received by the other participant in your market, the bid of the other participant in your market, whether or not you purchased the object, the Resale Value of the object to you in that period, and your earnings for that period.



## EXAMPLE PERIOD 1

Suppose your signal is £5.00 and you select a bid of £3.50 for the unit. The other participant in your market receives a signal of £4.00 and selects a bid of £2.40 for the unit.

Because £3.50 is the higher bid, you would therefore purchase the unit. The market price would be £2.40, determined by the second-highest bid. Your resale value is £5.00, equal to your signal. Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £5.00 - £2.40 = £2.60$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.



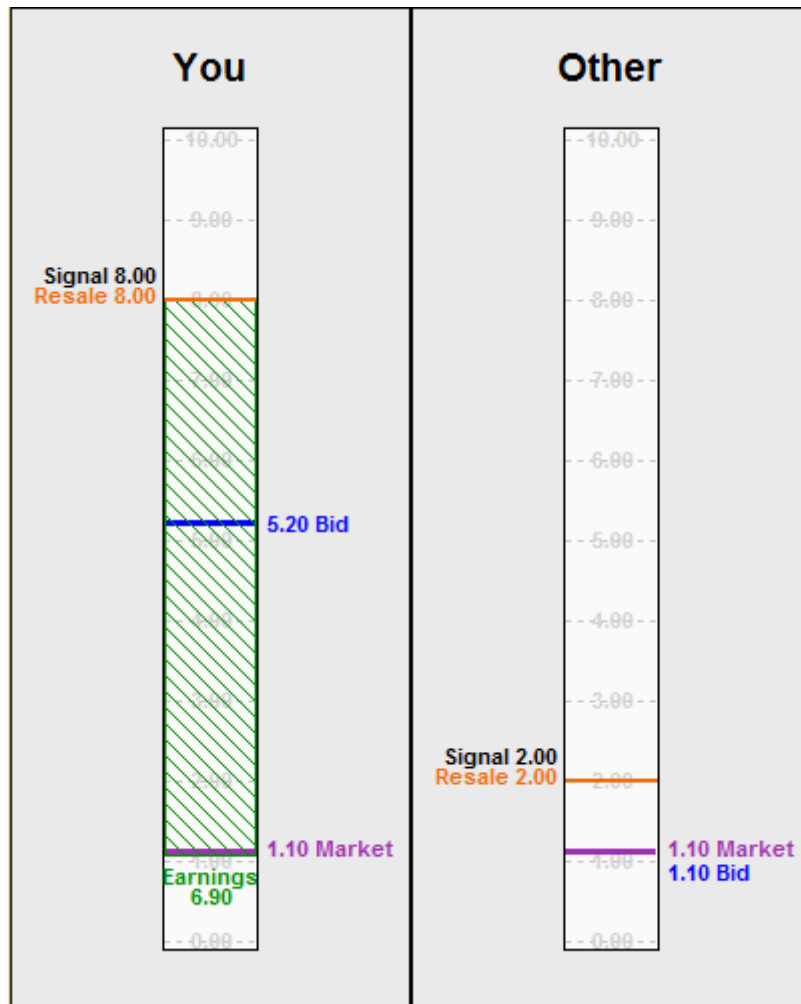
## EXAMPLE PERIOD 1 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	5.00	2.60
2							
3							
4							
5							

The record sheet summarises the results of the period. Proceeding from left to right, the columns display

- The period number (period 1)
- Your signal (£5.00)
- Your bid (£3.50)
- The other participant's signal (£4.00)
- The other participant's bid (£2.40)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£5.00)
- Your earnings for the period (£2.60, computed as Resale Value – Market Price).



## EXAMPLE PERIOD 2

Suppose your signal is £8.00 and you select a bid of £5.20 for the unit. The other participant in your market receives a signal of £2.00 and selects a bid of £1.10 for the unit.

Because £5.20 is the higher bid, you would therefore purchase the unit. The market price would be £1.10, determined by the second-highest bid. Your resale value is £8.00, equal to your signal. Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £8.00 - £1.10 = £6.90$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

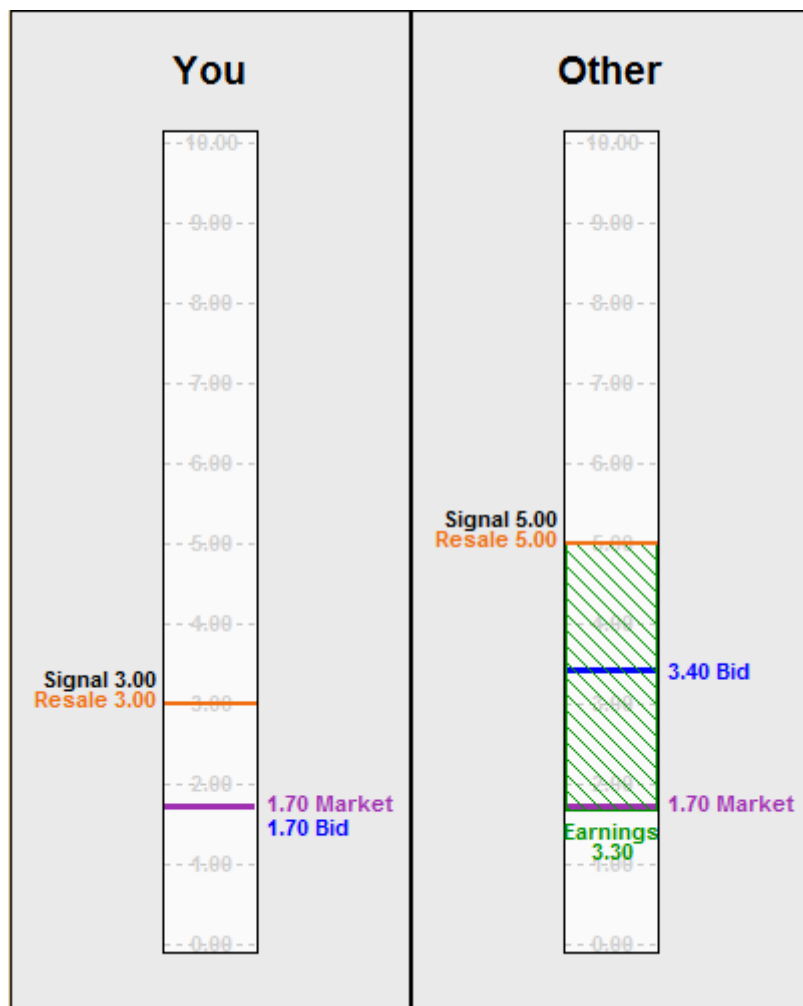
## EXAMPLE PERIOD 2 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	5.00	2.60
2	8.00	5.20	2.00	1.10	Yes	8.00	6.90
3							
4							
5							

Proceeding from left to right, the columns display

- The period number (period 2)
- Your signal (£8.00)
- Your bid (£5.20)
- The other participant's signal (£2.00)
- The other participant's bid (£1.10)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£8.00)
- Your earnings for the period (£6.90, computed as Resale Value – Market Price).



### EXAMPLE PERIOD 3

Suppose your signal is £3.00 and you select a bid of £1.70 for the unit. The other participant in your market receives a signal of £5.00 and selects a bid of £3.40 for the unit.

Because £3.40 is the higher bid, the other participant would therefore purchase the unit. The market price would be £1.70, determined by the second-highest bid. Because you did not purchase the unit, your earnings for the period would be £0.00.

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, and the market price are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

### **EXAMPLE PERIOD 3 (continued)**

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	5.00	2.60
2	8.00	5.20	2.00	1.10	Yes	8.00	6.90
3	3.00	1.70	5.00	3.40	No	3.00	0.00
4							
5							

Proceeding from left to right, the columns display

- The period number (period 3)
- Your signal (£3.00)
- Your bid (£1.70)
- The other participant's signal (£5.00)
- The other participant's bid (£3.40)
- Whether you purchased the unit (No since you did not)
- Your resale value for the unit (£3.00)
- Your earnings for the period (£0.00, because you did not purchase the unit).

## **DETERMINING SIGNALS**

Recall that during today's session you will each receive a signal each period.

These signals will be selected at random from the 50 signals £0.20, £0.40, £0.60, ..., £9.60, £9.80, £10.00. Each of these signals is equally likely to be chosen for each participant in each period.

The likelihood that another participant receives any of these signals is not affected by the signal assigned to any other participant in that period, or in any previous or future periods.

That means it is possible for you to receive the same signal two or more periods in a row, and it is possible for two or more participants, even participants in the same market, to receive the same signal in the same period.

## **OPERATION OF THE MARKET**

Each period will begin with a five second countdown. During this time you will be able to view your signal for the upcoming period and your record sheet with information from the previously completed periods.

After the countdown concludes, you will be able to select your bid for the period. Bids may be selected from the 100 values £0.10, £0.20, £0.30, ..., £9.80, £9.90, £10.00. That is, bids may be selected from the values between £0.10 and £10.00 in increments of £0.10.

Remember that once you have selected your bid for a period, you must click the button labeled Confirm bid to send the bid to the market.

## **SELECTING PERIODS FOR PAYMENT**

Your earnings for today's session will depend on the decisions that you and the other participants make. We will conduct a total of forty (40) market periods. When all periods have been completed, an experimenter will take a bag and fill it with tokens numbered from 1 through 40. From this bag, 10 tokens will be drawn. The numbers of the tokens drawn will determine the 10 market periods which will be used to determine your earnings.

Your earnings for the session, then, will be the total of your earnings from the 10 market periods selected.

## **SUMMARY**

During today's session we will be conducting a series of markets. There will be a total of 40 market periods. In each period, you will be randomly placed into one of four markets. Each market will have exactly two participants.

Each period you will receive a signal randomly drawn from the 50 values £0.20, £0.40, ... £9.80, £10.00, for a unit of commodity that the experimenter is selling.

Your resale value for the unit is equal to the signal you receive.

If you purchase the unit then your earnings are calculated as  $\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$ . If you do not purchase the unit your earnings for that period are zero.

For each market, the Market Price is determined by the second highest bid selected by a participant in that market.

If the highest bid in a market is selected by both participants, one of them will be chosen at random to purchase the unit.

Your record sheet is updated each period with the information from that period.

At the end of the session, we will select 10 of the 40 periods at random by drawing numbered tokens from a bag. Your earnings for today's experiment will be computed by adding up your earnings from those 10 periods.



**PARTICIPANT INSTRUCTIONS FOR**

**Turocy and Cason (2015),  
Bidding in first-price and second-price interdependent-values auctions:  
A laboratory experiment**

**Treatment SPA-IV**

## **INSTRUCTIONS**

This is an experiment in the economics of market decision making. Various agencies have provided funds for this research. If you follow the instructions and make appropriate decisions, you can earn an appreciable amount of money. At the end of today's session you will be paid in private and in cash.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

We will now describe the session in more detail. Please follow along with these instructions as they are read aloud.

For today's session, you will receive an initial payment of £4.00.

## **MARKETS**

In today's session there are eight (8) participants. Today's session will last for a total of forty (40) periods.

In every period, participants will be divided into four (4) markets, each with two (2) participants. At the beginning of each period you will be randomly assigned to one of the four markets.

The assignment of participants to markets will be done in such a way that your chance of being in a given market in a given period does not depend on the market assignments you received in previous periods, or those you will receive in subsequent periods. Also, you will be assigned to markets in such a way that your chances of being in a market with another given participant are the same, regardless of whether you were assigned to the same market as that participant in a previous period.

## **THE MARKET**

Each period, the experimenter will have one unit of commodity to sell in each market. If you purchase the commodity in your market, the value of the commodity to you is indicated by your Resale Value. The Resale Value is the price that the experimenter will pay you to buy back the commodity if you purchase a unit during the market period. Each participant's Resale Value will change from period to period.

The Market Price in a market for a given period is determined by the choices of the participants in the market in that period. The Market Price for a given market is independent of the Market Prices of other markets in the same period, and of Market Prices for the same market in other periods.

Your Earnings for a period will depend on whether you purchase the commodity in your market, and on the Market Price.

If you purchase a unit of the commodity, your earnings for that period will be calculated according to the equation

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

If you do not purchase a unit of the commodity, then your earnings for that period will be £0.00.

## **EARNINGS EXAMPLES**

### **Example 1.**

Suppose your Resale Value is £15.00, and you purchase a unit of the commodity in your market at a Market Price of £10.00. Your earnings for the period will be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £15.00 - £10.00 = £5.00$$

Thus, your earnings for that period are £5.00.

### **Example 2.**

Suppose your Resale Value is £8.00, the Market Price in your market is £11.00, and you do not purchase the unit of the commodity in your market. In this case, since you did not purchase a unit of the commodity, your earnings for that period are £0.00.

## **SIGNALS AND RESALE VALUES**

In each period, each participant will receive a Signal about the value of the unit of commodity for sale. This Signal will be labeled Your Signal on the computer display.

Your Signal in each period is your private information. When participating in the market in each period, you will know Your Signal, but you will not know the signal received by the other participant in your market, nor will the other participant know your signal.

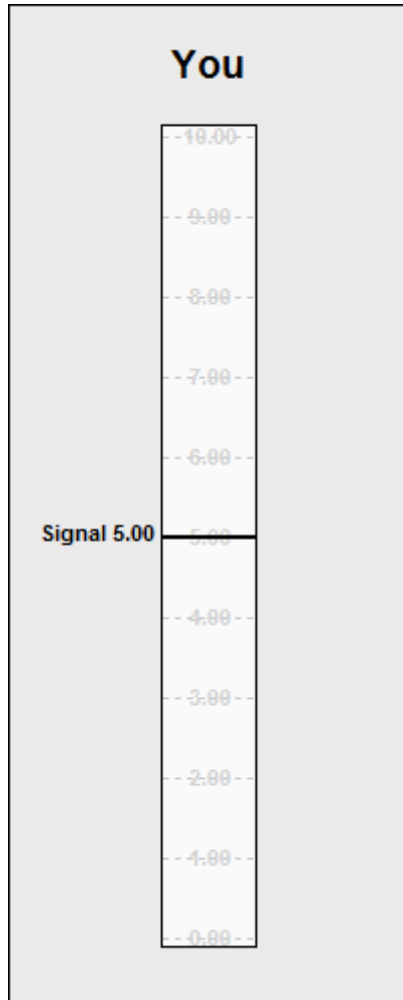
Your Signal and the signal of the other participant in your market determine your Resale Value in that period. Your Resale Value is determined by the formula

$$(3/4) * \text{Your Signal} + (1/4) * \text{Other participant's Signal}$$

If, for example, Your Signal is £8.20, and the other participant's signal is £3.60, then your Resale Value is £7.05, computed as  $(3/4) * 8.20 + (1/4) * 3.60$ .

Note that this means that the Resale Values of both you and the other participant will depend on both your signal and the other participant's signal. The signals you and the other participant will receive are determined independently, and you will only know your own signal when you participate in the market.

## PARTICIPATING IN THE MARKET



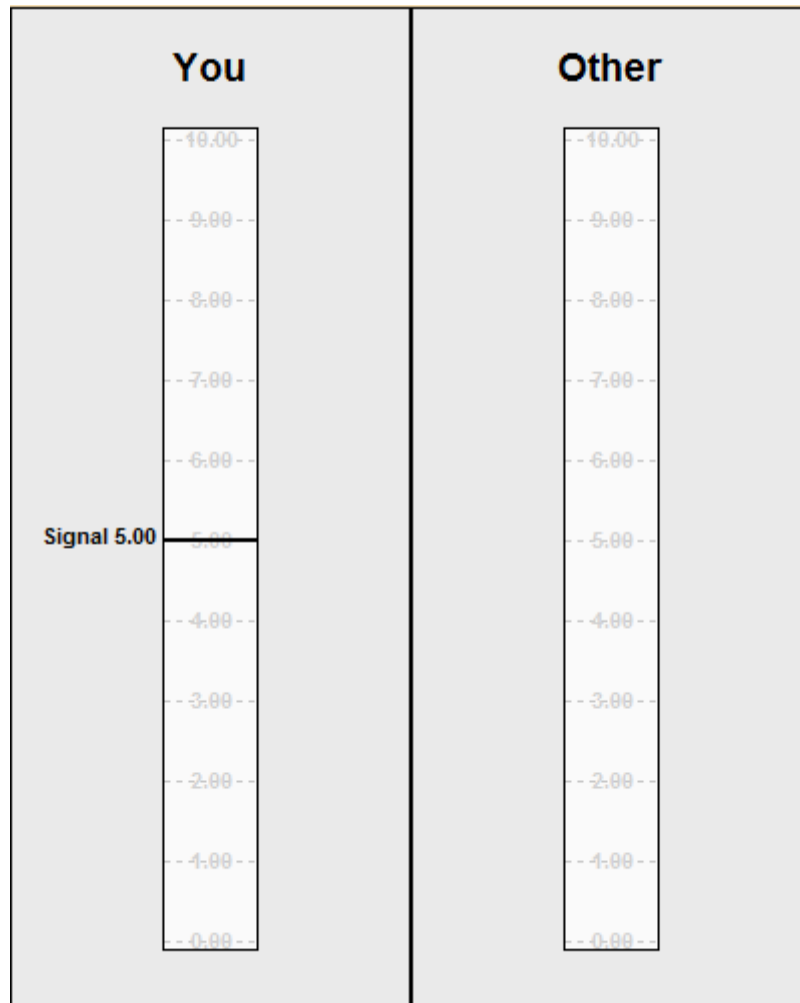
On the page to the left of these instructions is the display you will use to participate in the market. The rectangle will be referred to as a clock. On the clock are marked amounts in pounds and pence. Above the clock is the word “You,” because this display organises your information in the market.

In each period, the clock will display your private signal for that period. In the example at the left, this signal is £5.00. You will use the clock to indicate a price at which you would be willing to purchase the unit of commodity the experimenter is selling.

After you have selected a price, you confirm your decision by clicking a button labeled Confirm Bid, which will be located beneath the clock. The price which you select and confirm will be referred to as Your Bid. Until the time you click the Confirm Bid button, you will have the ability to change the price you have selected. Once the Confirm Bid button has been clicked, you will not be able to change your selected price for that period.

The participant in each market who selects the highest price will be the one to purchase the unit of commodity. The Market Price will be determined by the second highest price selected in the market.

In the event that this highest price is selected by both participants in the same market (i.e., a tie), one of those participants will be chosen at random to purchase the unit at the Market Price.



## RESULTS OF THE MARKET

On the screen next to the clock labeled “You” will be another rectangle with the label “Other.” This rectangle will be used to display the results of each market from the perspective of the other participant in your market.

While you are participating in each market, the rectangle labeled “Other” will remain blank, because during the market period, you will not know the signal received by the other participant, nor will you know the bid the other participant selects.

At the end of each market period, both the clock labeled “You” and the rectangle labeled “Other” will be used to display the results of the market period. The clock labeled “You” will display information about your signal, your resale value, your bid, and your earnings. The rectangle labeled “Other” will display information about the other participant’s signal, resale value, bid, and earnings. The other participant in your market will see the exact same information as you see, except the information shown under “You” will appear under “Other” for them, and vice versa.

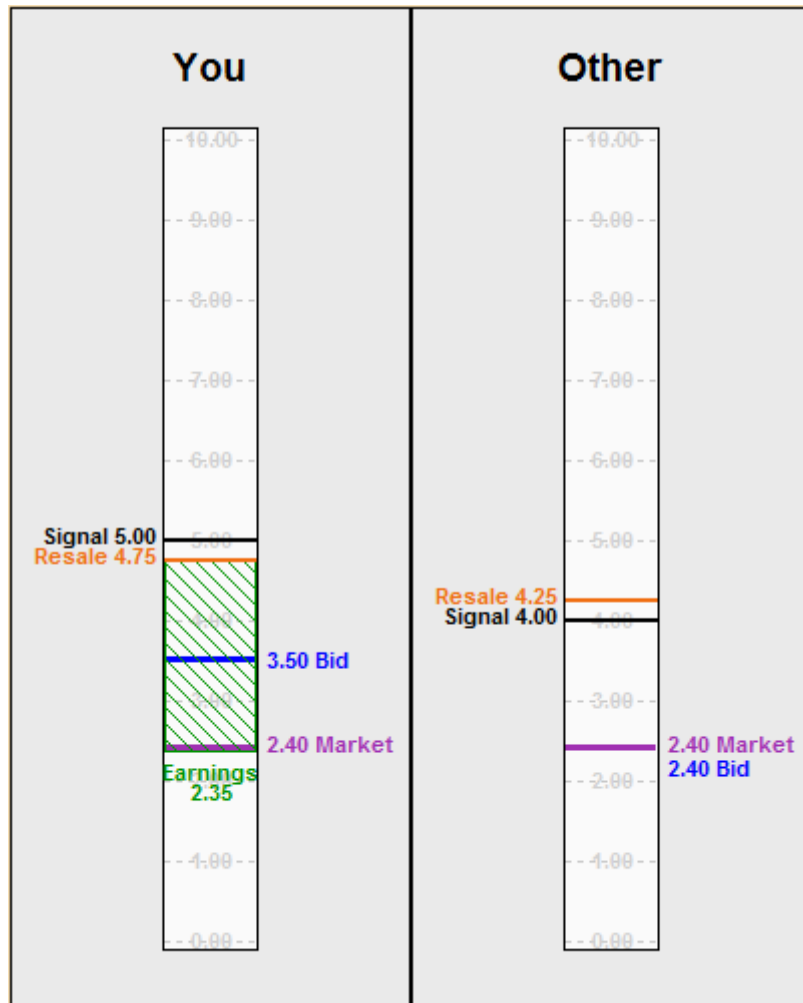


Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

## RECORD SHEET

On your screen during the session will be a record sheet similar to the one on this page.

Your record sheet will show information from all previous periods. After the markets have completed each period, your record sheet will be updated with information on Your Signal in the period, your bid, the signal received by the other participant in your market, the bid of the other participant in your market, whether or not you purchased the object, the Resale Value of the object to you in that period, and your earnings for that period.



## EXAMPLE PERIOD 1

Suppose your signal is £5.00 and you select a bid of £3.50 for the unit. The other participant in your market receives a signal of £4.00 and selects a bid of £2.40 for the unit.

Because £3.50 is the higher bid, you would therefore purchase the unit. The market price would be £2.40, determined by the second-highest bid. Your resale value is £4.75, computed as  $(3/4) * 5.00 + (1/4) * 4.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £4.75 - £2.40 = £2.35$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

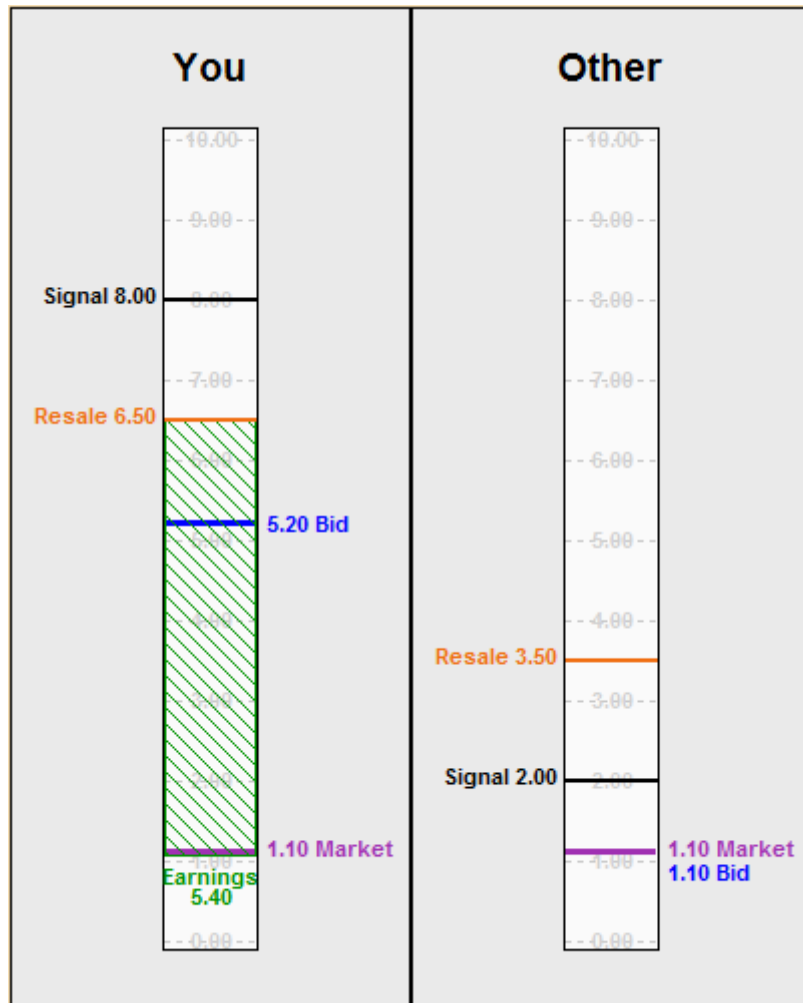
## EXAMPLE PERIOD 1 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.75	2.35
2							
3							
4							
5							

The record sheet summarises the results of the period. Proceeding from left to right, the columns display

- The period number (period 1)
- Your signal (£5.00)
- Your bid (£3.50)
- The other participant's signal (£4.00)
- The other participant's bid (£2.40)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£4.75)
- Your earnings for the period (£2.35, computed as Resale Value – Market Price).



## EXAMPLE PERIOD 2

Suppose your signal is £8.00 and you select a bid of £5.20 for the unit. The other participant in your market receives a signal of £2.00 and selects a bid of £1.10 for the unit.

Because £5.20 is the higher bid, you would therefore purchase the unit. The market price would be £1.10, determined by the second-highest bid. Your resale value is £6.50, computed as  $(3/4) * 8.00 + (1/4) * 2.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £6.50 - £1.10 = £5.40$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

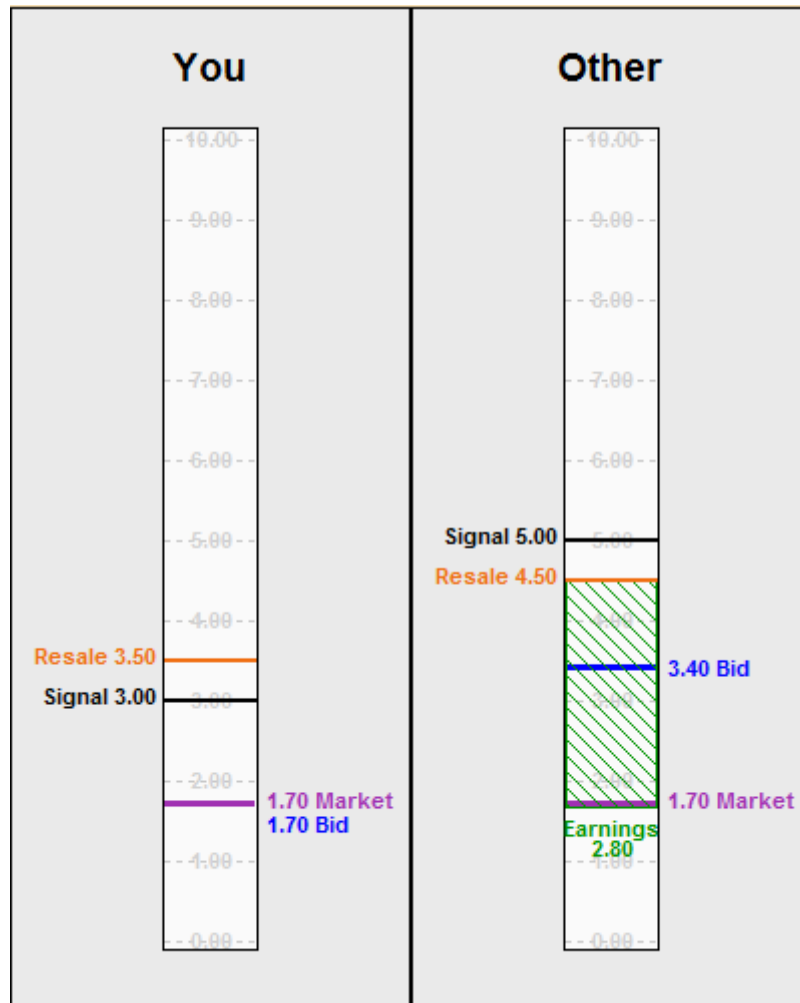
## **EXAMPLE PERIOD 2 (continued)**

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.75	2.35
2	8.00	5.20	2.00	1.10	Yes	6.50	5.40
3							
4							
5							

Proceeding from left to right, the columns display

- The period number (period 2)
- Your signal (£8.00)
- Your bid (£5.20)
- The other participant's signal (£2.00)
- The other participant's bid (£1.10)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£6.50)
- Your earnings for the period (£5.40, computed as Resale Value – Market Price).



### EXAMPLE PERIOD 3

Suppose your signal is £3.00 and you select a bid of £1.70 for the unit. The other participant in your market receives a signal of £5.00 and selects a bid of £3.40 for the unit.

Because £3.40 is the higher bid, the other participant would therefore purchase the unit. The market price would be £1.70, determined by the second-highest bid. Because you did not purchase the unit, your earnings for the period would be £0.00.

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, and the market price are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

### **EXAMPLE PERIOD 3 (continued)**

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.75	2.35
2	8.00	5.20	2.00	1.10	Yes	6.50	5.40
3	3.00	1.70	5.00	3.40	No	3.50	0.00
4							
5							

Proceeding from left to right, the columns display

- The period number (period 3)
- Your signal (£3.00)
- Your bid (£1.70)
- The other participant's signal (£5.00)
- The other participant's bid (£3.40)
- Whether you purchased the unit (No since you did not)
- Your resale value for the unit (£3.50)
- Your earnings for the period (£0.00, because you did not purchase the unit).

## **DETERMINING SIGNALS**

Recall that during today's session you will each receive a signal each period.

These signals will be selected at random from the 50 signals £0.20, £0.40, £0.60, ..., £9.60, £9.80, £10.00. Each of these signals is equally likely to be chosen for each participant in each period.

The likelihood that another participant receives any of these signals is not affected by the signal assigned to any other participant in that period, or in any previous or future periods.

That means it is possible for you to receive the same signal two or more periods in a row, and it is possible for two or more participants, even participants in the same market, to receive the same signal in the same period.



## **OPERATION OF THE MARKET**

Each period will begin with a five second countdown. During this time you will be able to view your signal for the upcoming period and your record sheet with information from the previously completed periods.

After the countdown concludes, you will be able to select your bid for the period. Bids may be selected from the 100 values £0.10, £0.20, £0.30, ..., £9.80, £9.90, £10.00. That is, bids may be selected from the values between £0.10 and £10.00 in increments of £0.10.

Remember that once you have selected your bid for a period, you must click the button labeled Confirm bid to send the bid to the market.

## **SELECTING PERIODS FOR PAYMENT**

Your earnings for today's session will depend on the decisions that you and the other participants make. We will conduct a total of forty (40) market periods. When all periods have been completed, an experimenter will take a bag and fill it with tokens numbered from 1 through 40. From this bag, 10 tokens will be drawn. The numbers of the tokens drawn will determine the 10 market periods which will be used to determine your earnings.

Your earnings for the session, then, will be calculated as your initial payment of £4.00, plus the total of your earnings from the 10 market periods selected.

## **SUMMARY**

During today's session we will be conducting a series of markets. There will be a total of 40 market periods. In each period, you will be randomly placed into one of four markets. Each market will have exactly two participants.

Each period you will receive a signal randomly drawn from the 50 values £0.20, £0.40, ... £9.80, £10.00, for a unit of commodity that the experimenter is selling.

Your resale value for the unit is equal to  $(3/4) * \text{your signal} + (1/4) * \text{other participant's signal}$ .

If you purchase the unit then your earnings are calculated as  $\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$ . If you do not purchase the unit your earnings for that period are zero.

For each market, the Market Price is determined by the second-highest bid selected by a participant in that market.

If the highest bid in a market is selected by both participants, one of them will be chosen at random to purchase the unit.

Your record sheet is updated each period with the information from that period.

At the end of the session, we will select 10 of the 40 periods at random by drawing numbered tokens from a bag. Your earnings for today's experiment will be computed by adding up your earnings from those 10 periods, plus your £4.00 initial payment.

**PARTICIPANT INSTRUCTIONS FOR**

**Turocy and Cason (2015),  
Bidding in first-price and second-price interdependent-values auctions:  
A laboratory experiment**

**Treatment SPA-CV**

## **INSTRUCTIONS**

This is an experiment in the economics of market decision making. Various agencies have provided funds for this research. If you follow the instructions and make appropriate decisions, you can earn an appreciable amount of money. At the end of today's session you will be paid in private and in cash.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

We will now describe the session in more detail. Please follow along with these instructions as they are read aloud.

For today's session, you will receive an initial payment of £8.00.

## **MARKETS**

In today's session there are eight (8) participants. Today's session will last for a total of forty (40) periods.

In every period, participants will be divided into four (4) markets, each with two (2) participants. At the beginning of each period you will be randomly assigned to one of the four markets.

The assignment of participants to markets will be done in such a way that your chance of being in a given market in a given period does not depend on the market assignments you received in previous periods, or those you will receive in subsequent periods. Also, you will be assigned to markets in such a way that your chances of being in a market with another given participant are the same, regardless of whether you were assigned to the same market as that participant in a previous period.

## **THE MARKET**

Each period, the experimenter will have one unit of commodity to sell in each market. If you purchase the commodity in your market, the value of the commodity to you is indicated by your Resale Value. The Resale Value is the price that the experimenter will pay you to buy back the commodity if you purchase a unit during the market period. Each participant's Resale Value will change from period to period.

The Market Price in a market for a given period is determined by the choices of the participants in the market in that period. The Market Price for a given market is independent of the Market Prices of other markets in the same period, and of Market Prices for the same market in other periods.

Your Earnings for a period will depend on whether you purchase the commodity in your market, and on the Market Price.

If you purchase a unit of the commodity, your earnings for that period will be calculated according to the equation

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

If you do not purchase a unit of the commodity, then your earnings for that period will be £0.00.

## **EARNINGS EXAMPLES**

### **Example 1.**

Suppose your Resale Value is £15.00, and you purchase a unit of the commodity in your market at a Market Price of £10.00. Your earnings for the period will be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £15.00 - £10.00 = £5.00$$

Thus, your earnings for that period are £5.00.

### **Example 2.**

Suppose your Resale Value is £8.00, the Market Price in your market is £11.00, and you do not purchase the unit of the commodity in your market. In this case, since you did not purchase a unit of the commodity, your earnings for that period are £0.00.

## **SIGNALS AND RESALE VALUES**

In each period, each participant will receive a Signal about the value of the unit of commodity for sale. This Signal will be labeled Your Signal on the computer display.

Your Signal in each period is your private information. When participating in the market in each period, you will know Your Signal, but you will not know the signal received by the other participant in your market, nor will the other participant know your signal.

Your Signal and the signal of the other participant in your market determine your Resale Value in that period. Your Resale Value is determined by the formula

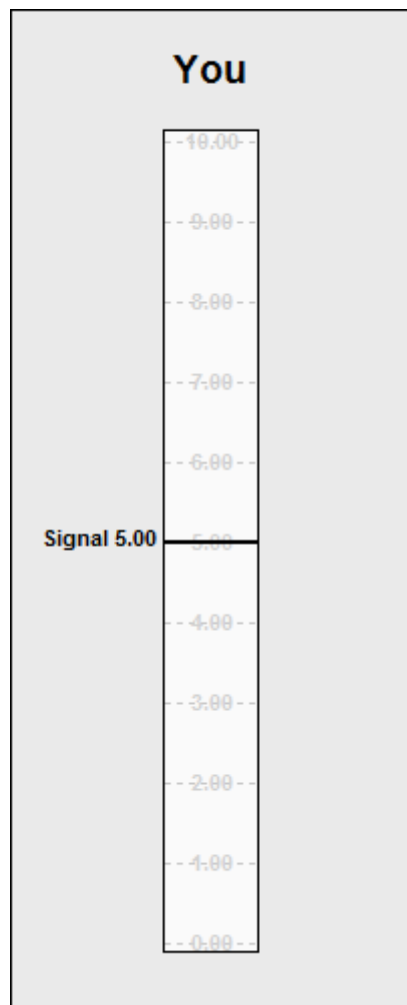
$$(1/2) * \text{Your Signal} + (1/2) * \text{Other participant's Signal}$$

In other words, your Resale Value is the average of your signal and the other participant's signal. If, for example, Your Signal is £8.20, and the other participant's signal is £3.60, then your Resale Value is £5.90, computed as  $(1/2) * 8.20 + (1/2) * 3.60$ .

Note that this means that the Resale Values of both you and the other participant in the market are the same. Although the Resale Values are the same, the signals you and the other participant will receive are determined independently, and you will only know your own signal when you participate in the market.



## PARTICIPATING IN THE MARKET



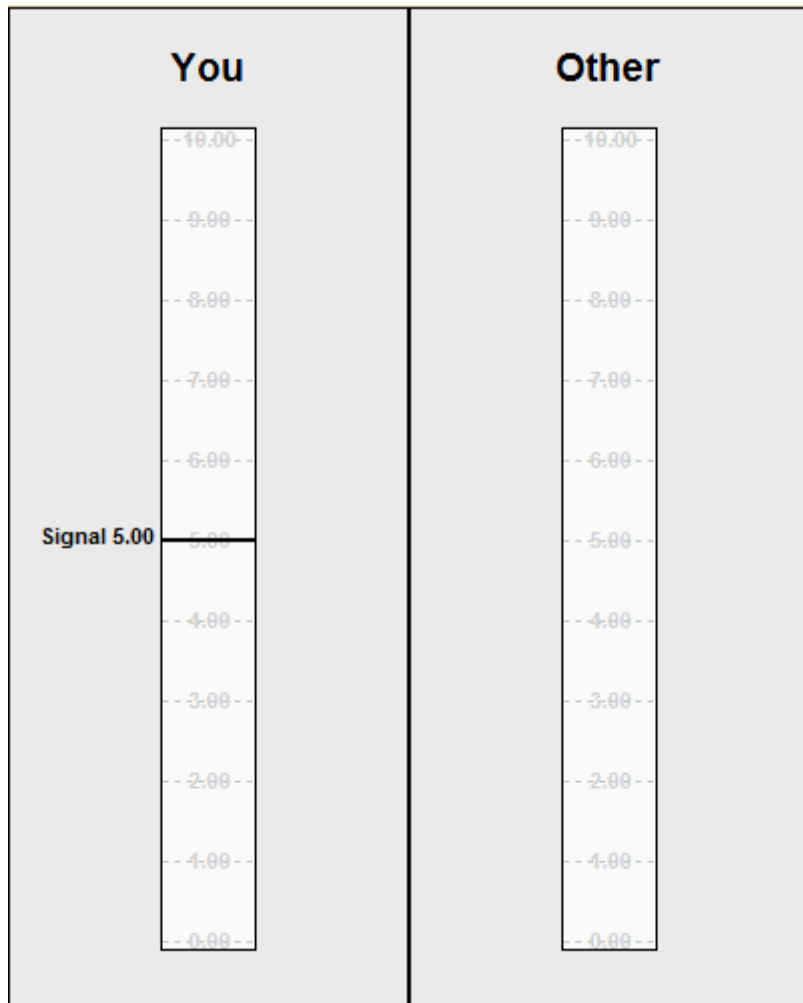
On the page to the left of these instructions is the display you will use to participate in the market. The rectangle will be referred to as a clock. On the clock are marked amounts in pounds and pence. Above the clock is the word “You,” because this display organises your information in the market.

In each period, the clock will display your private signal for that period. In the example at the left, this signal is £5.00. You will use the clock to indicate a price at which you would be willing to purchase the unit of commodity the experimenter is selling.

After you have selected a price, you confirm your decision by clicking a button labeled Confirm Bid, which will be located beneath the clock. The price which you select and confirm will be referred to as Your Bid. Until the time you click the Confirm Bid button, you will have the ability to change the price you have selected. Once the Confirm Bid button has been clicked, you will not be able to change your selected price for that period.

The participant in each market who selects the highest price will be the one to purchase the unit of commodity. The Market Price will be determined by the second-highest price selected in the market.

In the event that this highest price is selected by both participants in the same market (i.e., a tie), one of those participants will be chosen at random to purchase the unit at the Market Price.



## RESULTS OF THE MARKET

On the screen next to the clock labeled “You” will be another rectangle with the label “Other.” This rectangle will be used to display the results of each market from the perspective of the other participant in your market.

While you are participating in each market, the rectangle labeled “Other” will remain blank, because during the market period, you will not know the signal received by the other participant, nor will you know the bid the other participant selects.

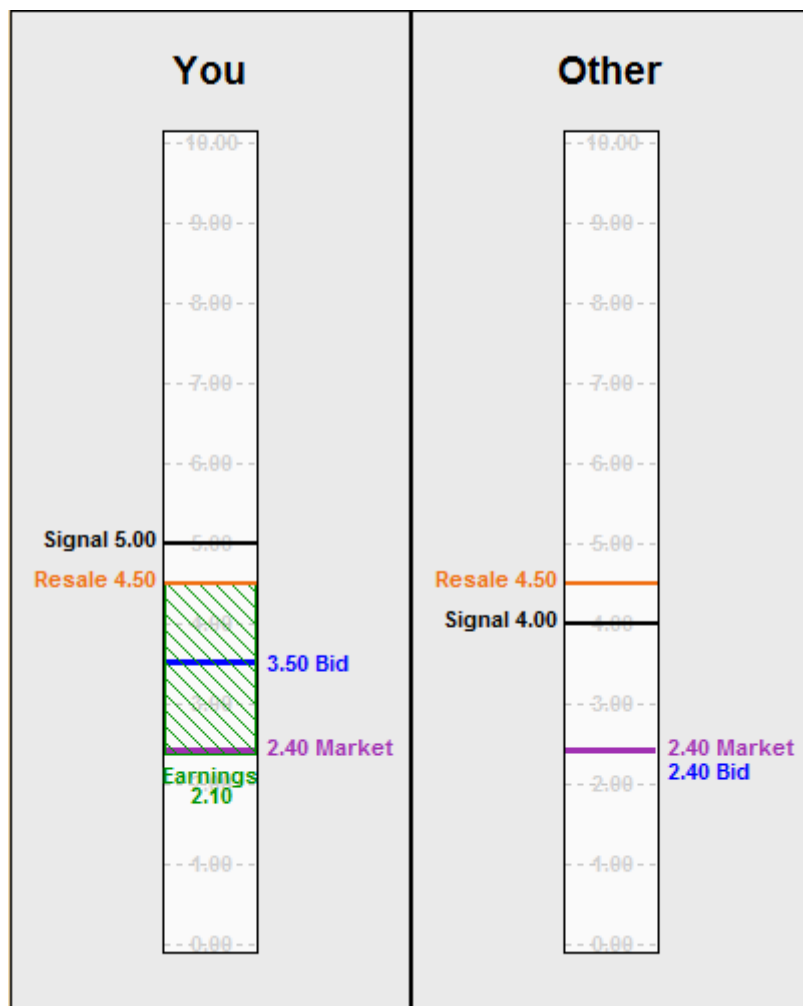
At the end of each market period, both the clock labeled “You” and the rectangle labeled “Other” will be used to display the results of the market period. The clock labeled “You” will display information about your signal, your resale value, your bid, and your earnings. The rectangle labeled “Other” will display information about the other participant’s signal, resale value, bid, and earnings. The other participant in your market will see the exact same information as you see, except the information shown under “You” will appear under “Other” for them, and vice versa.

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

## RECORD SHEET

On your screen during the session will be a record sheet similar to the one on this page.

Your record sheet will show information from all previous periods. After the markets have completed each period, your record sheet will be updated with information on Your Signal in the period, your bid, the signal received by the other participant in your market, the bid of the other participant in your market, whether or not you purchased the object, the Resale Value of the object to you in that period, and your earnings for that period.



## EXAMPLE PERIOD 1

Suppose your signal is £5.00 and you select a bid of £3.50 for the unit. The other participant in your market receives a signal of £4.00 and selects a bid of £2.40 for the unit.

Because £3.50 is the higher bid, you would therefore purchase the unit. The market price would be £2.40, determined by the second-highest bid. Your resale value is £4.50, computed as  $(1/2) * 5.00 + (1/2) * 4.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £4.50 - £2.40 = £2.10$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

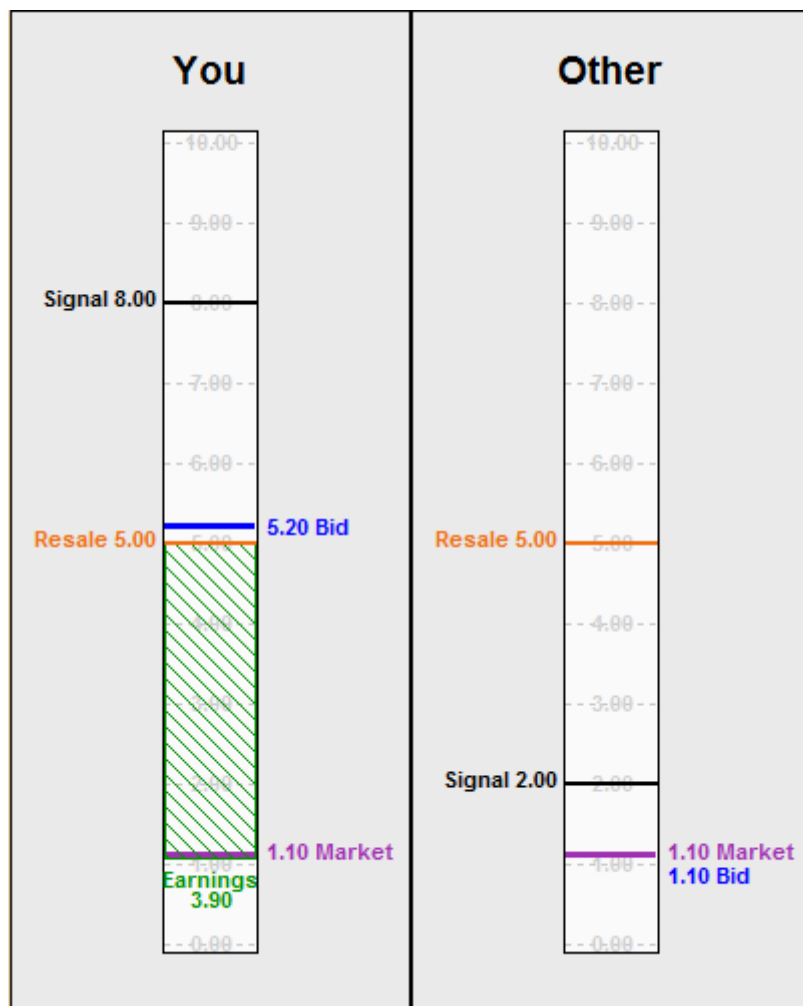
## **EXAMPLE PERIOD 1 (continued)**

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.50	2.10
2							
3							
4							
5							

The record sheet summarises the results of the period. Proceeding from left to right, the columns display

- The period number (period 1)
- Your signal (£5.00)
- Your bid (£3.50)
- The other participant's signal (£4.00)
- The other participant's bid (£2.40)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£4.50)
- Your earnings for the period (£2.10, computed as Resale Value – Market Price).



## EXAMPLE PERIOD 2

Suppose your signal is £8.00 and you select a bid of £5.20 for the unit. The other participant in your market receives a signal of £2.00 and selects a bid of £1.10 for the unit.

Because £5.20 is the higher bid, you would therefore purchase the unit. The market price would be £1.10, determined by the second-highest bid. Your resale value is £5.00, computed as  $(1/2) * 8.00 + (1/2) * 2.00$ . Your earnings would be calculated as

$$\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$$

$$\text{Your Earnings} = £5.00 - £1.10 = £3.90$$

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, the market price, and your earnings are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.

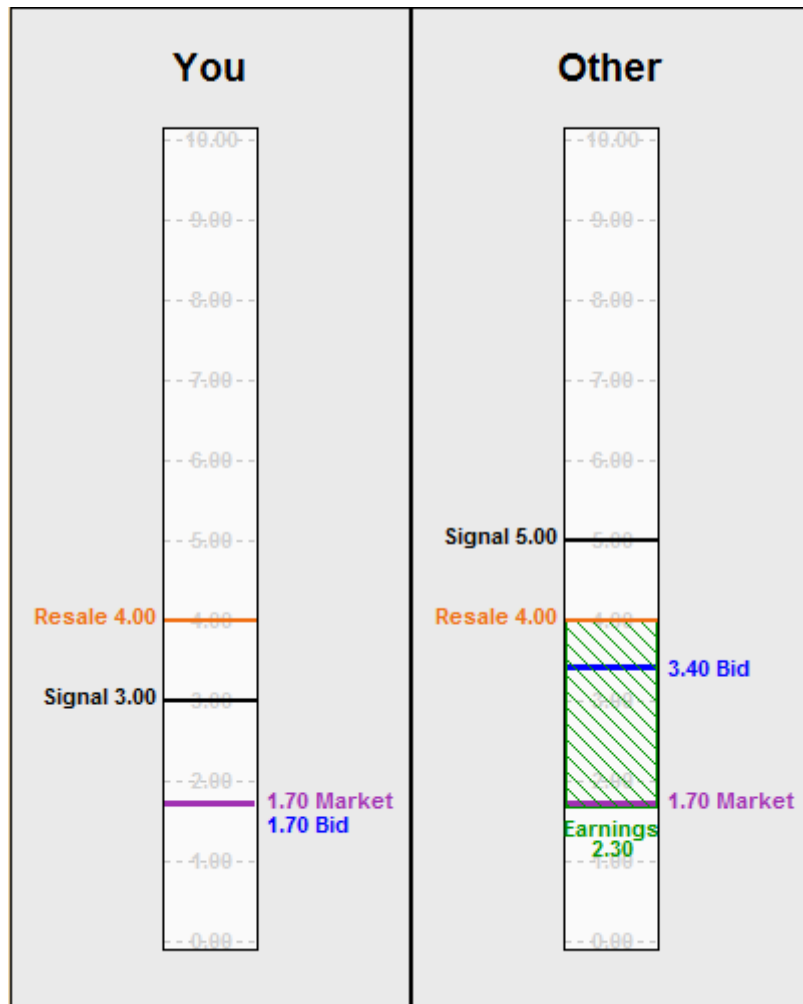
## EXAMPLE PERIOD 2 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.50	2.10
2	8.00	5.20	2.00	1.10	Yes	5.00	3.90
3							
4							
5							

Proceeding from left to right, the columns display

- The period number (period 2)
- Your signal (£8.00)
- Your bid (£5.20)
- The other participant's signal (£2.00)
- The other participant's bid (£1.10)
- Whether you purchased the unit (Yes since you did)
- Your resale value for the unit (£5.00)
- Your earnings for the period (£3.90, computed as Resale Value – Market Price).



### EXAMPLE PERIOD 3

Suppose your signal is £3.00 and you select a bid of £1.70 for the unit. The other participant in your market receives a signal of £5.00 and selects a bid of £3.40 for the unit.

Because £3.40 is the higher bid, the other participant would therefore purchase the unit. The market price would be £1.70, determined by the second-highest bid. Because you did not purchase the unit, your earnings for the period would be £0.00.

On this page is an example of how the clock would appear at the end of the period given this situation. Notice that your signal, your resale value, your bid, and the market price are all labeled on the clock. The rectangle labeled Other contains the information about the market from the perspective of the other participant.



### EXAMPLE PERIOD 3 (continued)

Given the scenario described on the previous page, your record sheet would look like this:

Period	Your signal	Your bid	Other signal	Other bid	Purchased	Your resale	Earnings
1	5.00	3.50	4.00	2.40	Yes	4.50	2.10
2	8.00	5.20	2.00	1.10	Yes	5.00	3.90
3	3.00	1.70	5.00	3.40	No	4.00	0.00
4							
5							

Proceeding from left to right, the columns display

- The period number (period 3)
- Your signal (£3.00)
- Your bid (£1.70)
- The other participant's signal (£5.00)
- The other participant's bid (£3.40)
- Whether you purchased the unit (No since you did not)
- Your resale value for the unit (£4.00)
- Your earnings for the period (£0.00, because you did not purchase the unit).

## **DETERMINING SIGNALS**

Recall that during today's session you will each receive a signal each period.

These signals will be selected at random from the 50 signals £0.20, £0.40, £0.60, ..., £9.60, £9.80, £10.00. Each of these signals is equally likely to be chosen for each participant in each period.

The likelihood that another participant receives any of these signals is not affected by the signal assigned to any other participant in that period, or in any previous or future periods.

That means it is possible for you to receive the same signal two or more periods in a row, and it is possible for two or more participants, even participants in the same market, to receive the same signal in the same period.

## **OPERATION OF THE MARKET**

Each period will begin with a five second countdown. During this time you will be able to view your signal for the upcoming period and your record sheet with information from the previously completed periods.

After the countdown concludes, you will be able to select your bid for the period. Bids may be selected from the 100 values £0.10, £0.20, £0.30, ..., £9.80, £9.90, £10.00. That is, bids may be selected from the values between £0.10 and £10.00 in increments of £0.10.

Remember that once you have selected your bid for a period, you must click the button labeled Confirm bid to send the bid to the market.

## **SELECTING PERIODS FOR PAYMENT**

Your earnings for today's session will depend on the decisions that you and the other participants make. We will conduct a total of forty (40) market periods. When all periods have been completed, an experimenter will take a bag and fill it with tokens numbered from 1 through 40. From this bag, 10 tokens will be drawn. The numbers of the tokens drawn will determine the 10 market periods which will be used to determine your earnings.

Your earnings for the session, then, will be calculated as your initial payment of £8.00, plus the total of your earnings from the 10 market periods selected.

## **SUMMARY**

During today's session we will be conducting a series of markets. There will be a total of 40 market periods. In each period, you will be randomly placed into one of four markets. Each market will have exactly two participants.

Each period you will receive a signal randomly drawn from the 50 values £0.20, £0.40, ... £9.80, £10.00, for a unit of commodity that the experimenter is selling.

Your resale value for the unit is equal to  $(1/2) * \text{your signal} + (1/2) * \text{other participant's signal}$ .

If you purchase the unit then your earnings are calculated as  $\text{Your Earnings} = \text{Resale Value} - \text{Market Price}$ . If you do not purchase the unit your earnings for that period are zero.

For each market, the Market Price is determined by the second-highest bid selected by a participant in that market.

If the highest bid in a market is selected by both participants, one of them will be chosen at random to purchase the unit.

Your record sheet is updated each period with the information from that period.

At the end of the session, we will select 10 of the 40 periods at random by drawing numbered tokens from a bag. Your earnings for today's experiment will be computed by adding up your earnings from those 10 periods, plus your £8.00 initial payment.