

Instructions

This is an experiment in the economics of decision making. The National Science Foundation and other agencies have provided the funds for this research. The instructions are simple. If you follow them closely and make appropriate decisions, you may make an appreciable amount of money. These earnings will be paid to you, in cash, at the end of the experiment.

1. In this experiment you will be asked to make decisions in several periods. There are two types of agents involved in each decision - “**A**” players and “**B**” players. In each period each **A** player is paired with a **B** player. Each **A** player makes a decision first. Then each **B** player makes a decision after seeing the decision of the **A** player with whom he is paired.
2. **A** players: There are two types of **A** players – type 1 (A1) and type 2 (A2).

Table 1 shows the payoffs for the **A** players. You all have copies of payoff Table 1, please look at it now. **A**'s payoffs depend on their type (whether they are an A1 or A2), the number they have chosen, and the actions of the **B** player they have been paired with for that period (whether the **B** player chooses X or Y). Thus, for example, if an A1 player were to choose 3, and the **B** player they were paired with chose X they would earn 150, and if the **B** player chose Y they would earn 426. Similarly, if an A2 chooses 3, and the **B** player they have been paired with chooses X they would earn 330, and if the **B** player chooses Y they would earn 606. Notice that for each possible choice payoffs for A2's are higher than the payoffs for A1s. Also notice that for any choice payoffs are always higher for the **A** player if the **B** player they have been paired with chooses Y rather than X.

A players have no choice over whether they are A1's or A2's. **A**'s type will be determined randomly in each period through a process to be described shortly. **A**'s will always know if they are an A1 or A2 for a given play of the game. This will be clear from the payoff table on your computer screens.

In each play of the game **A** players move first by choosing a number. A1 players may choose any number between 1 and 7; A2 players may also choose any number between 1 and 7.

3. **B** players: **B** players make their choices after seeing the number chosen by the **A** player they have been paired with for that period. They do not know if the **A** player they have been paired with is an A1 or A2 type before they make their choice, they only get to see the number chosen by the **A** player they have been paired with.

Table 2 shows the payoffs for the **B** player. You all have copies of Table 2, please look at it now.

For a **B** player if they know (or can guess correctly) that they are facing an A1 player, they earn more if they choose X than if they choose Y (500 versus 250). On the other hand, if they know (or can guess correctly) that they are facing an A2 type, they earn more if they choose Y, than if they choose X (250 versus 200). In cases where the **B** player is uncertain about the type of **A** player they have been paired with, the choice that maximizes earnings depends on your best estimate of the likelihood you are facing an A1 versus an A2 player.

After the **B** player has made her choice, payoffs for both **A**'s and **B**'s will be determined.

4. In each period there is a 50% chance that the **A** player will be an A1 and a 50% chance they will be an A2. In other words, in each period, on average, 1 out of 2 **A** players will be A1, while on average every 1 out of 2 **A** players will be an A2. However, which particular **A** players will be A1's and which will be A2's is determined randomly by the computer in each period.
5. In each period **A** and **B** players will be randomly matched with each other by the computer. The random matching process is such that for each set of six (6) periods, each A player will be paired with each B player only once. You will not know the identity of the other player you are matched with in any period.
6. You will play as both an **A** player and as a **B** player. Your designation as an **A** player or as a **B** player will stay the same for six (6) periods, and then you will switch roles for six (6) periods. This process will repeat 3 times for a total of 36 periods.
7. Before going any further, we want to make sure everyone knows how to read the payoff tables. So please answer the following questions. If you have any trouble with the questions raise your hand and one of our monitors will be around to answer your question. Our monitors will also be around to check your answers.

Questions

1. Suppose you are an A2 player. If you choose 4 and the B player you have been paired with chooses X your payoff will be _____. On the other hand, if you choose 5 and the B player chooses Y your payoff will be _____.
2. Suppose you are an A2 player. If you choose 4 and the B player you have been paired with chooses Y your payoff will be _____. On the other hand, if you choose 5 and the B player you have been paired with chooses X your payoff will be _____.
3. Suppose you are an A1 player. If you choose 2 and the B player you have been paired with chooses X your payoff will be _____. On the other hand, if you choose 3 and the B player you have been paired with chooses Y your payoff will be _____.
4. Suppose you are an A1 player. If you choose 2 and the B player you have been paired with chooses Y your payoff will be _____. On the other hand, if you choose 3 and the B player you have been paired with chooses X then your payoff will be _____.
5. Suppose you are a B player. If you choose X and the A player is an A1 type you earn _____, while if it is an A2 type you earn _____. On the other hand, if you choose Y and the A player is an A2 type you earn _____, while if it is A1 type you earn _____.
6. Will you be playing against the same player in each period? (Yes/No) _____

(These pages give the walkthrough instructions for the dry run – subjects did not have a copy of these)

one-to-one/GQ/LCE&HCE
No communication
2/01

Parameters for DR/explanation: 7 minutes for choices

Remember to set program to no communication option

Remember to switch to 3 minutes for real play!!! (and 2 minutes after 12 periods of real play)

To be read to subjects: not to be included with the written instructions.

We're going to do a practice period before we play for cash. The objective here is to familiarize you with your computer screen and the procedures. To get started you must first log in. When your screen comes on don't do anything until I tell you to.

To log on you proceed as follows: (reference to blackboard). (in this case click to the one-to-one icon on the screen).

OK – everyone have a screen now?

Just look at it – Don't do anything just yet until I tell you to. I need to explain your screen layouts first and walk you through a practice period before we play for cash.

You will know if you are an A or a B player by the payoff table on your screen – if it matches the A player's payoffs on your hard copy you're an A. If it matches the B player's payoffs you're a B. It will also indicate if you are an A or B at the top of your screen above the payoff table. And if you are an A – whether you are an A1 or an A2 type.

Put slides up here

One thing to note here, if you are an A2 player, on your computer screen your payoffs will be listed before the A1 player's payoffs. Other than that everything is as on the payoff tables we handed out.

11. In each period the A players must choose first. To start you will have 3 minutes to make your choices.

On the right hand side of the payoff table will be a column titled "my choice" (this is in blue). Do you all see this?

You use your mouse to click on your choice under the "my choice" column. Possible payoffs for this choice will be highlighted in red.

You must confirm your choice. To do this click on the little box at the top of your screen which says Send choice (in red). You have to click this box to send your choice.

Since we need to keep the session moving, if no choice has been made after the 3 minutes is up you will be prompted to make one.

Note you do not have to use all the time allotted before making your choice and should not plan to do so unless it is necessary (as choices cannot go forward until all A players have made their choices).

Are there any questions?

A players make your choices now. Remember you have to click on the number you want under the my choice column and then click on the send choice box at the top of the screen to send your choice.

Can start reading this while A players are choosing -

12. Once *all* the A players have made their choices, each B player will see the A player's choice, for the A player they have been paired with for this period. The number chosen is located just above the dialogue box (in pink). It will read "A players choice is xxx". Please don't do anything just yet.

The B player must now choose between X and Y.

You also have 3 minutes to make your choices. As with the A players your choices become binding once you have clicked on the send box..

Are there any questions?

B players, please make your choices now. Please note that you do not have to use all the time allotted before making your choice and should not plan to do so unless it is necessary.

13. After both players have made their choices the computer will highlight each player's actual payoff for the period (in red), and display the A player's type, and both players' choices in the space below the countdown clock. Please have a look at this information and record it on your Subject Record Sheets.

In addition, the decisions of all pairs in the current period will be shown on the left, bottom part of your screen. You will see each A players' type, the number chosen, and whether the B player they were paired with chose X or Y. Note, that pairs have been ordered by the number A players have chosen, going from highest to lowest. There is space on your screens to display these choices for the last three (3) periods, with choices for the just completed period reported at the bottom of the display, the previous period just above it, and the period before that at the top of the display. You can also use the scroll bar to look back at earlier periods. Note if no choice has been made, and your choice time has run out, this scroll bar will become inoperative, as it is time to make your choice.

This information is provided automatically after each period except for the period preceding the changeover from A to B players and vice versa. So you will not see this information until after I reset the parameters for the next period.

Put another slide up here.

13. The payoff tables are in francs. Francs will be converted into dollars at the rate of 1 frank = .0025 dollars. At the end of the experiment, you will be paid the sum of your earnings for all periods. This will be paid to you in cash along with the \$5 participation fee. FEEL FREE TO MAKE AS MUCH MONEY AS YOU POSSIBLY CAN.

Now we are going to play for cash.

Summary:

1. Your role as an A or B player will switch every _____ periods.
2. In each period each A player is paired with a DIFFERENT B player (and vice versa). In fact, the rotation rule is set up so that you will only play with the same person at most once (or twice) (and in random order) in each set of _____ periods.
3. For A players, in each period there is a 50% chance you will be an A1 type and a 50% chance you will be an A2 type. Thus, in each period there is a 50% chance the B player will be facing an A1 player and a 50% chance of facing an A2 player. Note, we use a block random design so that with an even number (ex 6) of A players half (3) will always be A1 and half (3) will always be A2. [With an odd number (ex 5) of A players (2) will always be A1 and (2) will always be A2 with the computer “flipping a coin” to determine what the 5th players type will be]. However, which A player is an A1 and which an A2 is determined randomly within each period.
4. You have 3 minutes to start with to make your choices. You do not have to use all this time. Once everyone has made their choice, we move onto the next stage so if you do not need the full time, don't use it.
5. Information to the left of your screen shows what each A player has chosen, the B players response and the A players type. Responses for the latest period are reported at the bottom, for the previous period just above that, and so forth. The little number to the right of this listing is the period number just completed.

Are there any questions?

Instructions

This is an experiment in the economics of decision making. The National Science Foundation and other agencies have provided the funds for this research. The instructions are simple. If you follow them closely and make appropriate decisions, you may make an appreciable amount of money. These earnings will be paid to you, in cash, at the end of the experiment.

1. In this experiment you will be asked to make decisions in several periods. There are two types of agents involved in each decision - “**A**” players and “**B**” players. In each period each **A** player is paired with a **B** player. Each **A** player makes a decision first. Then each **B** player makes a decision after seeing the decision of the **A** player with whom he is paired.
2. **A** players: There are two types of **A** players – type 1 (A1) and type 2 (A2).

Table 1 shows the payoffs for the **A** players. You all have copies of payoff Table 1, please look at it now. **A**'s payoffs depend on their type (whether they are an A1 or A2), the number they have chosen, and the actions of the **B** player they have been paired with for that period (whether the **B** player chooses X or Y). Thus, for example, if an A1 player were to choose 3, and the **B** player they were paired with chose X they would earn 150, and if the **B** player chose Y they would earn 426. Similarly, if an A2 chooses 3, and the **B** player they have been paired with chooses X they would earn 330, and if the **B** player chooses Y they would earn 606. Notice that for each possible choice payoffs for A2's are higher than the payoffs for A1s. Also notice that for any choice payoffs are always higher for the **A** player if the **B** player they have been paired with chooses Y rather than X.

A players have no choice over whether they are A1's or A2's. **A**'s type will be determined randomly in each period through a process to be described shortly. **A**'s will always know if they are an A1 or A2 for a given play of the game. This will be clear from the payoff table on your computer screens.

In each play of the game **A** players move first by choosing a number. A1 players may choose any number between 1 and 7; A2 players may also choose any number between 1 and 7.

3. **B** players: **B** players make their choices after seeing the number chosen by the **A** player they have been paired with for that period. They do not know if the **A** player they have been paired with is an A1 or A2 type before they make their choice, they only get to see the number chosen by the **A** player they have been paired with.

Table 2 shows the payoffs for the **B** player. You all have copies of Table 2, please look at it now.

For a **B** player if they know (or can guess correctly) that they are facing an A1 player, they earn more if they choose X than if they choose Y (500 versus 250). On the other hand, if they know (or can guess correctly) that they are facing an A2 type, they earn more if they choose Y, than if they choose X (250 versus 200). In cases where the **B** player is uncertain about the type of **A** player they have been paired with, the choice that maximizes earnings depends on your best estimate of the likelihood you are facing an A1 versus an A2 player.

After the **B** player has made her choice, payoffs for both **A**'s and **B**'s will be determined.

4. In each period there is a 50% chance that the **A** player will be an A1 and a 50% chance they will be an A2. In other words, in each period, on average, 1 out of 2 **A** players will be A1, while on average every 1 out of 2 **A** players will be an A2. However, which particular **A** players will be A1's and which will be A2's is determined randomly by the computer in each period.
5. You will be playing in teams. The computer will randomly match you with another player and the two of you will play as a team throughout the session. More on what it means to play as a team in a moment.
6. In each period **A** and **B** teams will be randomly matched with each other by the computer. The random matching process is such that for each set of six (6) periods, each A team will be paired with each B team only once. You will not know the identity of the other team you are matched with in any period.
7. You will play as both an **A** team and as a **B** team (but always with the same partner). Your designation as an **A** team or as a **B** team will stay the same for six (6) periods, and then you will switch roles for six (6) periods. This process will repeat 3 times for a total of 36 periods.
8. As a team you will make decisions jointly. That is, the two of you must decide together what choices to make and both of your payoffs will depend on these choices. To facilitate team coordination, there will be a place on your screen to send messages back and forth to each other. Although we will record these messages, only you and your partner will see them. Think of the message space as your own private e-mail system to help you decide what to do. More on how all this will work shortly.

Note, in sending messages back and forth between you and your teammate we request you follow two simple rules: (1) Be civil to each other and no profanity and (2) Do not identify yourself. The communication channel is intended for you to use to discuss and coordinate your choices and should be used that way.

9. Before going any further, we want to make sure everyone knows how to read the payoff tables. So please answer the following questions. If you have any trouble with the questions raise your hand and one of our monitors will be around to answer your question. Our monitors will also be around to check your answers.

Questions

1. Suppose you are an A2. If you and your teammate choose 4 and the B team you have been paired with chooses X your payoff will be _____. On the other hand, if you and your teammate choose 5 and the B team chooses Y your payoff will be _____.
2. Suppose you are an A2. If you and your teammate choose 4 and the B team you have been paired with chooses Y your payoff will be _____. On the other hand, if you and your teammate choose 5 and the B team you have been paired with chooses X your payoff will be _____.
3. Suppose you are an A1. If you and your teammate choose 2 and the B team you have been paired with chooses X your payoff will be _____. On the other hand, if you and your teammate choose 3 and the B team you have been paired with chooses Y your payoff will be _____.
4. Suppose you are A1. If you and your teammate choose 2 and the B team you have been paired with chooses Y your payoff will be _____. On the other hand, if you and your teammate choose 3 and the B team you have been paired with chooses X then your payoff will be _____.
5. Suppose you are a B player. If you and your teammate choose X and the A team is an A1 type you earn _____, while if it is an A2 type you earn _____. On the other hand, if you and your teammate choose Y and the A team is an A2 type you earn _____, while if it is A1 type you earn _____.
6. Will you be playing with the same teammate in each period? (Yes/No) _____
Will any other team be able to see your communications with your teammate? (Yes/No) _____
Will you be playing against the same team in each period? (Yes/No) _____

(These are the walkthrough instructions read to subjects during the dry run – no printed copies distributed)

Teams/GQ/LCE&HCE

2/01

Parameters for DR/explanation: 10 minutes for choices

Remember to switch to 3 minutes for real play!!! (and 2 minutes after 12 periods of real play)

To be read to subjects: not to be included with the written instructions.

To be read to subjects: not to be included with the written instructions.

We're going to do a practice period before we play for cash. The objective here is to familiarize you with your computer screen and the procedures. To get started you must first log in. When your screen comes on don't do anything until I tell you to.

To log on you proceed as follows: (reference to blackboard).

OK – everyone have a screen now?

Just look at it – Don't do anything just yet until I tell you to. I need to explain your screen layouts first and walk you through a practice period before we play for cash.

You will know if you are an A or a B player by the payoff table on your screen – if it matches the A player's payoffs on your hard copy you're an A. If it matches the B player's payoffs you're a B. It will also indicate if you are an A or B at the top of your screen above the payoff table. And if you are an A – whether you are an A1 or an A2 type.

Put slides up here

One thing to note here, if you are an A2 player, on your computer screen your payoffs will be listed before the A1 player's payoffs. Other than that everything is as on the payoff tables we handed out.

Next, notice that there is a dialogue box in the lower right hand corner of your screen. If you click on to the lower (white) part of the box you can type a message to your partner (only you and your partner can see your messages, no other subjects can see them). You can use this box to “discuss” what choice you want to make. To send a message hit the enter key. Both your messages and your partner's message will be reported at the top of the dialogue box. Please try to send a message to your partner now. “Hello, how are you” will do fine. Remember you must hit the enter key to send the message.

OK – has everyone sent a message and seen both their message and their partners?

10. What I am going to say now applies to both A and B teams.

Since you are playing as teams both you and your teammate must coordinate on your choices. For doing this you will see on the left hand side of the payoff table on your computer screen a column titled “partner's choice” (this is in pink) and on the right hand side of the payoff table will be a column titled “my choice” (this is in blue). Do you all see this?

You use your mouse to click on your choice under the “my choice” column. Possible payoffs for this choice will be highlighted in blue. Your partner's choice will be reported under the

partner's choice column of your payoff table. If your partner's choice differs from yours, possible payoffs for your partner's choice will be highlighted in pink.

When you both click on the same choice, the possible payoffs will be highlighted in red. Once you have both clicked the same choice, there will be a delay of 4 seconds before your choices are binding. If you want to change your choice, just use your mouse to click another choice before the 4 seconds run out.

11. In each period the A teams must choose first. To start you will have 3 minutes to send messages to your partner and to coordinate your choices.

In cases where you have not coordinated on the same choice and the "choice time clock" (located in the upper left hand corner of your screens) has counted down to 0 you will not be permitted to send any more messages. (The dialogue box will disappear.) Since we need to keep the session moving, the default outcome is whichever member of the team the computer has selected as "leader" for that period will have his/her last choice be the team's choice for that period. (The computer chooses the "leader" randomly in each period.) And if no choice has been made you will be prompted to make one.

Are there any questions?

A teams, please start your discussions and make your choices now. Note you do not have to use all the time allotted before coming to agreement on your choice and should not plan to do so unless it is necessary to reach agreement.

Can start reading this while A teams are choosing -

12. Once *all* the A teams have made their choices, each B team will see the A team's choice, for the A team they have been paired with for this period. The number chosen is located just above the dialogue box (in pink). It will read "A teams choice is xxx". Please don't do anything just yet.

The B team must now choose between X and Y.

You also have 3 minutes to discuss and coordinate your choices. As with the A teams your choices become binding when you have both clicked on the same choice (with a 4 sec delay to allow you to change your minds) or your time has run out in which case the default outcome is the "leader's" choice for that period. (The computer chooses the "leader" randomly in each period.) At this point your dialogue box will also disappear and if no choice has been made you will be prompted to make one.

Are there any questions?

B teams, please start your discussions and make your choices now. Please note that you do not have to use all the time allotted before coming to agreement on your choice and should not plan to do so unless it is necessary to reach agreement.

Note that A teams can continue e-mailing while the B teams are choosing. And B teams can continue e-mailing while the A teams are choosing.

13. After both teams have made their choices the computer will highlight each player's actual payoff for the period (in red), and display the A player's type, and both players' choices in the space below the countdown clock. Please have a look at this information and record it on your Subject Record Sheets.

In addition, the decisions of all pairs in the current period will be shown on the left, bottom part of your screen. You will see each A teams' type, the number chosen, and whether the B team they were paired with chose X or Y. Note, that pairs have been ordered by the number A players have chosen, going from highest to lowest. There is space on your screens to display these choices for the last three (3) periods, with choices for the just completed period reported at the bottom of the display, the previous period just above it, and the period before that at the top of the display. You can also use the scroll bar to look back at earlier periods. Note if no choice has been made, and your choice time has run out, this scroll bar will become inoperative, as it is time to make your choice.

Finally note that the dialogue box is open almost all the time. The only time it is not open is (1) when your time for choices has run out and (2) for several seconds following everyone having made their choices while the computer resets for the next period. (There will be a message saying stop typing now just above the dialogue box during 2). Thus B teams can be discussing choices while A teams are deciding and A teams can discuss what to do next while B teams are deciding or both can be discussing what to do during the delay between periods that we have built into the software.

Put another slide up here.

13. The payoff tables are in francs. Francs will be converted into dollars at the rate of 1 frank = .0025 dollars. At the end of the experiment, you will be paid the sum of your earnings for all periods. This will be paid to you in cash along with the \$5 participation fee. **FEEL FREE TO MAKE AS MUCH MONEY AS YOU POSSIBLY CAN.**

Now we are going to play for cash.

Summary:

1. You are playing in teams. Your teammate stays constant throughout the experiment.
2. Your role as an A or B team will switch every _____ periods.
3. In each period each A team is paired with a DIFFERENT B team (and vice versa). In fact, the rotation rule is set up so that you will only play with the same other team at most once (or twice) (and in random order) in each set of _____ periods.
4. For A teams, in each period there is a 50% chance you will be an A1 type and a 50% chance you will be an A2 type. Thus, in each period there is a 50% chance the B team will be facing an A1 team and a 50% chance of facing an A2 team. Note, we use a block random design so that with an even number (ex 6) of A teams half (3) will always be A1 and half (3) will always be A2. [With an odd number (ex 5) of A teams (2) will always be A1 and (2) will always be A2 with the computer “flipping a coin” to determine what the 5th teams type will be]. However, which A team is an A1 and which an A2 is determined randomly within each period.
5. You have 3 minutes to discuss and make your choices. You do not have to sue all this time. Once everyone has made their choice, we move onto the next stage so if you do not need the full time, don't use it.
6. Information to the left of your screen shows what each A team has chosen, the B teams response and the A teams type. Responses for the latest period are reported at the bottom, for the previous period just above that, and so forth.

Are there any questions?

Notes to the experimenter:

1. When moving between cycles, double check **all** parameter settings, as they are not all saved automatically. In particular double check times, payoff conversion, and game played.
2. Flip changes roles – Switch changes partners. Always use Flip between cycles. Never use Switch unless explicitly called for in the design.
3. When session is completed choose Cancel on first menu screen – this will provide cash payments to subjects.
4. After first flip announce: Note your screens have been frozen until the clock in the upper left hand corner of your screen counts down. After that your screen should be refreshed and a new period begins. If this does not happen raise your hand to call one of us over. If you see anything strange on your screen call us over – there may still be glitches in the software that we are unaware of.

Table 1
A Player's Payoffs as a Function of B Player's Choice

A's choice	A1 B's Choice		A2 B's Choice		A's choice
	x	y	x	y	
1	150	426	250	542	1
2	168	444	276	568	2
3	150	426	330	606	3
4	132	408	352	628	4
5	56	182	334	610	5
6	-188	-38	316	592	6
7	-292	-126	213	486	7

Table 2
B's Payoffs

B's Choice	A's Type	
	A2	A1
y	250	250
x	200	500