

Online Appendices for
Stochastic bargaining over gains and losses: Evidence
from the lab

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1 Instructions

1.1 Gain treatment

Your experimental ID:_____

Thank you for coming to this experiment.

Please turn off all electronic devices and place them in your bags. Please do not talk during the experiment. If you have any questions, raise your hand and we will come to personally assist you.

All participants will receive a payment of \$5 for showing up on time. In addition to that, if you follow the instructions carefully and make good decisions, you can earn a considerable amount of money. At the end of the experiment, you will be paid privately in cash.

Your experimental ID is written at the top of this page, and will also be displayed on the screen soon. This ID identifies your decision today, and will stay the same for the whole session.

This experiment consists of two tasks and a survey. You need to finish each task and the survey to proceed and receive payment. Your performance in Task 1 will directly affect your position in Task 2, and will in turn determine your final payoff. All payoffs in this experiment are in experimental dollars (E\$), which will be converted into dollars (\$) with an exchange rate of E\$25=\$1 at the end.

Below are the instructions for Task 1. Instructions for Task 2 will be distributed when you finish Task 1.

Task 1

Task 1 is an encoding task. You will see “words” which are sequences of four to six letters on the computer screen, one at a time. Along with that, the computer provides a key showing the number corresponding to each letter in the alphabet. Your task is to type the number that corresponds to each letter in the word according to this key in the boxes below the word. Once you have encoded the entire word, click the “OK” button. If you have encoded the word correctly, the computer will accept it and display a new word. If you have made any mistakes, the computer will inform you and you need to correct them before moving on to a new word. The key will stay the same for all words in the task, and will always be at the top of the screen.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
18	10	12	21	1	5	8	26	14	13	9	11	6	22	4	23	17	25	7	20	24	16	19	2	3	15

The word you are now encoding is number 1

WORD: Y F I D

CODE:

Example: Suppose the key for the letters in the alphabet is as follows (the actual key might be different)

Note that the word you are given is Y F I D. The code for Y is 3 (number below Y in the key table), and the codes for F, I and D are 5, 14, 21 respectively. So, you would fill in 3, 5, 14, 21 in each of the four boxes and click “OK”.

You have 10 minutes (ie. 600 seconds) to encode as many words as possible. You, however, need to encode at least 20 words correctly in order to proceed to Task 2 and receive payment. The words encoded are not paid, but your total words encoded in Task 1 will determine your role in Task 2. Task 2 consists of several two-person games. The person who encoded more words in Task 1 in a pair gets a favorable position.

If you fail to encode 20 words in these 10 minutes, you will be given extra time until you finish. However, the words encoded during this extra time do not count towards your total words encoded in Task 1, and thus will not help you to earn the favorable position in Task 2.

Before you start Task 1, a practice round will help you familiarize with the interface. You have 1 minute (ie. 60 seconds) to encode words in this practice round. Your performance in

the practice round will not influence the rest of this experiment. The key for Task 1 might be different from that of this practice round.

You will see on the screen extra tips on how to perform this task. Once you finish the practice round, you will proceed to the real task. Let me know if you have any questions.

Task 2

Thank you for finishing Task 1! Now we are about to start Task 2.

The Game

In this task, you will play 16 rounds of a two-person game with the other participants in this room. At the beginning of each round, you will be randomly matched with another person, who becomes your counterpart (CP) for that round. You will not know exactly who that person is, neither will that person know who you are. You will be randomly rematched each round.

For each pair in a given round, the person who encoded more words in Task 1 will be Player 1, and the other Player 2. Note that Player 1 has an advantage over Player 2. If both encoded the same number of words, the computer will randomly assign the roles. You will see your role of Player 1 or Player 2 on the screen at the beginning of the round, and that role will stay in effect for that particular round. Note that because you will be randomly rematched at the beginning of each round, your role of Player 1 or Player 2 might be different when your counterpart changes.

In this part of the experiment, either you or your counterpart, or both of you, will gain money. You and your counterpart need to decide the amount of gain that each of you will receive.

At the beginning of each round, you and your counterpart both start with E\$0. Each round consists of two stages. In each stage, there are nine different ways to split the gains: these are referred to as gain proposals. One player will be the Proposer, who can choose to propose one of the nine alternatives, and the other player will be the Responder, who either accepts or rejects the proposal. If you are Player 1, you will be the proposer in Stage 1, which means you will move first in this round. Stage 2 is different in that Player 1 and Player 2 have an equal chance of being the proposer. The next four paragraphs provide more details of this process.

In Stage 1, Player 1 is the proposer, who can either select one gain proposal from the nine alternatives or “pass”.

If the proposer makes a selection, then the other person, the responder, in this case Player 2, can either accept or reject that selection. If the responder accepts, the gains for Player 1 and Player 2 are determined by the agreed upon gain proposal, and there is no Stage 2 for that round. If the responder rejects, the game proceeds to Stage 2.

If the proposer selects “pass”, the game immediately proceeds to Stage 2. The responder does not make any decision in this case.

In Stage 2, Player 1 and Player 2 have an equal probability to be the proposer. After the computer randomly decides which player is the proposer, the proposer will select one gain proposal from the other nine alternatives, and then the other player, the responder, can respond by accepting or rejecting that choice. If the response is to accept, both sides receive their agreed upon gains. If the response is to reject, neither side receive any gain, which means that both sides end up with zero for that round.

At the end of the round, your and your counterpart's gains will be displayed and you will proceed to the next round.

Gain Proposals

The gain proposals illustrate how much gain you and your counterpart will receive under each selection. Your gain is the part in dark green on the left and your counterpart's gain is on the right, marked with dark orange. The rest of the left semicircle is filled with light green, and the rest of the right semicircle is in light orange. This helps you to separate your side from your counterpart's side on the gain proposal. The amount represented by the semicircle is the most gain one can possibly receive in Task 2, which is E\$1080. You and your counterpart's gains, designated with a plus sign in front of the numbers, are marked below the corresponding proposals. You may also use the calculator at the bottom right corner of the screen during the experiment.

Note that in a given round, both the total gain as well as how the gain is split can change within and between Stage 1 and Stage 2. Also, in different rounds, you may see completely different alternatives. So, to ensure you are making good decisions it is important you pay close attention to the screen!

In Stage 1, you will see the nine alternative gain proposals for Stage 1, as well as the nine that would be available if you enter that round's Stage 2. However, once you enter Stage 2, you will only see the nine gain proposals for Stage 2, but not any from Stage 1 because the Stage 1 proposals are no longer available.

Payment

The computer will pick 4 out of the 16 rounds you play at random, and the average of your gains in those four rounds determines your payoff from the two tasks. That average payoff will be converted into dollars (\$) with an exchange rate of E\$25=\$1 (rounded to the nearest dollar).

After Task 2, you will proceed to a survey, where you have a chance to gain or lose some additional payment in one of the questions.

Your total payment today will be the sum of the \$5 show-up fee, the task payment described above, and the additional payment from the survey question.

To make sure you understand these instructions, we will give you a comprehension quiz and walk you through two practice rounds. After that, the experiment will begin.

Summary of the Game

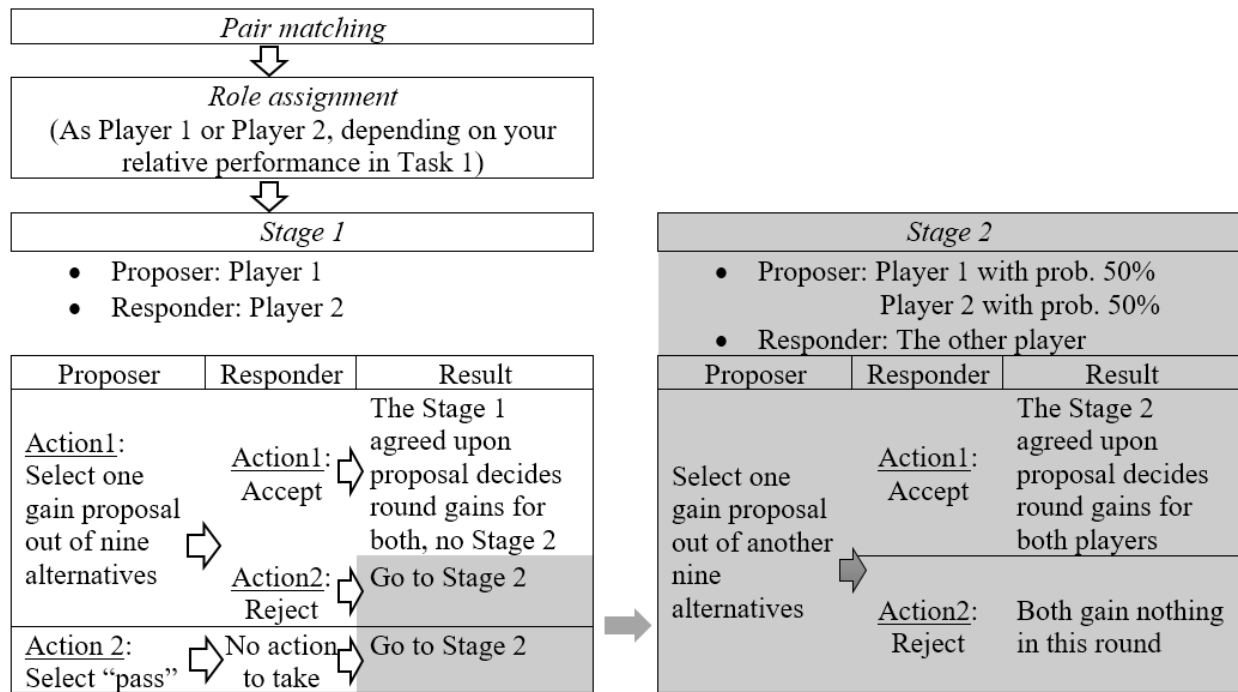
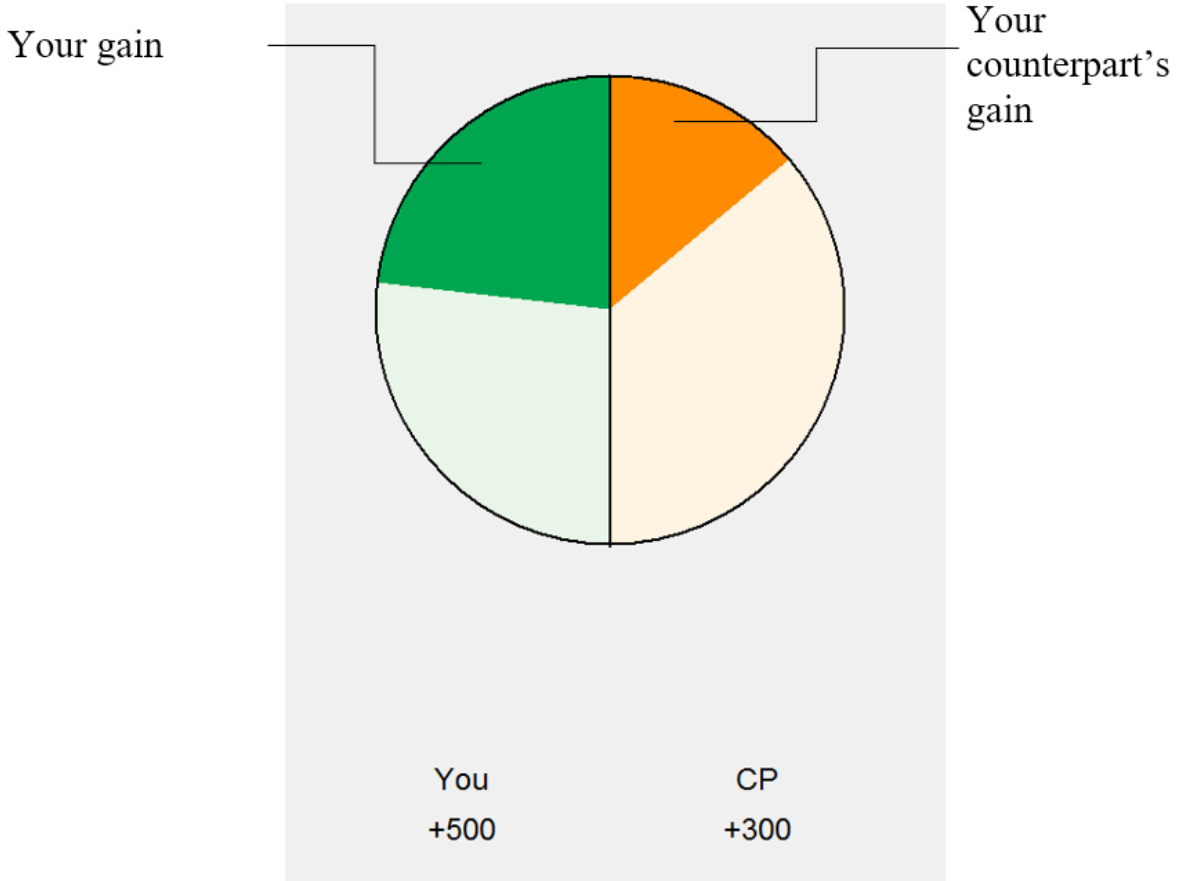


Figure 1: One Round of the Game

Gain Proposal Graph Key



In this gain proposal,

	You	Counterpart
The most gain one can possibly receive in Task 2	1080 Semicircle on the left	1080 Semicircle on the right
Gain (represented by “+” sign in the captions)	500 Dark green part	300 Dark orange part

1.2 Loss treatment

Your experimental ID:_____

Thank you for coming to this experiment.

Please turn off all electronic devices and place them in your bags. Please do not talk during the experiment. If you have any questions, raise your hand and we will come to personally assist you.

All participants will receive a payment of \$5 for showing up on time. In addition to that, if you follow the instructions carefully and make good decisions, you can earn a considerable amount of money. At the end of the experiment, you will be paid privately in cash.

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18	10	12	21	1	5	8	26	14	13	9	11	6	22	4	23	17	25	7	20	24	16	19	2	3	15

The word you are now encoding is number 1

WORD: Y F I D

CODE:

Example: Suppose the key for the letters in the alphabet is as follows (the actual key might be different)

Note that the word you are given is Y F I D. The code for Y is 3 (number below Y in the key table), and the codes for F, I and D are 5, 14, 21 respectively. So, you would fill in 3, 5, 14, 21 in each of the four boxes and click “OK”.

You have 10 minutes (ie. 600 seconds) to encode as many words as possible. You, however, need to encode at least 20 words correctly in order to proceed to Task 2 and receive payment. You will receive E\$54 for each of the first 20 words encoded. Additional words encoded are not paid, but your total words encoded in Task 1 will determine your role in Task 2. Task 2 consists of several two-person games. The person who encoded more words in Task 1 in a pair gets a favorable position.

If you fail to encode 20 words in these 10 minutes, you will be given extra time until you finish. You will still receive E\$54 for each of the 20 words. However, the words encoded during this extra time do not count towards your total words encoded in Task 1, and thus will not help you to earn the favorable position in Task 2.

Before you start Task 1, a practice round will help you familiarize with the interface. You have 1 minute (ie. 60 seconds) to encode words in this practice round. Your performance in

the practice round will not influence the rest of this experiment. The key for Task 1 might be different from that of this practice round.

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Task 2

Thank you for finishing Task 1! Now we are about to start Task 2.

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In this task, you will play 16 rounds of a two-person game with the other participants in this room. At the beginning of each round, you will be randomly matched with another person, who becomes your counterpart (CP) for that round. You will not know exactly who that person is, neither will that person know who you are. You will be randomly rematched each round.

For each pair in a given round, the person who encoded more words in Task 1 will be Player 1, and the other Player 2. Note that Player 1 has an advantage over Player 2. If both encoded the same number of words, the computer will randomly assign the roles. You will see your role of Player 1 or Player 2 on the screen at the beginning of the round, and that role will stay in effect for that particular round. Note that because you will be randomly rematched at the beginning of each round, your role of Player 1 or Player 2 might be different when your counterpart changes.

In this part of the experiment, either you or your counterpart, or both of you, will lose money. You and your counterpart need to decide the amount of loss that each of you will suffer.

At the beginning of each round, you and your counterpart both start with the payoffs you earned in Task 1. Each round consists of two stages. In each stage, there are nine different ways to split the losses: these are referred to as loss proposals. One player will be the Proposer, who can choose to propose one of the nine alternatives, and the other player will be the Responder, who either accepts or rejects the proposal. If you are Player 1, you will be the proposer in Stage 1, which means you will move first in this round. Stage 2 is different in that Player 1 and Player 2 have an equal chance of being the proposer. The next four paragraphs provide more details of this process.

In Stage 1, Player 1 is the proposer, who can either select one loss proposal from the nine alternatives or “pass”.

If the proposer makes a selection, then the other person, the responder, in this case Player 2, can either accept or reject that selection. If the responder accepts, the losses for Player 1 and Player 2 are determined by the agreed upon loss proposal, and there is no Stage 2 for that round. If the responder rejects, the game proceeds to Stage 2.

If the proposer selects “pass”, the game immediately proceeds to Stage 2. The responder does not make any decision in this case.

In Stage 2, Player 1 and Player 2 have an equal probability to be the proposer. After the computer randomly decides which player is the proposer, the proposer will select one loss proposal from the other nine alternatives, and then the other player, the responder, can respond by accepting or rejecting that choice. If the response is to accept, both sides suffer their agreed upon losses and keep the rest. If the response is to reject, both sides lose all their earnings from Task 1, which means that both sides end up with zero for that round.

At the end of the round, your and your counterpart's losses will be displayed and you will proceed to the next round.

Loss Proposals

The loss proposals illustrate how much loss you and your counterpart will suffer under each selection. Your payoff remaining and your loss are on the left, with the former in dark green and the latter in light green. Your counterpart's payoff remaining and his/her loss are on the right, marked with dark orange and light orange respectively. You and your counterpart's losses, designated with a minus sign in front of the numbers, are marked below the corresponding proposals. You may also use the calculator at the bottom right corner of the screen during the experiment.

Note that in a given round, both the total loss as well as how the loss is split can change within and between Stage 1 and Stage 2. Also, in different rounds, you may see completely different alternatives. So, to ensure you are making good decisions it is important you pay close attention to the screen!

In Stage 1, you will see the nine alternative loss proposals for Stage 1, as well as the nine that would be available if you enter that round's Stage 2. However, once you enter Stage 2, you will only see the nine loss proposals for Stage 2, but not any from Stage 1 because the Stage 1 proposals are no longer available.

Payment

The computer will pick 4 out of the 16 rounds you play at random, and the average of your payoffs remaining in those four rounds determines your payoff from the two tasks. That average payoff will be converted into dollars (\$) with an exchange rate of E\$25=\$1 (rounded to the nearest dollar).

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Summary of the Game

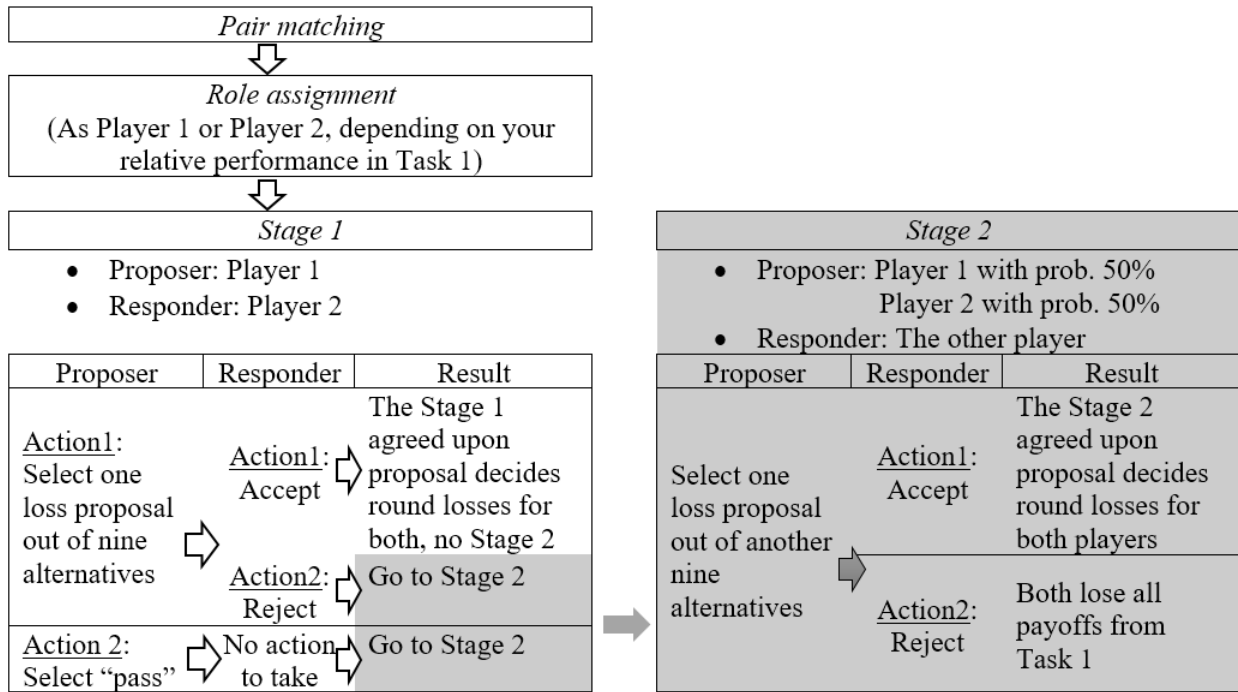
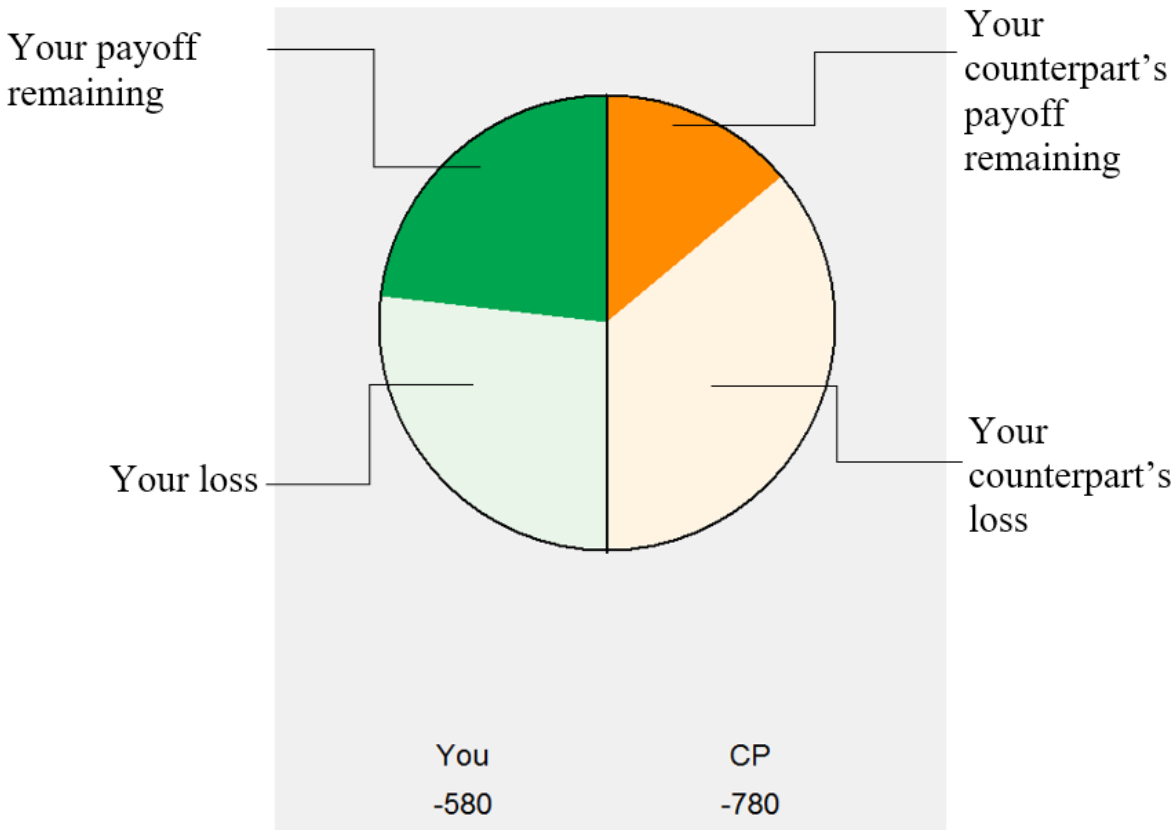


Figure 2: One Round of the Game

Loss Proposal Graph Key



In this loss proposal,

	You	Counterpart
Total payoff from Task 1	1080 Semicircle on the left	1080 Semicircle on the right
Loss (represented by “-” sign in the captions)	580 Light green part	780 Light orange part

Survey

Page 2 of 5

Below are the instructions for Part II and Part III. Please read them carefully.

Instructions for Part II and Part III

- In Part II and Part III, you will be asked to choose between a lottery and a sure amount of money for several times.
- In the lottery, there is a 50% chance of one payoff and a 50% chance of another payoff.
- In each part, the lottery will stay the same, while the sure amount will change in different questions.
- For each question, you need to make a choice between the lottery and the sure amount.
- The money amounts are in E\$.

Payment:

- One of the question will be randomly chosen for payment.
- First, a random device will be used to determine whether Part II or Part III is selected. Each part has an equal probability to be chosen.
- Next, the random device will be used a second time to determine which question in that part is for real play. Each question has an equal probability to be chosen.
- Finally, your choice in that question and the outcome of the lottery (if necessary) will determine your payoff. If you choose the lottery in that question, then the lottery will be played and the outcome of the lottery will be counted towards your final payoff. If you choose the sure amount in that question, that sure amount will be counted towards your final payoff directly.

Continue

Survey

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If you want to choose the lottery, click on the left circle. If you want to choose the sure amount, click on the right circle.
Please choose one for each question.

Part II More Losses

	Lottery (E\$)		Sure Amount (E\$)
Q1:	50% chance of -150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	-25
Q2:	50% chance of -150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	-50
Q3:	50% chance of -150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	-75
Q4:	50% chance of -150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	-100
Q5:	50% chance of -150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	-125

Important Notes:

1. For example, suppose Q3 of this part is chosen for payment at the end. If you choose "Lottery", for 50% chance, you will lose E\$150, and for 50% chance, you will lose E\$0. If you choose "Sure Amount", you will lose E\$75 for sure.
2. If you prefer the lottery in all questions, you can choose "Lottery" from the beginning to the end. Likewise, if you prefer the sure amount in all questions, you can choose "Sure Amount" from the beginning to the end. Most likely, you would prefer "Sure Amount" in the earlier questions, and switch to "Lottery" when the sure amount loss gets bigger. The point at which you switch from "Sure Amount" to "Lottery" is entirely your choice. But once you switch to "Lottery" for a question, you should stick with "Lottery" for the later questions.
3. You are making these choices only once. If you click "Submit", you will not be able to come back to this part and make changes.

Submit

Survey

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If you want to choose the lottery, click on the left circle. If you want to choose the sure amount, click on the right circle.
Please choose one for each question.

Part III More Gains

	Lottery (E\$)		Sure Amount (E\$)
Q1:	50% chance of 150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	25
Q2:	50% chance of 150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	50
Q3:	50% chance of 150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	75
Q4:	50% chance of 150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	100
Q5:	50% chance of 150 , 50% chance of 0	Lottery <input type="radio"/> Sure Amount <input type="radio"/>	125

Important Notes:

1. For example, suppose Q3 of this part is chosen for payment at the end. If you choose "Lottery", for 50% chance, you will gain E\$150, and for 50% chance, you will gain E\$0. If you choose "Sure Amount", you will get E\$75 for sure.
2. If you prefer the lottery in all questions, you can choose "Lottery" from the beginning to the end. Likewise, if you prefer the sure amount in all questions, you can choose "Sure Amount" from the beginning to the end. Most likely, you would prefer "Lottery" in the earlier questions, and switch to "Sure Amount" when the sure amount gets bigger. The point at which you switch from "Lottery" to "Sure Amount" is entirely your choice. But once you switch to "Sure Amount" for a question, you should stick with "Sure Amount" for the later questions.
3. You are making these choices only once. If you click "Submit", you will not be able to come back to this part and make changes.

Submit

Survey

Page 5 of 5

Part IV About the Tasks

1. The four different compositions of loss proposals you have seen in the experiment are listed in the handout you just got. How do you rank them in terms of difficulty for you to make decision as a proposer? (Please rank Game1, 2, 3, 4 from hardest to easiest. Feel free to leave other comments.)

2. Did you change your decisions during different rounds when you were faced with the same composition of loss proposals as a proposer? Why?

3. In Stage 1,

3.1 How did you make selections (not "pass") when you were the proposer?

3.2 Have you ever selected "pass" when you were the proposer? Why or why not?

3.3 How did you choose between "accept" and "reject" when you were the responder?

4. In Stage 2,

4.1 How did you make selections when you were the proposer?

4.2 How did you choose between "accept" and "reject" when you were the responder?

5. Please write down any confusion or comments you might have for this experiment. Your thoughts are highly appreciated. (optional)

Finish

3 Screenshots for Game 1 in the Loss Treatment²

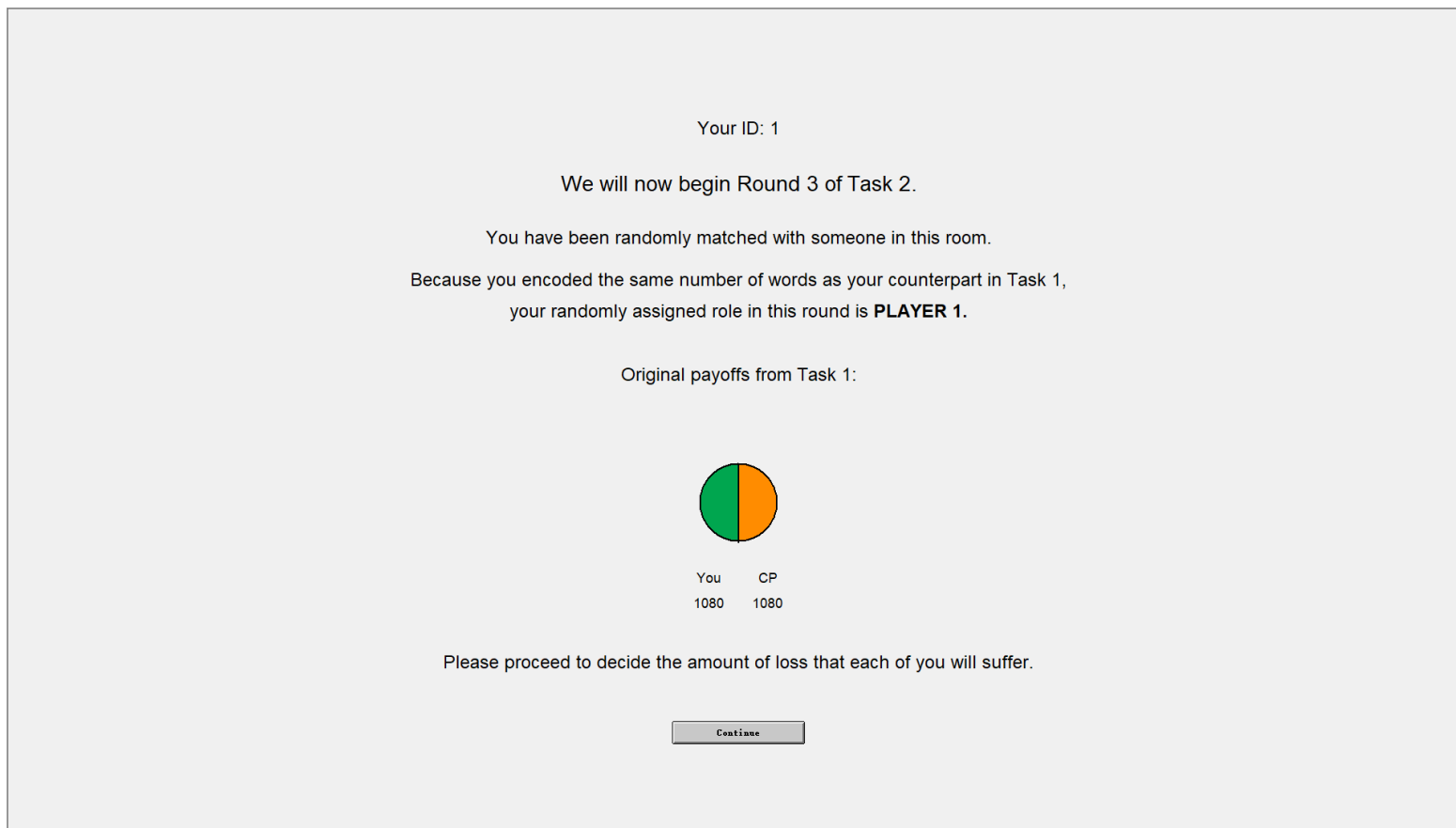


Figure 3: Start of a New Round

²Screenshots for other games in the Loss Treatment and the Gain Treatment are available upon request.





Round (out of 16): 3
Round role: PLAYER 1

Stage (out of 2): 2

You are the Proposer in Stage 2.
Please select one loss proposal from the following nine.

You CP -1080 -360	You CP -1000 -400	You CP -820 -490	You CP -700 -550	You CP -600 -600	You CP -550 -700	You CP -490 -820	You CP -400 -1000	You CP -360 -1080

Select



Figure 6: Stage 2 Proposing

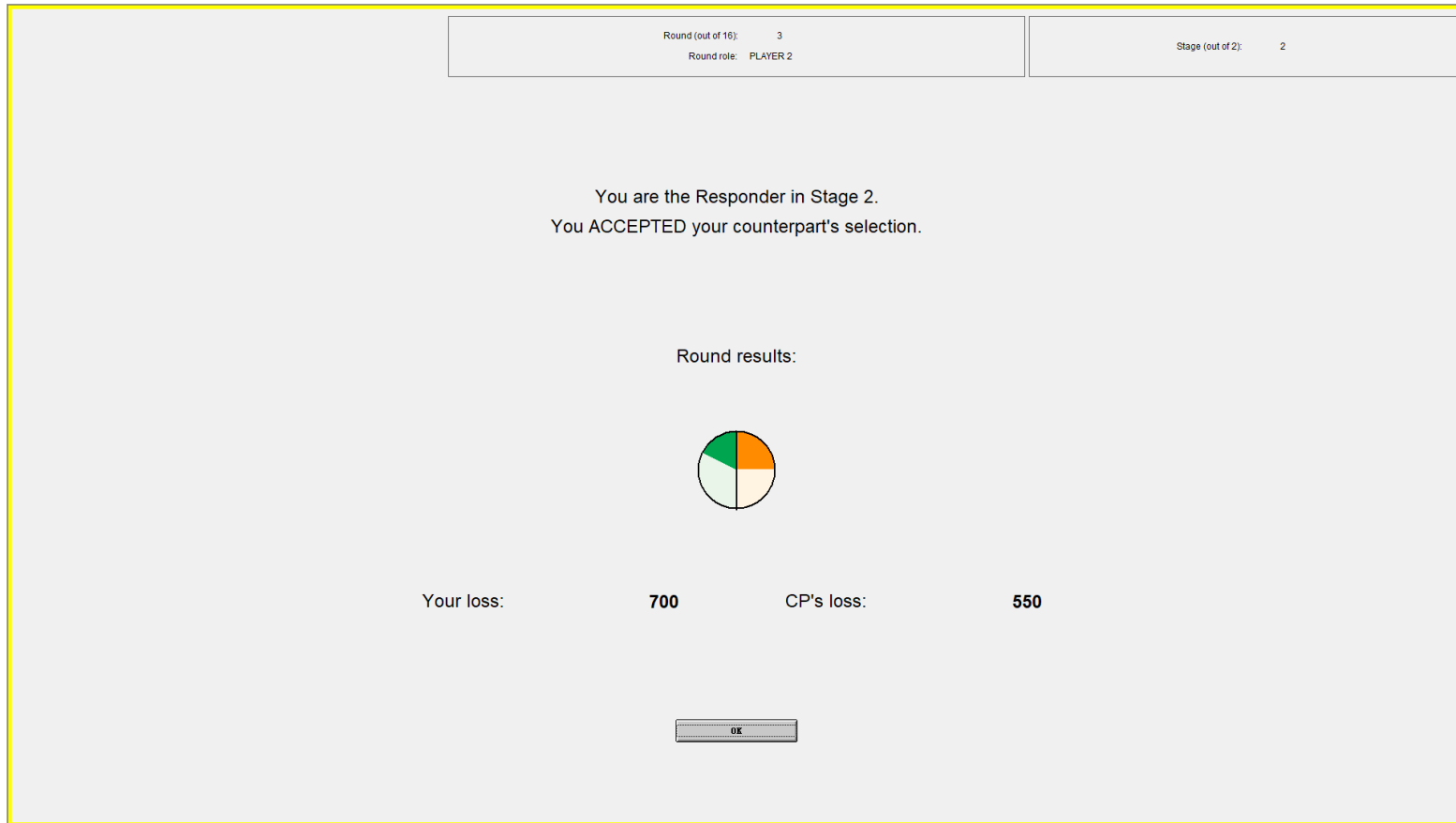


Figure 7: Round Conclusion