

## Supplementary materials (Online Appendix)

### Treatment T1 and T2

#### Table S1

Table S1 provides p-values from Wilcoxon rank sum tests (WRS tests) for game 1 in T1 and T2. The tests address differences in average share of pie *received* by the second mover.

Random (T1)	Option = 20	Option = 40	Option = 60
Option = 0	.307 <sup>‡</sup>	.386 <sup>†</sup>	.238 <sup>†</sup>
Option = 20		.073 <sup>†</sup>	.036 <sup>†</sup>
Option = 40			.184 <sup>†</sup>
Earned (T2)	Option = 20	Option = 40	Option = 60
Option = 0	.014 <sup>‡</sup>	.178 <sup>†</sup>	.225 <sup>†</sup>
Option = 20		.017 <sup>†</sup>	.016 <sup>†</sup>
Option = 40			.184 <sup>†</sup>

Table S1: †*One sided test*; ‡*Two sided test*

#### Figures S1a and b

Figures S1a and b display the average share of the pie offered by the first mover, conditioned on the value of the outside option of the second mover and whether the outside option was random (S1a) or earned (S1b).

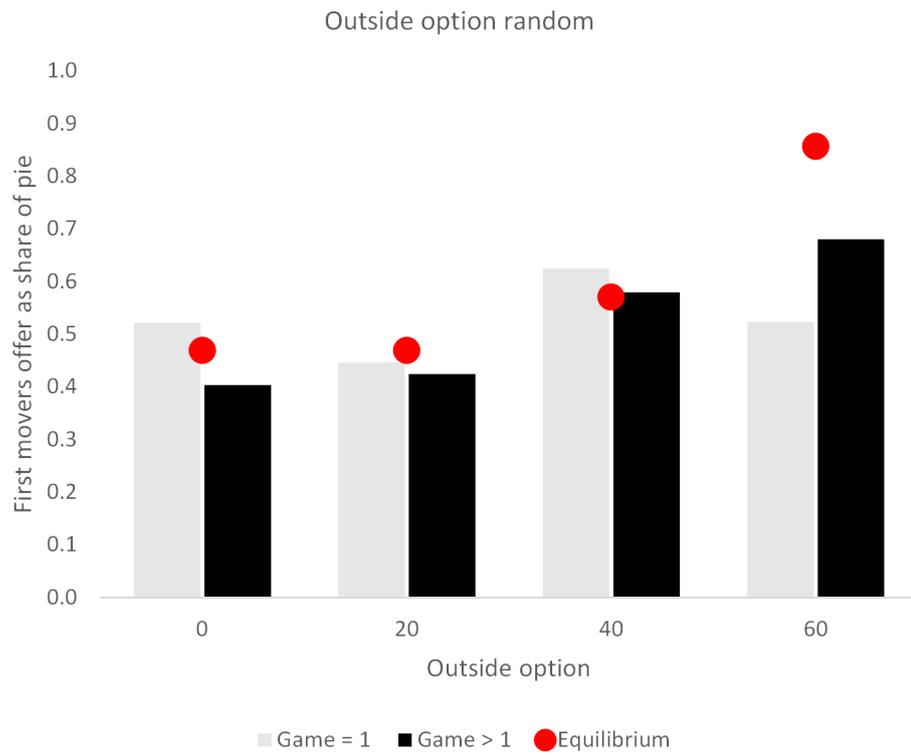


Figure S1a: *Share of pie offered to the second mover: randomly allocated outside options.*

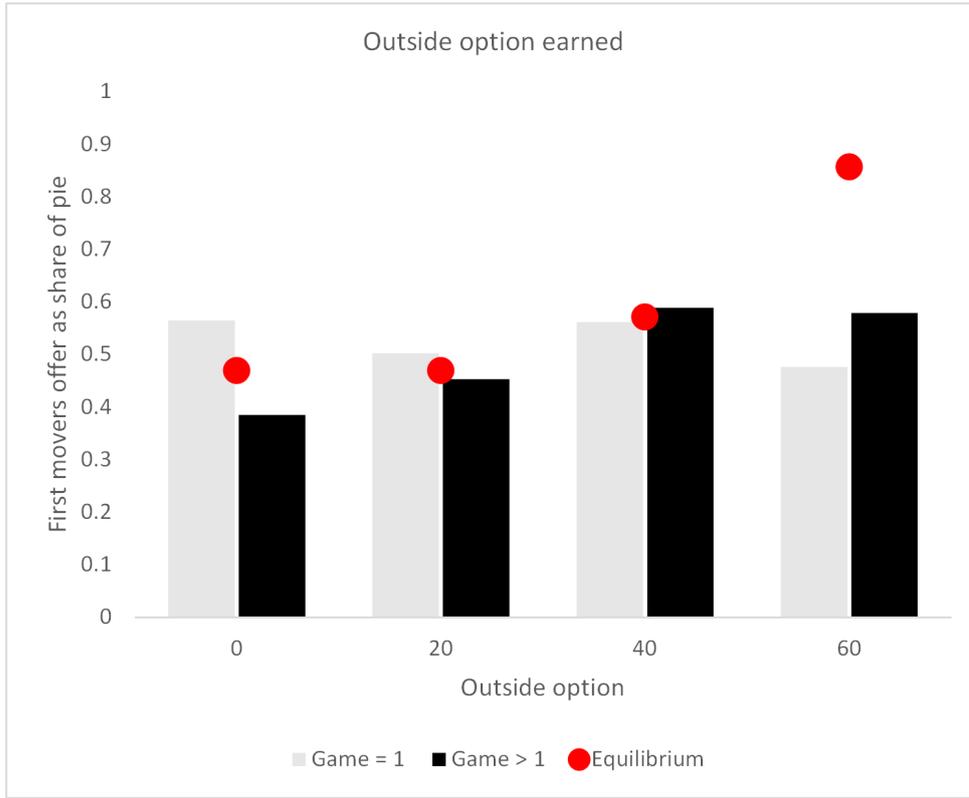


Figure S1b: *Share of pie offered to the second mover: earned outside options.*

## Table S2

Table S2 provides p-values of WRS-tests for game 1 in T1 and T2. The tests address differences in average share of pie *offered* to the second mover.

Random (T1)	Option = 20	Option = 40	Option = 60
Option = 0	.712 <sup>‡</sup>	.270 <sup>†</sup>	.500 <sup>†</sup>
Option = 20		.074 <sup>†</sup>	.362 <sup>†</sup>
Option = 40			.362 <sup>†</sup>
Earned (T2)	Option = 20	Option = 40	Option = 60
Option = 0	.312 <sup>‡</sup>	.500 <sup>†</sup>	.059 <sup>†</sup>
Option = 20		.089 <sup>†</sup>	.221 <sup>†</sup>
Option = 40			.053 <sup>†</sup>

Table S2: *p-values from WRS-tests for differences over outside options with respect to share of pie offered to second mover.*

† One sided test; ‡ Two sided test

### Table S3a and b

Tables S3 a and b provide estimates of second movers' payoff when controlling for random effects of the second movers and game effects. Treatment T1 and T2 together with T-test p-values are reported.

T1: Average payoff	Option=20	Option=40	Option=60
Option=0	.507 (.042)	.460 <sup>‡</sup>	.004 <sup>†</sup>
Option=20	.483 (.033)		.000 <sup>†</sup>
Option=40	.592 (.032)		.000 <sup>†</sup>
Option=60	.814 (.036)		
Game	.002 (.004)		
<i>N</i>	150		
# of games	10		

Table S3a: *Second movers' payoff as share of the pie when outside options are allocated randomly. Random effects estimation with mean (robust standard errors) in column 2. Chi Square-tests reported in columns 3-5. †One sided test; ‡Two sided test.*

T2: Average payoff	Option=20	Option=40	Option=60
Option=0	.504 (.043)	.017 <sup>‡</sup>	.000 <sup>†</sup>
Option=20	.433 (.040)		.000 <sup>†</sup>
Option=40	.595 (.037)		.000 <sup>†</sup>
Option=60	.777 (.045)		
Game	.004 (.004)		
<i>N</i>	120		
# of games	8		

Table S3b: *Second movers' payoff as share of the pie when outside options are earned. Random effects estimation with mean (robust standard errors) in column 2. Chi Square-tests reported in columns 3-5. †One sided test; ‡Two sided test.*

### Table S4a and b

Table S4 a and b provided average *offers* to the second mover by outside option group for Treatment T1 and T2 together with T-test p-values.

T1: Average offers	Option=20	Option=40	Option=60
Option=0	.413 (.025)	.655 <sup>‡</sup>	.000 <sup>†</sup>
Option=20	.426 (.018)	.000 <sup>†</sup>	.000 <sup>†</sup>
Option=40	.584 (.018)		.032 <sup>†</sup>
Option=60	.665 (.040)		
<i>N</i>	191		
# of games	10		

Table S4a: *Average offers to the second movers as share of the pie when outside options are allocated randomly. Mean (robust standard errors) in column 2. T-tests reported in columns 3-5. †One sided test; ‡Two sided test.*

T2: Average offers	Option=20	Option=40	Option=60
Option=0	.404 (.025)	.086 <sup>‡</sup>	.001 <sup>†</sup>
Option=20	.460 (.020)	.000 <sup>†</sup>	.009 <sup>†</sup>
Option=40	.587 (.018)		.316 <sup>†</sup>
Option=60	.566 (.040)		
<i>N</i>	161		
# of games	8		

Table S4b: *Average offers to the second movers as share of the pie when outside options are earned. Mean (robust standard errors) in column 2. T-tests reported in columns 3-5. †One sided test; ‡Two sided test.*

## Figure S2

Figure S2 displays the full distribution of bargaining outcomes (i.e. share of pie received by second mover) conditioned on the second movers outside option, for random and earned outside options. The figure also provides information on the frequency of outside options taken.

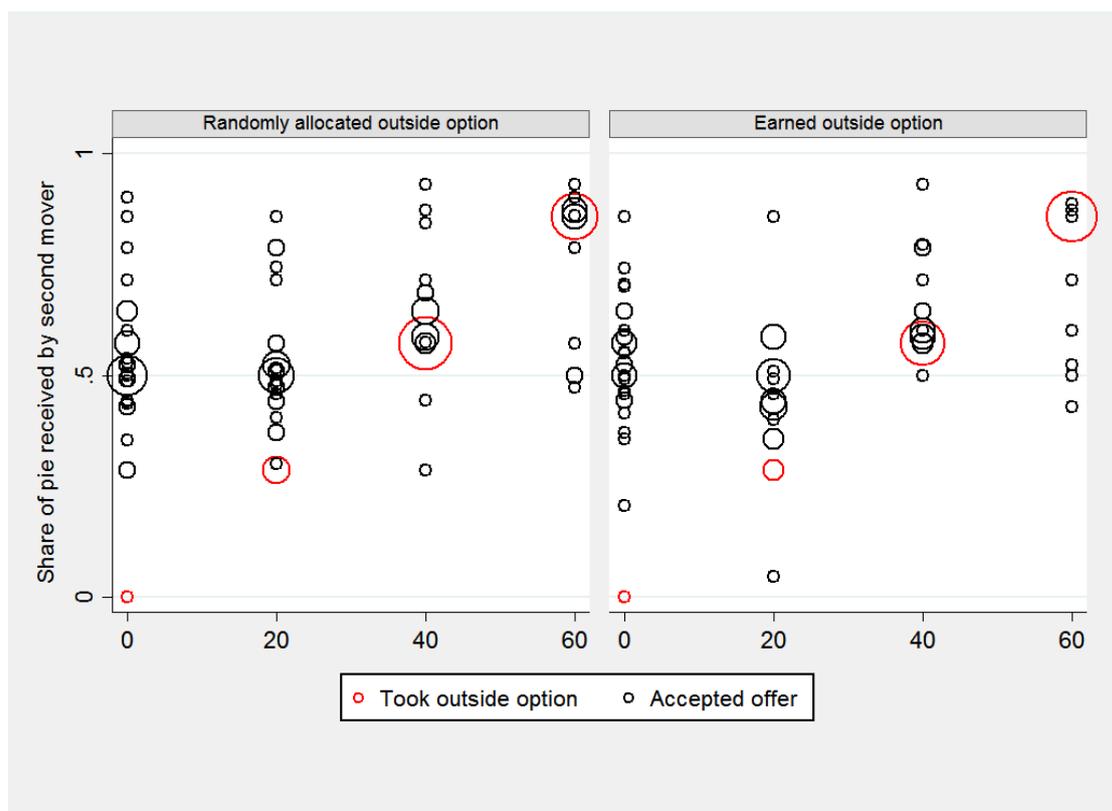


Figure S2: *Share of pie received by the second mover.*

### Table S5

Table S5 regress the offer of the first mover (in ECU) on  $\text{game} \in [1, 10]$ . The regression is restricted to second movers with outside option = 60 ECU and offers from the first mover less than 60 ECU. Data from T1 and T2 is pooled.

Offer regression		
Constant	28.22	***
	(3.867)	
Game	1.53	**
	(.623)	
<i>N</i>	37	

Sign: \*\*\*1%; \*\*5%; \*10%

Table S5: *Offer regression with T1 and T2 pooled (robust standard errors).*

*Dependent: Pie offered to the second mover.*

### Figure S3

Figure S3 shows share of the pie offered by the second mover, contingent on T1 and T2; game number; outside option; and second movers response.

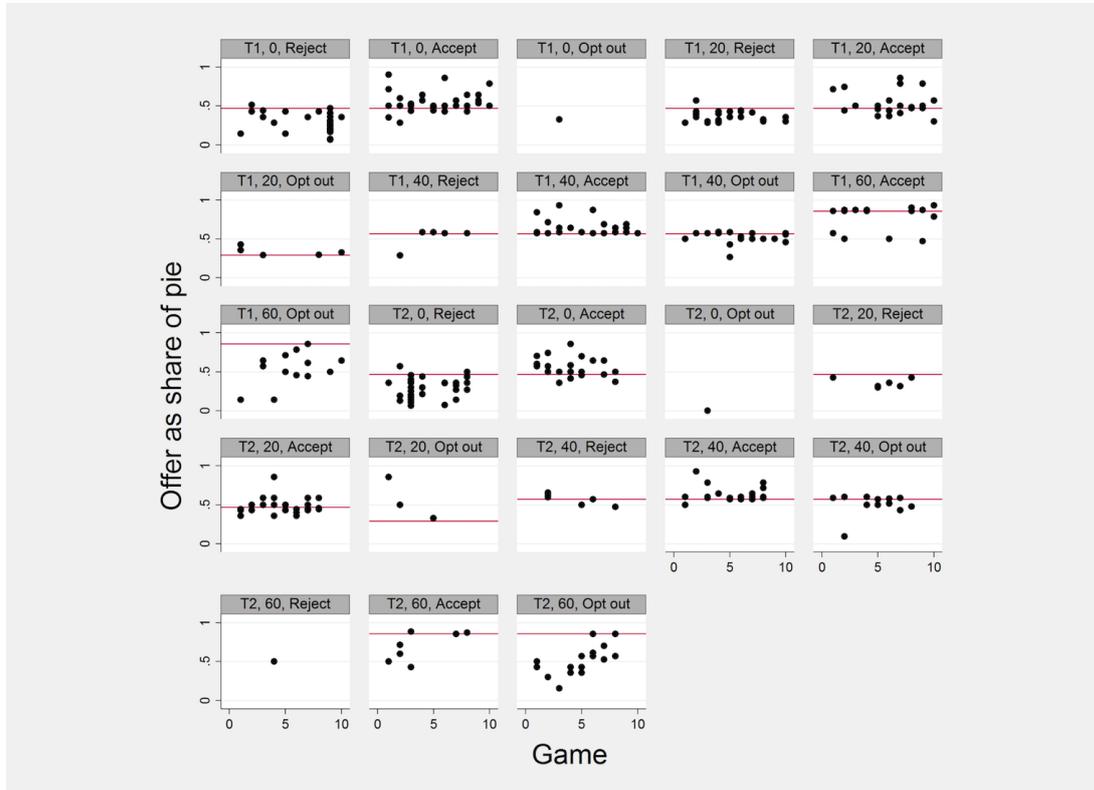


Figure S3: Share of pie offered to second mover by T1 and T2; outside option; game number; and second movers response. Y-axis: share of pie offered to second mover.

## Treatment T3 and T4

### Figures S4a and S4b

Figure S4 display the average share of the pie offered by the proposer, conditioned on the value of the proposers contribution and whether the contribution was random (S4a) or earned (S4b).

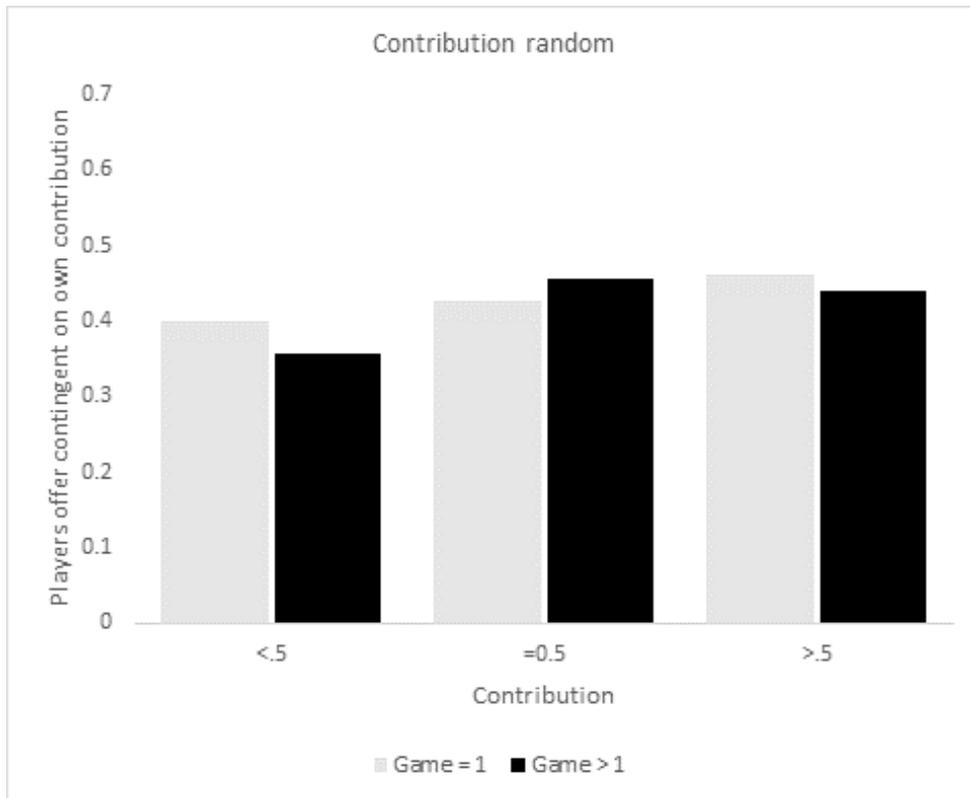


Figure S4a: *Share of pie offered to the second mover; by opponent randomly allocated contributions.*

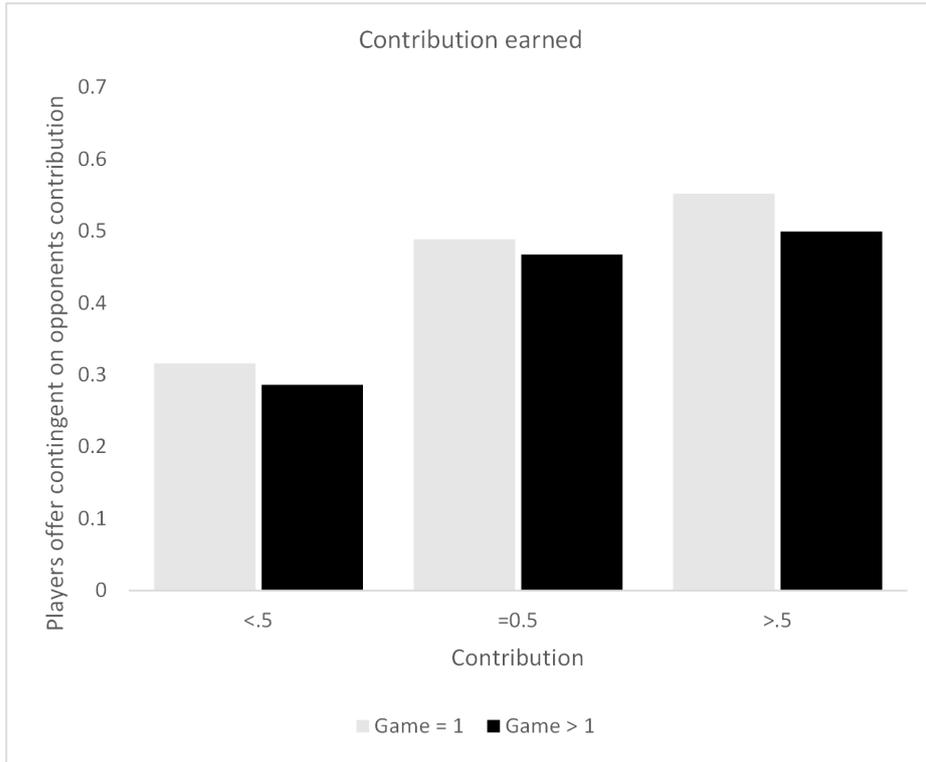


Figure S4b: *Share of pie offered to the second mover; by opponent earned contribution.*

### Table S6a and b

Tables S6a and b provide p-values from WRS-tests for game 1 in T3 and T4.

Random (T3)	Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.478	.141
Contribution = $\frac{1}{2}$		.032
Earned (T4)	Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.005	.000
Contribution = $\frac{1}{2}$		.036

Table S6a: *p-values from sided WRS-tests for differences over contributions with respect to share of pie received by second mover.*

Random (T3)	Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.357	.165
Contribution = $\frac{1}{2}$		.115
Earned (T4)	Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.006	.000
Contribution = $\frac{1}{2}$		.047

Table S6b: *p-values from one-sided WRS-tests for differences over contributions with respect to share of pie offered to the second mover.*

### Table S7a and b

Table S7 a and b provide averages of all *offers* by receivers' contribution for Treatment T3 and T4 together with T-test p-values.

T3: Average offer		Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.364 (.014)	.000 <sup>†</sup>	.000 <sup>†</sup>
Contribution = $\frac{1}{2}$	.451 (.010)		.324 <sup>†</sup>
Contribution > $\frac{1}{2}$	.444 (.010)		
<i>N</i>	308		
# of games session 1	4		
# of games session 2	6		

Table S7a: Average offers as a share of the pie by receivers' contribution when contributions are allocated randomly. Mean (robust standard errors) in column 2. T-tests reported in columns 3-5. <sup>†</sup>One sided test.

T4: Average offer		Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.293 (.014)	.000 <sup>†</sup>	.000 <sup>†</sup>
Contribution = $\frac{1}{2}$	.472 (.010)		.032 <sup>†</sup>
Contribution > $\frac{1}{2}$	.508 (.016)		
<i>N</i>	258		
# of games session 1	4		
# of games session 2	4		

Table S7b: Average offers as a share of the pie by receivers' contribution when contributions are earned. Mean (robust standard errors) in column 2. T-tests reported in columns 3-5. <sup>†</sup>One sided test.

### Table S8a and b

Tables S8 a and b provide estimates of second movers' payoff when clustering standard errors on sessions. Treatment T3 and T4 together with T-test p-values are reported.

T3: Average payoff	Contribution = $\frac{1}{2}$		Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.492 (.000)	.121 <sup>†</sup>	.022 <sup>†</sup>
Contribution = $\frac{1}{2}$	.474 (.010)		.029 <sup>†</sup>
Contribution > $\frac{1}{2}$	.525 (.003)		
<i>N</i>	146		
# of games session 1	4		
# of games session 2	6		

Table S8a: *Second movers' payoff as share of the pie by randomly allocated contributions. Mean (robust standard errors clustered on session) in column 2. P-values from the T-tests are reported in columns 3 and 4. †One sided test.*

T4: Average payoff	Contribution = $\frac{1}{2}$		Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.380 (.011)	.001 <sup>†</sup>	.000 <sup>†</sup>
Contribution = $\frac{1}{2}$	.495 (.021)		.005 <sup>†</sup>
Contribution > $\frac{1}{2}$	.580 (.039)		
<i>N</i>	114		
# of games session 1	4		
# of games session 2	4		
# subjects	60		

Table S8b: *Second movers' payoff as share of the pie by earned contributions. Mean (robust standard errors clustered on session) in column 2. P-values from the T-tests are reported in columns 3 and 4. †One sided test.*

### Table S9a and b

Tables S9 a and b provide estimates of second movers' payoff when controlling for random effects of the second movers and game effects. Treatment T3 and T4 together with T-test p-values are reported.

T3: Average payoff		Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.494 (.049)	.395 <sup>†</sup>	.024 <sup>†</sup>
Contribution = $\frac{1}{2}$	.488 (.020)		.011 <sup>†</sup>
Contribution > $\frac{1}{2}$	.535 (.019)		
Game	-.003 (.005)		
<i>N</i>	146		
# of games session 1	4		
# of games session 2	6		

Table S9a: *Second movers' payoff as share of the pie by randomly allocated contributions. Random effects estimation with mean (robust standard errors) in column 2. P-values from the Chi Square-tests are reported in columns 3 and 4. †One sided test.*

T4: Average payoff		Contribution = $\frac{1}{2}$	Contribution > $\frac{1}{2}$
Contribution < $\frac{1}{2}$	.401 (.042)	.000 <sup>†</sup>	.000 <sup>†</sup>
Contribution = $\frac{1}{2}$	.514 (.035)		.002 <sup>†</sup>
Contribution > $\frac{1}{2}$	.614 (.045)		
Game	-.009 (.014)		
<i>N</i>	114		
# of games session 1	4		
# of games session 2	4		

Table S9b: *Second movers' payoff as share of the pie by earned contributions. Random effects estimation with mean (robust standard errors) in column 2. P-values from the Chi Square-tests are reported in columns 3 and 4. †One sided test.*

## Table S10

Table S10 displays the two sided p-values of T-tests for differences of payoff averages between treatment T1 and T2 (Option=, refers to the dummy variables for outside option group).

Random (T1)	Earned (T2)			
	Option=0	Option=20	Option=40	Option=60
Option=0	.975			
Option=20		.161		
Option=40			.610	
Option=60				.593

Table S10: *P-values from the two sided Chi Square-tests performed over the differences in means between T1 and T2 from Table 2a and b of the main text. Dependent variable: share of pie received by second mover.*

### Table S11

Table S11 displays two sided p-values of T-tests for differences of payoff averages between treatment T3 and T4.

Random (T3)	Earned (T4)		
	Contribution $< \frac{1}{2}$	Contribution = $\frac{1}{2}$	Contribution $> \frac{1}{2}$
Contribution $< \frac{1}{2}$	.000		
Contribution = $\frac{1}{2}$		.251	
Contribution $> \frac{1}{2}$			.078

Table S11: *P-values from the two sided Chi Square-tests performed over the differences in means between T3 and T4 from Table 3a and b of the main text. Dependent variable: share of pie received by second mover.*

### Table S12

Table S112 displays the cumulative percentage of bargains that were concluded by periods.

Period	T1	T2	T3	T4
1	.72	.78	.52	.63
2	.86	.86	.81	.84
3	.95	.93	.88	.89
4	.96	.94	.92	.90
5-9	.99	.98	.94	.96
>9	1.00	1.00	1.00	1.00
N	150	120	146	114

Table S12: *Cumulative percentages of bargains concluded by periods.*

### Table S13

Table S13 provide estimates of second movers' payoff when controlling initial pie size and second movers' contribution for treatment T3 and T4, respectively.

	T3	T4
Constant	.527 *** (.042)	.427 *** (.047)
Initial pie size	-.001 (.000)	-.001 ** (.001)
Contribution	.055 (.037)	.289 *** (.052)
N	146	114

Sign: \*\*\*1%; \*\*5%; \*10%

Table S13: *Second movers' payoff as share of the pie. Mean (robust standard errors)*

## **Instructions for T1**

**(randomly allocated outside options)**

This is an economics experiment, administered by the department of economics at the school.

In economics experiments deception is never used. This means that any information you are provided with in the experiment is correct.

Experiments administered by other departments at the school may use deception. Whenever they do, you are told so.

## GENERAL INFORMATION

On your desk you will find a copy of the instructions for the experiment, which I will now read out loud. You may refer to that copy now and again at any time during the experiment.

You are going to participate in an experiment financed by the Department of Economics at BI and the Norwegian Research Council. The experiment will not last more than 90 minutes.

The aim of the experiment is to examine how people behave in bargaining situations.

In the experiment you will earn money. How much you earn depends on the decisions you make, as well as on the decisions made by other subjects.

All interactions are anonymous and are performed through a network of computers. The administrators of the experiment will not be able to observe your decisions during the experiment.

The people in this room are participating in the same experiment as you. They have all been recruited in the same way as you and are reading the same instructions as you are for the first time.

The experiment will consist of 10 games, in each of which you can earn units of an experimental currency that we call "ECU" (Experimental Currency Unit). At the end of the experiment you will be paid based on your total earnings in ECUs from all 10 games:

**1 ECU is worth 1.07 Norwegian Kroner.**

The more ECUs you earn, the more cash you will receive.

At the end of the experiment you will fill in your first and last name in a screen on your computer. Once this has been done by everyone a payment file will be written. In this payment file your earnings in ECU are converted to Norwegian Kroner at the stated exchange rate. You will be paid your earnings in cash as you leave the lab.

During the experiment all mobile phones must be powered off (it is not enough to turn off the sound). You are not allowed to talk with any of the other participants during the experiment. If you have questions or need help with the computer, please raise your hand and one of us will approach you and assist you privately.

## **INSTRUCTIONS**

The experiment consists of ten games. Each game consists of one or more stages.

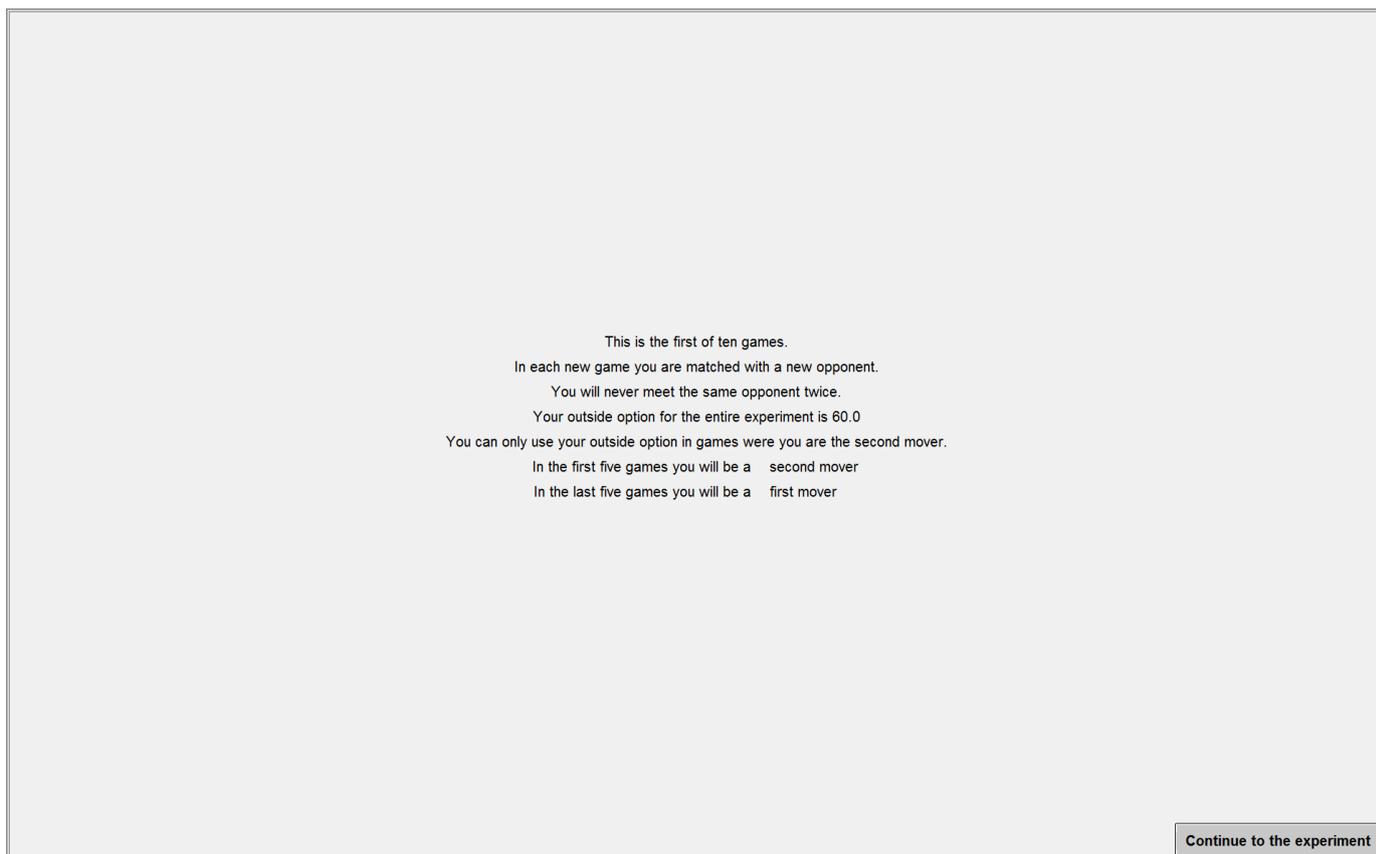
In each game there is a first mover and a second mover. The first mover makes a proposal in the first stage of the game the second mover does not make a proposal in the first stage of the game.

Before bargaining starts you will be randomly assigned a role as first or second mover for the first five games of the experiment. In the last five games of the experiment you will be assigned the alternative role; that is if you are first mover in the first five games you will be second mover in the last five games. If you are second mover in the first five games you will be first mover in the last five games.

You will also be randomly assigned an outside option which will remain constant throughout the experiment. Note however that the outside option can only be used when you are a second mover.

During the experiment you will bargain with different opponents. Your opponent is randomly selected but you will never be matched with the same opponent in more than one game. Each new game is with a new opponent.

The first screen shows you your type – either a first mover or a second mover – and the randomly drawn outside option (that you will keep for all 10 games).



After this screen disappears you will bargain with a random opponent.

We now go through the instructions for the first and the second mover separately.

### **INSTRUCTIONS FOR FIRST MOVER**

You will be asked to divide a pie between yourself and an opponent.

The initial value of the pie is 70 ECU.

At certain times, your opponent can, if he/she wishes, "opt out," and be paid a certain sum; if he/she does this, you will receive nothing.

As a first mover you do not have any such "outside option."

As bargaining continues over time, these values will be reduced in a manner to be explained below.

The way bargaining will proceed is as follows:

You will make your opponent an offer of some share of the pie. You will get the following screen on your computer:

This is stage 1	Time left [sec]: 19
<p>You are a proposer The pie is 70.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 70.0 ECUs and click on the display button. You may adjust your offer repeatedly to visualize the shares offered and kept (in %) To send your offer click on the send button Your opponent will choose between your offer, continued bargaining, and his outside option of 60.0 ECUs</p>	
<p>Your offer to the opponent (in ECU): <input type="text"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p><input type="button" value="Display"/></p>	
<p>Send your offer to the opponent</p> <p><input type="button" value="Send"/></p>	

Make your offer by entering the amount you offer in the field "Your offer to the opponent (in ECU):"  
Note that you will see a pie of the implied distribution when you press the display button on the screen.

This is stage		Time left [sec]: 0
1		
<p>You are a proposer The pie is 70.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 70.0 ECUs and click on the display button. You may adjust your offer repeatedly to visualize the shares offered and kept (in %) To send your offer click on the send button Your opponent will choose between your offer, continued bargaining, and his outside option of 60.0 ECUs</p>		
<p>Your offer to the opponent (in ECU): <input type="text" value="60"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p><input type="button" value="Display"/></p>	<p>This is the how you propose to share the pie (in %)</p>  <p>Share of pie offered Share of pie kept</p>	
<p>Send your offer to the opponent</p> <p><input type="button" value="Send"/></p>		

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive.

After you have made your offer, your opponent can do one of 3 things:

1. Accept your offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. Your opponent can decide to "opt out" of the game, in which case he/she will be paid the value of his/her outside option and you will receive nothing.
3. Reject the offer, in which case the game moves to the next stage and the pie shrinks by 10 percent *and so does the outside option*. Now it becomes your opponent's turn to make you an offer. The pie is now worth 63 experimental units. Your opponent makes you an offer.

So, if your opponent decides to decline your offer and make you a new offer, you will see the following screen. Note that the pink part of the pie is the share of the pie that your opponent suggests that you will receive.

This is stage 2

Time left [sec]: 12

You are a responder  
 The pie has shrunk to 63.0 ECU  
 You are offered 60.0 ECU by your opponent  
 You have the following options

This is the how your opponent proposes to share the pie (in %)



Share of pie offered  
 Share of pie kept

Now, you can do one of two things:

1. Accept your opponent's offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Reject your opponent's offer, in which case the pie and the outside option shrinks by a further 10 percent and it becomes your turn once again to make your opponent an offer.

The game continues in this way, with the sums of money shrinking by 10 percent following each rejection, until an agreement is reached or your opponent takes his/her outside option.

When an agreement is reached you will see a screen like the following one which gives the earnings for both you and your opponent.

This is stage 1

Time left [sec]: 26

You accepted the proposal  
Your Payoff is 60.0 ECU  
Your opponent payoff is 10.0 ECU

OK

All this information is known to your opponent.

## INSTRUCTIONS TO SECOND MOVER

You will be asked to divide a pie (worth a certain sum of money) between yourself and an opponent.

The initial value of the pie is 70 ECU.

At certain times, you can, if you wish, "opt out," and be paid a certain sum; if you do this, your opponent will receive nothing.

Your opponent does not have any such "outside option."

As bargaining continues over time, these values will be reduced, in a manner to be explained below.

The way bargaining will proceed is as follows:

Your opponent will make you an offer of some share of the pie. When your opponent has made an offer you will see the following screen:

This is stage 1
Time left [sec]: 15

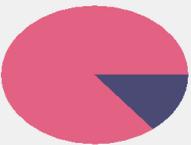
You are a responder  
 The pie is 70.0 ECU  
 Your Outside Option is 60.0 ECU  
 You are offered 60.0 ECU by your opponent  
 You have the following options

Reject offer

Accept offer

Take outside option

This is the how your opponent proposes to share the pie (in %)



Share of pie offered

Share of pie kept

Note that the pink part of the pie is the share of the pay your opponent offers to you.

You can do one of 3 things, each represented by a red button:

1. Accept your opponent's offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. You can decide to "opt out" of the game in which case you will be paid the value of your outside option and your opponent will receive nothing.

3. Reject the offer, in which case the pie shrinks by 10 percent *and so does the outside option*.

If you reject the offer, it becomes your turn to make your opponent an offer. The pie is now worth 63 experimental units. You will see the following screen:

This is stage 2	Time left [sec]: 17
<p>You rejected the offer          You are now a proposer          The pie has shrunk to 63.0 ECU          To make an offer to your opponent enter a number between 0 and 63.0 ECUs and click on the display button.          You may adjust your offer repeatedly to visualize the shares offered and kept (in %)          To send your offer click on the send button          Your opponent will choose between your offer and continued bargaining</p>	
<p>Your offer to the opponent (in ECU): <input type="text"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p style="text-align: center;"><input type="button" value="Display"/></p>	
<p>Send your offer to the opponent</p> <p style="text-align: right;"><input type="button" value="Send"/></p>	

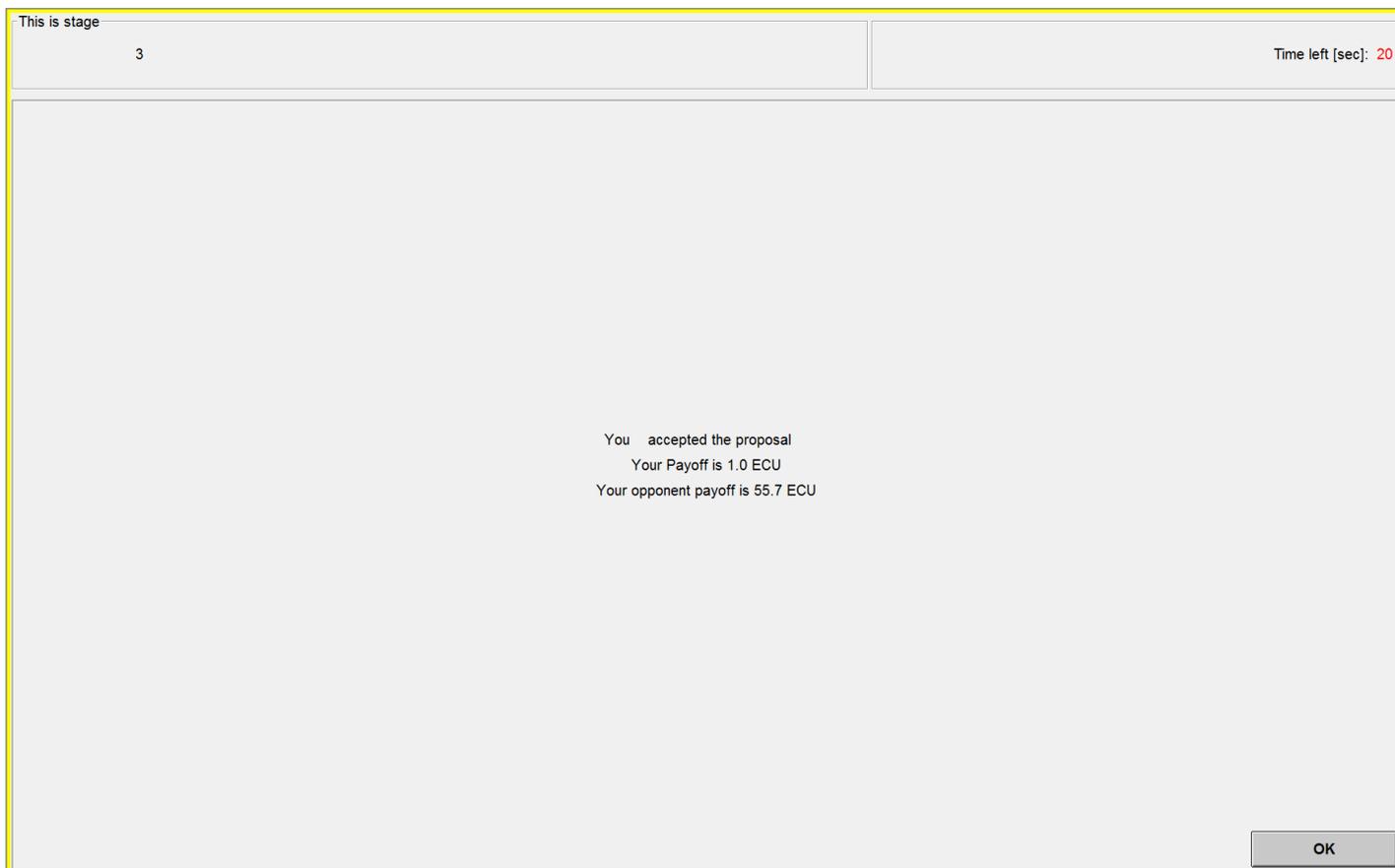
You make your offer by entering the amount you offer in the open field on the computer. Note that you will see a pie of the implied distribution if you press the display button on the screen.

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive.

Your opponent can do one of two things:

1. He/she accepts your offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Your opponent rejects your offer, in which case the pie, and the option, shrinks by a further 10 percent and it becomes your opponents turn once again to make you an offer.

The game continues in this way, with the sums of money shrinking by 10 percent following each rejection, until an agreement is reached or you chose to take your outside option. When an agreement is reached you will see a screen like this:



If, at some point you choose to take your outside option the game ends and you will see a screen like this:

The screenshot shows a software interface for an experiment. At the top left, a box labeled "This is stage" contains the number "1". At the top right, a box labeled "Time left [sec]" shows "28" in red. The main area is a large grey rectangle with the following text centered: "You took your outside option", "Your Payoff is 20.0 ECU", and "Your opponent payoff is 0.0 ECU". In the bottom right corner, there is a grey button labeled "OK".

All this information is known to your opponent.

### Questions?

If you have questions about the experiment please raise your hand, and we will try to answer them.

## **Instructions for T2**

**(earned outside options)**

This is an economics experiment, administered by the department of economics at the school.

In economics experiments deception is never used. This means that any information you are provided with in the experiment is correct.

Experiments administered by other departments at the school may use deception. Whenever they do, you are told so.

## GENERAL INFORMATION

On your desk you will find a copy of the instructions for the experiment, which I will now read out loud. You may refer to that copy now and again at any time during the experiment.

You are going to participate in an experiment financed by the Department of Economics at BI and the Norwegian Research Council.

The aim of the experiment is to examine how people behave in bargaining situations.

In the experiment you will earn money. How much you earn depends on the decisions you make, as well as on the decisions made by other subjects.

All interactions are anonymous and are performed through a network of computers. The administrators of the experiment will not be able to observe your decisions during the experiment.

The people in this room are participating in the same experiment as you. They have all been recruited in the same way as you and are reading the same instructions as you are for the first time.

The experiment consists of an encoding task and eight bargaining games. In the eight bargaining games you earn units of an experimental currency that we call "ECU" (Experimental Currency Unit). At the end of the experiment you will be paid based on your total earnings in ECUs:

**1 ECU is worth 1.25 Norwegian Kroner.**

The more ECUs you earn, the more cash you will receive.

At the end of the experiment you will fill in your first and last name in a screen on your computer. Once this has been done by everyone a payment file will be written. In this payment file your earnings in ECU are converted to Norwegian Kroner at the stated exchange rate. You will be paid your earnings in cash as you leave the lab.

During the experiment all mobile phones must be powered off (it is not enough to turn off the sound). You are not allowed to talk with any of the other participants during the experiment. If you have questions or need help with the computer, please raise your hand and one of us will approach you and assist you privately.

## INSTRUCTIONS

### ENCODING TASK

Performance in this task is measured by the number of words you manage to encode correctly in 10 minutes. The more words you encode correctly the higher your rank is. Higher ranks correspond to higher “outside options” in the bargaining games. The concept of an outside option, and the details of the ranks, will be explained below.

For the encoding task your computer will display a screen like the one showed below.

A “*word code*” – a sequence of 4 letters of the alphabet – is displayed along with a *key* showing the number that corresponds to each letter. Below each letter in the *word code* on your screen there will be a blank space. Inside each space, you type the number that corresponds to the letter above it in the *key*. 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. The *key* will stay the same for all words during the effort task.

Example: Look at the screen reported below. The word you are given is Q – U – Y – L. The code for Q is 18 (below Q in the *key*), and the codes for U is 26, the code for Y is 13, and for L it is 1. So, you would encode this word as 18 – 26 – 13 – 1, as shown below, then click “OK”. The computer will not allow you to go further until you encode the word correctly. You will have ten minutes to encode as many words as possible.

Round 1 of 1
Time left [sec]: 14

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

WORD:

Q

U

Y

L

Tips:

- When a new word appears, if there are already numbers in the boxes, they may be incorrect. You should check them and replace them with the correct ones if necessary.
- You can use Shift+TAB on the keyboard to switch to the next box quickly. You can also change boxes using the mouse.
- After filling in the code numbers corresponding to a word, click the "OK" button to verify the code and proceed to the next word.
- The countdown clock in the upper left corner of the screen shows the time remaining to work for your employer while the one in the left corner shows the total work time remaining.

## **BARGAINING**

You will participate in eight bargaining games. Each of these games consists of one or more stages.

In each game there is a first mover and a second mover. The first mover makes a proposal in the first stage of the game the second mover does not make a proposal in the first stage of the game.

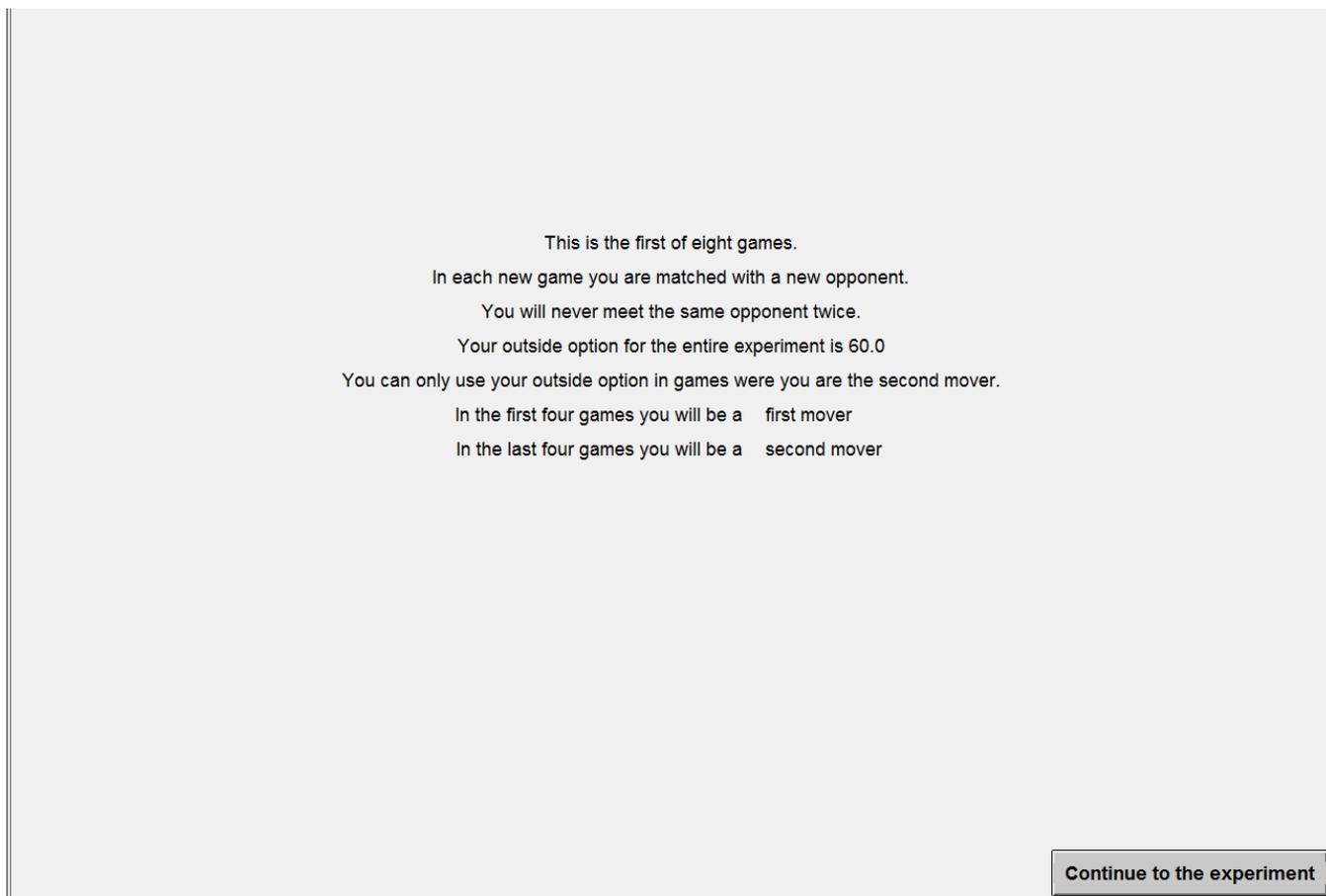
Before bargaining starts you will be randomly assigned a role as first or second mover for the first four games of the experiment. In the last four games of the experiment you will be assigned the alternative role; that is if you are first mover in the first four games you will be second mover in the last four games. If you are second mover in the first four games you will be first mover in the last four games.

Your performance in the encoding task determines your outside option. The six highest ranked subjects in this task have earned an outside option of 60 ECUs. Subjects ranked seven to fourteen in the encoding task have earned an outside option of 40 ECUs, subjects ranked fifteen to twenty two have earned an outside option of 20 ECUs, and subjects ranked below twenty two have earned an outside option of 0 ECUs.

Your earned outside option will remain constant throughout the experiment. Note however that the outside option can only be used when you are a second mover.

During the experiment you will bargain with different opponents. Your opponent is randomly selected but you will never be matched with the same opponent in more than one game. Each new game is with a new opponent.

The first screen shows you your type – either a first mover or a second mover – and your earned outside option (that you will keep for all 8 games).



After this screen disappears you will bargain with a random opponent.

We now go through the instructions for the first and the second mover separately.

### **INSTRUCTIONS FOR FIRST MOVER**

You will be asked to divide a pie between yourself and an opponent.

The initial value of the pie is 70 ECU.

At certain times, your opponent can, if he/she wishes, "opt out," and be paid a certain sum; if he/she does this, you will receive nothing.

As a first mover you do not have any such outside option.

As bargaining continues over time, these values will be reduced in a manner to be explained below.

The way bargaining will proceed is as follows:

You will make your opponent an offer of some share of the pie. You will get the following screen on your computer:

This is stage 1	Time left [sec]: 19
<p>You are a proposer The pie is 70.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 70.0 ECUs and click on the display button. You may adjust your offer repeatedly to visualize the shares offered and kept (in %) To send your offer click on the send button Your opponent will choose between your offer, continued bargaining, and his outside option of 60.0 ECUs</p>	
<p>Your offer to the opponent (in ECU): <input type="text"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p><input type="button" value="Display"/></p>	
<p>Send your offer to the opponent</p> <p><input type="button" value="Send"/></p>	

Make your offer by entering the amount you offer in the field “Your offer to the opponent (in ECU):”  
Note that you will see a pie of the implied distribution when you press the display button on the screen.

This is stage		Time left [sec]: 0
1		
<p>You are a proposer The pie is 70.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 70.0 ECUs and click on the display button. You may adjust your offer repeatedly to visualize the shares offered and kept (in %) To send your offer click on the send button Your opponent will choose between your offer, continued bargaining, and his outside option of 60.0 ECUs</p>		
<p>Your offer to the opponent (in ECU): <input type="text" value="60"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p><input type="button" value="Display"/></p>	<p>This is the how you propose to share the pie (in %)</p>  <p>Share of pie offered Share of pie kept</p>	
<p>Send your offer to the opponent</p> <p><input type="button" value="Send"/></p>		

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive.

After you have made your offer, your opponent can do one of 3 things:

1. Accept your offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. Your opponent can decide to "opt out" of the game, in which case he/she will be paid the value of his/her outside option and you will receive nothing.
3. Reject the offer, in which case the game moves to the next stage and the pie shrinks by 10 percent *and so does the outside option*. Now it becomes your opponent's turn to make you an offer. The pie is now worth 63 experimental units. Your opponent makes you an offer.

So, if your opponent decides to decline your offer and make you a new offer, you will see the following screen. Note that the pink part of the pie is the share of the pie that your opponent suggests that you will receive.

This is stage 2

Time left [sec]: 12

You are a responder  
 The pie has shrunk to 63.0 ECU  
 You are offered 60.0 ECU by your opponent  
 You have the following options

This is the how your opponent proposes to share the pie (in %)



Share of pie offered  
 Share of pie kept

Now, you can do one of two things:

1. Accept your opponent's offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Reject your opponent's offer, in which case the pie and the outside option shrinks by a further 10 percent and it becomes your turn once again to make your opponent an offer.

The game continues in this way, with the sums of money shrinking by 10 percent following each rejection, until an agreement is reached or your opponent takes his/her outside option.

When an agreement is reached you will see a screen like the following one which gives the earnings for both you and your opponent.

This is stage 1

Time left [sec]: 26

You accepted the proposal  
Your Payoff is 60.0 ECU  
Your opponent payoff is 10.0 ECU

OK

All this information is known to your opponent.

## INSTRUCTIONS TO SECOND MOVER

You will be asked to divide a pie (worth a certain sum of money) between yourself and an opponent.

The initial value of the pie is 70 ECU.

At certain times, you can, if you wish, "opt out," and be paid a certain sum; if you do this, your opponent will receive nothing.

Your opponent does not have any such outside option.

As bargaining continues over time, these values will be reduced, in a manner to be explained below.

The way bargaining will proceed is as follows:

Your opponent will make you an offer of some share of the pie. When your opponent has made an offer you will see the following screen:

This is stage 1
Time left [sec]: 15

You are a responder  
 The pie is 70.0 ECU  
 Your Outside Option is 60.0 ECU  
 You are offered 60.0 ECU by your opponent  
 You have the following options

Reject offer

Accept offer

Take outside option

This is the how your opponent proposes to share the pie (in %)



Share of pie offered

Share of pie kept

Note that the pink part of the pie is the share of the pay your opponent offers to you.

You can do one of 3 things, each represented by a red button:

1. Accept your opponent's offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. You can decide to "opt out" of the game in which case you will be paid the value of your outside option and your opponent will receive nothing.

3. Reject the offer, in which case the pie shrinks by 10 percent *and so does the outside option*.

If you reject the offer, it becomes your turn to make your opponent an offer. The pie is now worth 63 experimental units. You will see the following screen:

This is stage 2	Time left [sec]: 17
<p>You rejected the offer          You are now a proposer          The pie has shrunked to 63.0 ECU          To make an offer to your opponent enter a number between 0 and 63.0 ECUs and click on the display button.          You may adjust your offer repeatedly to vizualize the shares offered and kept (in %)          To send your offer click on the send button          Your opponent will choose bewteen your offer and continued bargaining</p>	
<p>Your offer to the opponent (in ECU): <input type="text"/></p> <p>To vizualize the percentage distribution of the pie press display</p> <p style="text-align: center;"><input type="button" value="Display"/></p>	
<p>Send your offer to the opponent</p> <p style="text-align: right;"><input type="button" value="Send"/></p>	

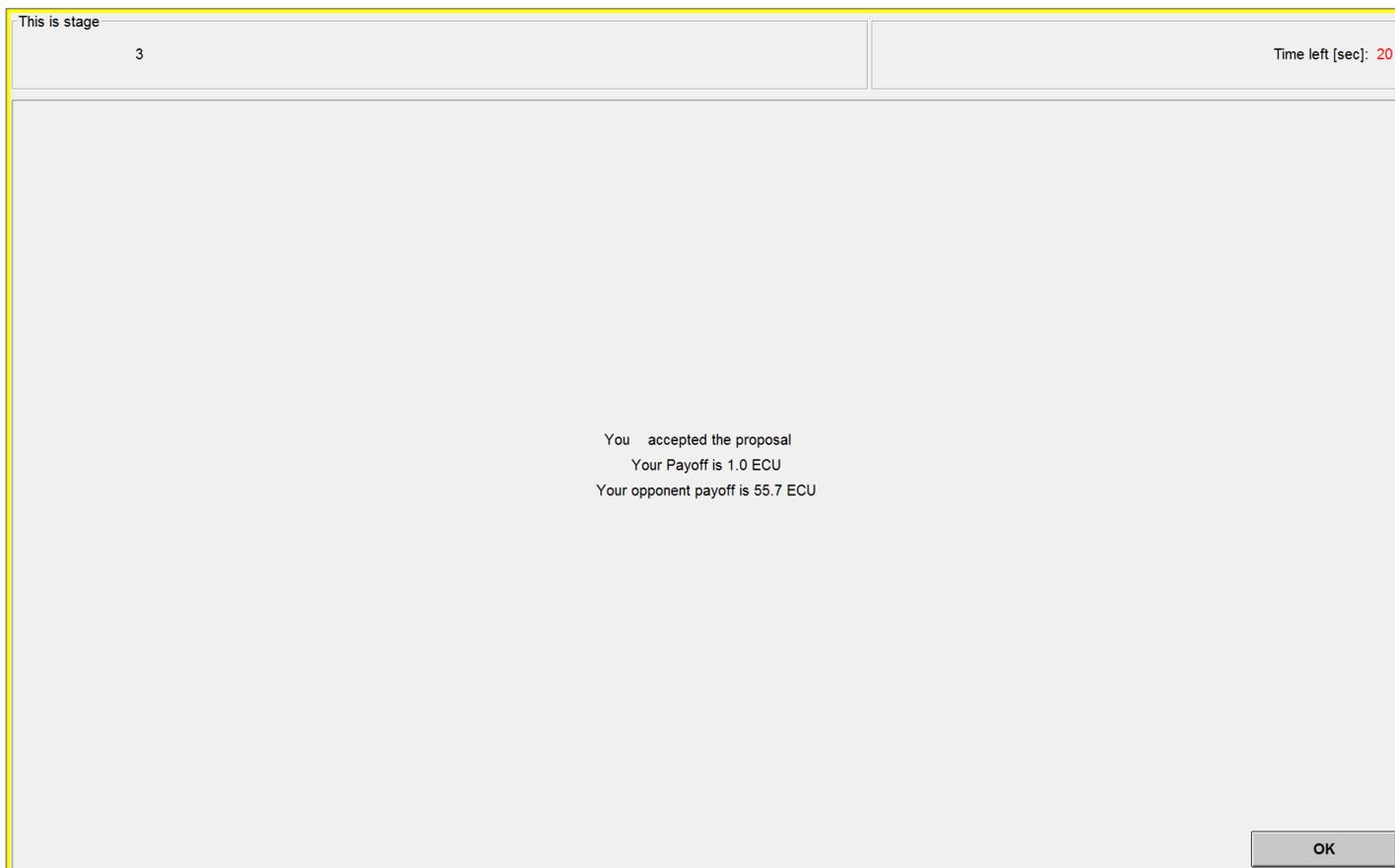
You make your offer by entering the amount you offer in the open field on the computer. Note that you will see a pie of the implied distribution if you press the display button on the screen.

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive.

Your opponent can do one of two things:

1. He/she accepts your offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Your opponent rejects your offer, in which case the pie, and the option, shrinks by a further 10 percent and it becomes your opponents turn once again to make you an offer.

The game continues in this way, with the sums of money shrinking by 10 percent following each rejection, until an agreement is reached or you chose to take your outside option. When an agreement is reached you will see a screen like this:



If, at some point you choose to take your outside option the game ends and you will see a screen like this:

This is stage 1

Time left [sec]: 28

You took your outside option  
Your Payoff is 20.0 ECU  
Your opponent payoff is 0.0 ECU

OK

All this information is known to your opponent.

### Questions?

If you have questions about the experiment please raise your hand, and we will try to answer them.

## **Instructions for T3**

**(randomly allocated contributions)**

This is an economics experiment, administered by the department of economics at the school.

In economics experiments deception is never used. This means that any information you are provided with in the experiment is correct.

Experiments administered by other departments at the school may use deception. Whenever they do, you are told so.

## GENERAL INFORMATION

I will now read out loud the instructions for the experiment. You may refer to the instructions any time during the experiment.

You are going to participate in an experiment financed by the Department of Economics at BI and the Norwegian Research Council. The experiment will not last more than 90 minutes.

The aim of the experiment is to examine how people behave in bargaining situations.

In the experiment you will earn money. How much you earn depends on the decisions you make, as well as on the decisions made by other subjects.

All interactions are anonymous and are performed through a network of computers. The administrators of the experiment will not be able to observe your decisions during the experiment.

The people in this room are participating in the same experiment as you. They have all been recruited in the same way as you and are reading the same instructions as you are for the first time.

The experiment will consist of 6 games, in each of which you can earn units of an experimental currency that we call "ECU" (Experimental Currency Unit). At the end of the experiment you will be paid based on your total earnings in ECUs from all 6 games:

**1 ECU is worth 2 Norwegian Kroner.**

The more ECUs you earn, the more cash you will receive.

At the end of the experiment you will fill in your first and last name in a screen on your computer. Once this has been done by everyone a payment file will be written. In this payment file your earnings in ECU are converted to Norwegian Kroner at the stated exchange rate. You will be paid your earnings in cash as you leave the lab.

During the experiment all mobile phones must be powered off (it is not enough to turn off the sound). You are not allowed to talk with any of the other participants during the experiment. If you have questions or need help with the computer, please raise your hand and one of us will approach you and assist you privately.

## INSTRUCTIONS

The experiment consists of six games. Each game consists of one or more stages.

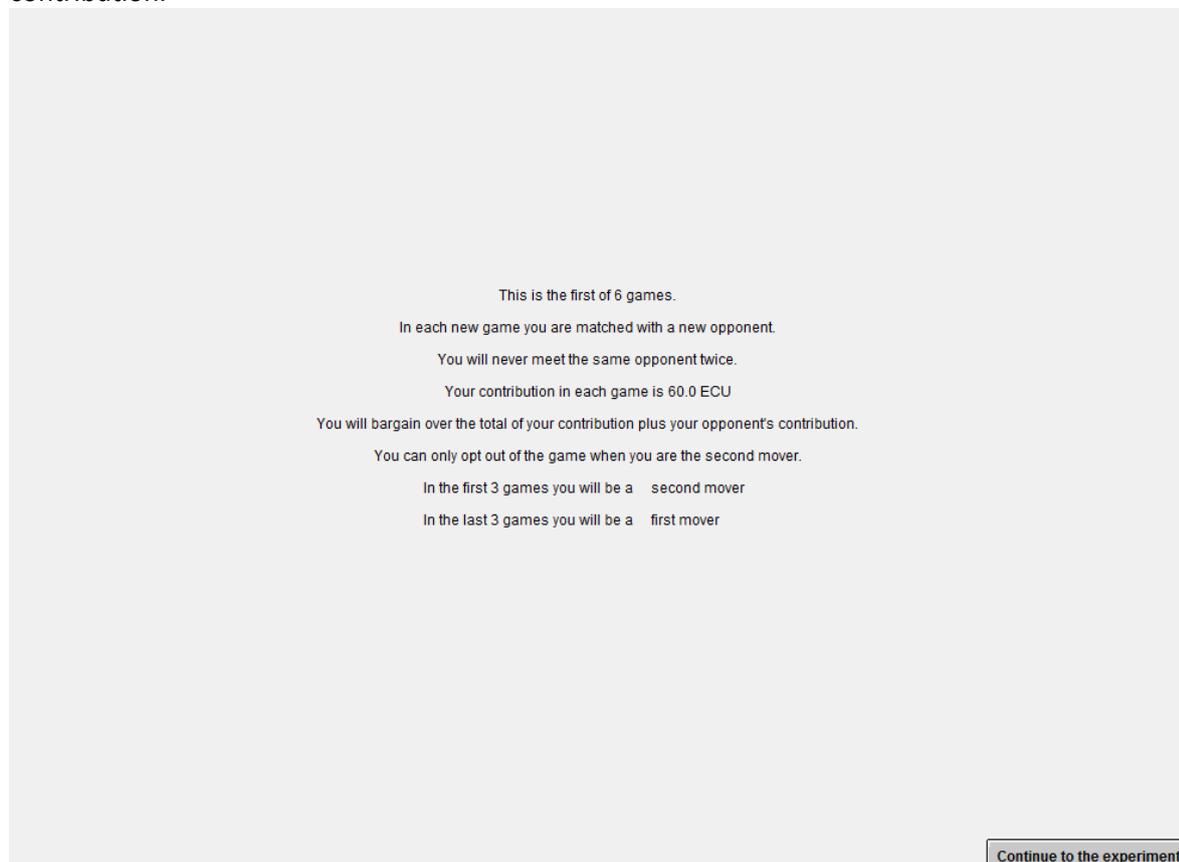
In each game there is a first mover and a second mover. The first mover makes a proposal in the first stage of the game, while the second mover does not make a proposal in the first stage of the game.

Before bargaining starts you will be randomly assigned a role as first or second mover for the first three games of the experiment. In the last three games of the experiment you will be assigned the alternative role; that is if you are first mover in the first three games you will be second mover in the last three games. If you are second mover in the first three games you will be first mover in the last three games.

When you are a second mover you will be given an option to opt-out. Note that only the second mover has this option.

During the experiment you will bargain with different opponents. Your opponent is randomly selected but you will never be matched with the same opponent in more than one game. Each new game is with a new opponent.

You will be randomly assigned an allocation of ECU, which will remain constant throughout the entire experiment. The allocation of ECU will be your contribution to a pie. The sum of your contribution and your randomly matched opponent's contribution equals the pie in each game. The value of this pie is the amount of ECU you will have to divide with your opponent in the bargaining process. The first screen shows you your type – either a first mover or a second mover – and your contribution.



This is the first of 6 games.

In each new game you are matched with a new opponent.

You will never meet the same opponent twice.

Your contribution in each game is 60.0 ECU

You will bargain over the total of your contribution plus your opponent's contribution.

You can only opt out of the game when you are the second mover.

In the first 3 games you will be a second mover

In the last 3 games you will be a first mover

Continue to the experiment

After this screen disappears you will bargain with a random opponent.

We now go through the instructions for the first and the second mover separately.

### INSTRUCTIONS FOR FIRST MOVER

You will be asked to divide a pie between yourself and an opponent.

The initial value of the pie is the sum of your contribution and your opponent's contribution.

At certain times, your opponent can, if he/she wishes, opt out; if he/she does this, both of you will receive nothing. As a first mover you cannot opt out.

The way bargaining will proceed is as follows:

You will make your opponent an offer of some share of the pie. You will get the following screen on your computer:

This is stage		Time left [sec]: 25	
1			
<p>You are a proposer</p> <p>Your contribution is 40.0</p> <p>Your opponents contribution is 40.0</p> <p>The total pie to divide is the sum of contributions: 80.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 80.0 ECUs and click on the display button.</p> <p>You may adjust your offer repeatedly to visualize the shares offered and kept (in %)</p> <p>To send your offer click on the send button</p> <p>Your opponent will choose between your offer, continued bargaining, or opt out of the game</p>			
<p>Your offer to the opponent (in ECU): <input type="text" value="1"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p><input type="button" value="Display"/></p>			
<p>Send your offer to the opponent</p> <p><input type="button" value="Send"/></p>			

Make your offer by entering the amount you offer in the field "Your offer to the opponent (in ECU):"  
Note that you will see a pie of the implied distribution when you press the display button on the screen.

This is stage	1	Time left [sec]: 8
<p>You are a proposer</p> <p>Your contribution is 40.0</p> <p>Your opponents contribution is 20.0</p> <p>The total pie to divide is 60.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 60.0 ECUs and click on the display button.</p> <p>You may adjust your offer repeatedly to visualize the shares offered and kept (in %)</p> <p>To send your offer click on the send button</p> <p>Your opponent will choose between your offer or continued bargaining</p>		
<p>Your offer to the opponent (in ECU): <input type="text" value="55"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p><input type="button" value="Display"/></p>	<p>This is the how you propose to share the pie (in %)</p> <p>Share of pie offered Share of pie kept</p>	
<p>Send your offer to the opponent</p> <p><input type="button" value="Send"/></p>		

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive for yourself.

After you have made your offer, your opponent can do one of three things:

1. He/she can accept your offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. Your opponent can decide to opt out of the game, in which case both of you will receive nothing.
3. Reject the offer, in which case the game moves to the next stage and the pie shrinks by 10 percent. Now it becomes your opponent's turn to make you an offer. The value of the pie is now reduced.

If your opponent rejects your offer, he will have to make you a new offer. The pie will shrink by 10 percent and you will see the following screen. Note that the pink part of the pie is the share of the pie that your opponent suggests that you will receive.

This is stage 2

Time left [sec]: 18

You are a responder  
 The pie has shrunk to 54.0 ECU  
 You are offered 20.0 ECU by your opponent  
 You have the following options

This is how your opponent proposes to share the pie (in %)



Share of pie offered  
 Share of pie kept

Now, you can do one of two things:

1. Accept your opponent's offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Reject your opponent's offer, in which case the pie shrinks by a further 10 percent and it becomes your turn once again to make your opponent an offer.

The game continues in this way, with the pie shrinking by 10 percent following each rejection, until an agreement is reached or the second mover opts out.

When the game ends you will see a screen like the following one, which gives the earnings for both you and your opponent.

This is stage 2

Time left [sec]: 20

You accepted the proposal  
Your Payoff is 20.0 ECU  
Your opponent payoff is 34.0 ECU

OK

All this information is known to your opponent.

## INSTRUCTIONS TO SECOND MOVER

You will be asked to divide a pie between yourself and an opponent.

The initial value of the pie is the sum of your contribution and your opponent's contribution.

At certain times, you can, if you wish, opt out; if you do this, both of you will receive nothing. Your opponent cannot opt out.

The way bargaining will proceed is as follows:

Your opponent will make you an offer of some share of the pie. When your opponent has made an offer you will see the following screen:

This is stage: 1
Time left [sec]: 24

You are a responder

Your contribution is 40.0

Your opponents contribution is 60.0

The total pie to divide is 100.0 ECU

You are offered 67.0 ECU by your opponent

You have the following options

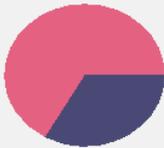
Reject offer

Accept offer

Opt out of the game

---

This is the how your opponent proposes to share the pie (in %)



Share of pie offered

Share of pie kept

Note that the pink part of the pie is the share of the pay your opponent offers to you.

You can do one of three things, each represented by a red button:

1. Accept your opponent's offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. You can decide to opt out of the game in which case both of you will receive nothing.
3. Reject the offer, in which case the pie shrinks by 10 percent.

If you reject the offer, it becomes your turn to make your opponent an offer. The value of the pie is now reduced and you will see the following screen:

This is stage 2	Time left [sec]: 18
<p style="text-align: center;">You rejected the offer          You are now a proposer          The pie has shrunk to 54.0 ECU          To make an offer to your opponent enter a number between 0 and 54.0 ECUs and click on the display button.          You may adjust your offer repeatedly to visualize the shares offered and kept (in %)          To send your offer click on the send button          Your opponent will choose between your offer and continued bargaining</p>	
<p>Your offer to the opponent (in ECU): <input style="background-color: #e6f2ff;" type="text"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p style="text-align: center;"><input type="button" value="Display"/></p>	
<p style="text-align: center;">Send your offer to the opponent</p> <p style="text-align: right;"><input style="background-color: #ff6666;" type="button" value="Send"/></p>	

You make your offer by entering the amount you offer in the open field on the computer. Note that you will see a pie of the implied distribution if you press the display button on the screen.

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive.

Your opponent can do one of two things:

1. He/she can accept your offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Reject your offer, in which case the game moves to the next stage and the pie shrinks by a further 10 percent. Now it becomes your opponent's turn once again to make you an offer.

The game continues in this way, with the pie shrinking by 10 percent following each rejection, until an agreement is reached or you opt out.

When the game ends you will see a screen like this:

The screenshot shows a game interface with a yellow border. At the top left, a box labeled "This is stage" contains the number "2". At the top right, a box labeled "Time left [sec]" contains the number "11". The main area of the screen is light gray and contains the following text centered: "Your opponent accepted your proposal", "Your Payoff is 42.0 ECU", and "Your opponent Payoff is 12.0 ECU". In the bottom right corner, there is a gray button labeled "OK".

All this information is known to your opponent.

### Questions?

If you have questions about the experiment please raise your hand, and we will try to answer them.

**Instructions for T4**  
**(earned contributions)**

This is an economics experiment, administered by the department of economics at the school.

In economics experiments deception is never used. This means that any information you are provided with in the experiment is correct.

Experiments administered by other departments at the school may use deception. Whenever they do, you are told so.

## GENERAL INFORMATION

I will now read out loud the instructions for the experiment. You may refer to the instructions any time during the experiment.

You are going to participate in an experiment financed by the Department of Economics at BI and the Norwegian Research Council. The experiment will not last more than 90 minutes.

The aim of the experiment is to examine how people behave in bargaining situations.

In the experiment you will earn money. How much you earn depends on the decisions you make, as well as on the decisions made by other subjects.

All interactions are anonymous and are performed through a network of computers. The administrators of the experiment will not be able to observe your decisions during the experiment.

The people in this room are participating in the same experiment as you. They have all been recruited in the same way as you and are reading the same instructions as you are for the first time.

The experiment consists of an encoding task and four bargaining games. In the bargaining games you earn units of an experimental currency that we call "ECU" (Experimental Currency Unit). At the end of the experiment you will be paid based on your total earnings in ECUs from all 4 games:

**1 ECU is worth 3 Norwegian Kroner.**

The more ECUs you earn, the more cash you will receive.

At the end of the experiment you will fill in your first and last name in a screen on your computer. Once this has been done by everyone a payment file will be written. In this payment file your earnings in ECU are converted to Norwegian Kroner at the stated exchange rate. You will be paid your earnings in cash as you leave the lab.

During the experiment all mobile phones must be powered off (it is not enough to turn off the sound). You are not allowed to talk with any of the other participants during the experiment. If you have questions or need help with the computer, please raise your hand and one of us will approach you and assist you privately.

## INSTRUCTIONS

### ENCODING TASK

Performance in this task is measured by the number of words you manage to encode correctly in 10 minutes. The more words you encode correctly the higher your rank is. Higher ranks correspond to higher “contributions” in the bargaining games. The concept of contribution, and the details of the ranks, will be explained below.

For the encoding task your computer will display a screen like the one showed below.

A “*word code*” – a sequence of 4 letters of the alphabet – is displayed along with a *key* showing the number that corresponds to each letter. Below each letter in the *word code* on your screen there will be a blank space. Inside each space, you type the number that corresponds to the letter above it in the *key*. 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. The *key* will stay the same for all words during the effort task.

Example: Look at the screen reported below. The word you are given is Q – U – Y – L. The code for Q is 18 (below Q in the *key*), and the codes for U is 26, the code for Y is 13, and for L it is 1. So, you would encode this word as 18 – 26 – 13 – 1, as shown below, then click “OK”. The computer will not allow you to go further until you encode the word correctly. You will have ten minutes to encode as many words as possible.

Round 1 of 1
Time left [sec]: 14

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

WORD:

Q

U

Y

L

Tips:

- When a new word appears, if there are already numbers in the boxes, they may be incorrect. You should check them and replace them with the correct ones if necessary.
- You can use Shift+TAB on the keyboard to switch to the next box quickly. You can also change boxes using the mouse.
- After filling in the code numbers corresponding to a word, click the "OK" button to verify the code and proceed to the next word.
- The countdown clock in the upper left corner of the screen shows the time remaining to work for your employer while the one in the left corner shows the total work time remaining.

## **Bargaining**

You will participate in four bargaining games. Each game consists of one or more stages.

In each game there is a first mover and a second mover. The first mover makes a proposal in the first stage of the game, while the second mover does not make a proposal in the first stage of the game.

Before bargaining starts you will be randomly assigned a role as first or second mover for the first two games of the experiment. In the last two games of the experiment you will be assigned the alternative role; that is if you are first mover in the first two games you will be second mover in the last two games. If you are second mover in the first two games you will be first mover in the last two games.

When you are a second mover you will be given an option to opt-out. Note that only the second mover has this option.

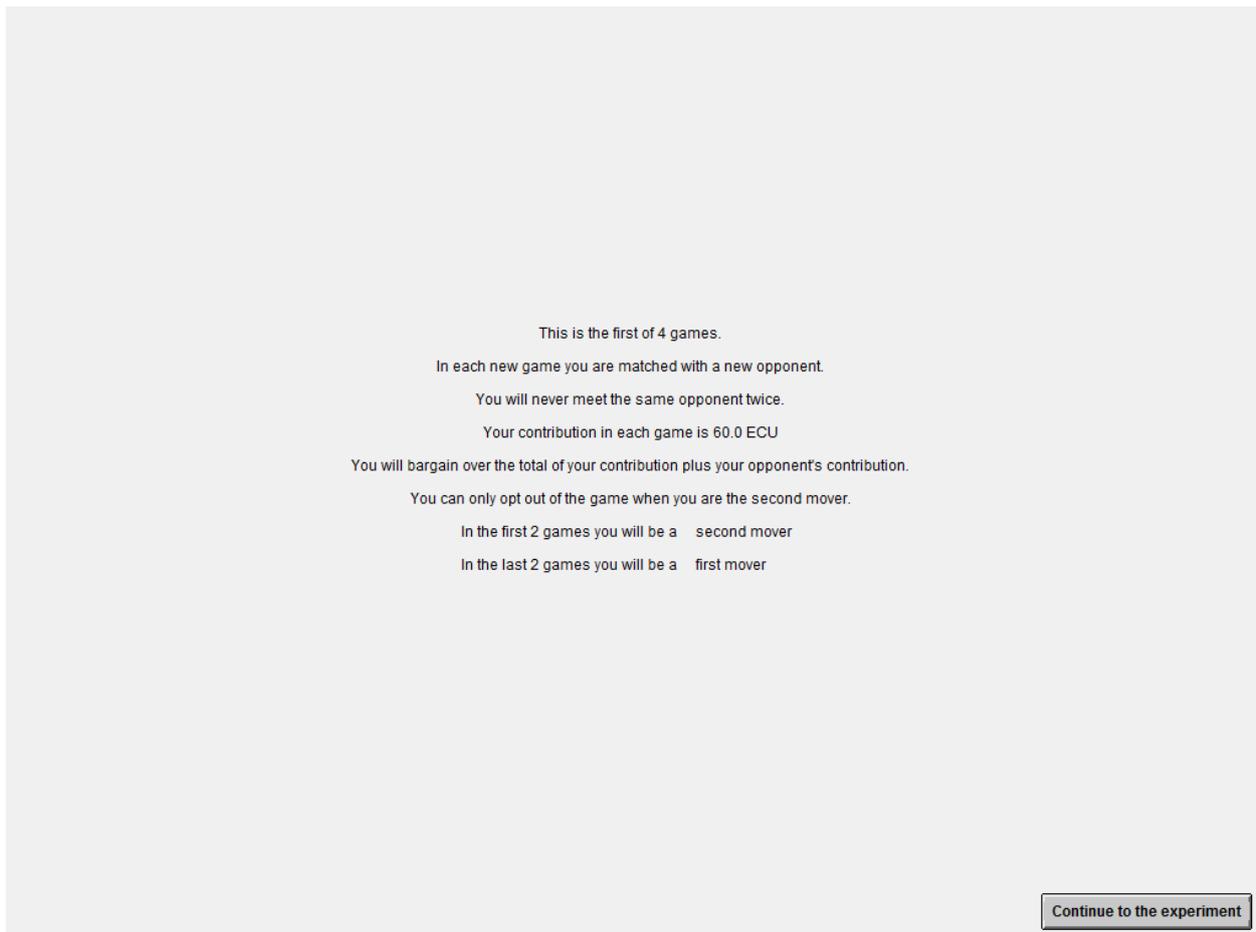
During the experiment you will bargain with different opponents. Your opponent is randomly selected but you will never be matched with the same opponent in more than one game. Each new game is with a new opponent.

Your performance in the encoding task determines your contribution to a pie. The sum of your contribution and your randomly matched opponent's equals the pie in each game. The value of this pie is the amount of ECU you will have to divide with your opponent in the bargaining process.

The six highest ranked subjects in the encoding task have earned a contribution of 60 ECUs. Subjects ranked seven to fourteen in the encoding task have earned a contribution of 40 ECUs, subjects ranked fifteen to twenty two have earned a contribution of 20 ECUs, and subjects ranked below twenty two have earned a contribution of 0 ECUs.

Your earned contribution to the pie will remain constant throughout the entire experiment.

The first screen shows you your type – either a first mover or a second mover – and your contribution.



After this screen disappears you will bargain with a random opponent.

We now go through the instructions for the first and the second mover separately.

## INSTRUCTIONS FOR FIRST MOVER

You will be asked to divide a pie between yourself and an opponent.

The initial value of the pie is the sum of your contribution and your opponent's contribution.

At certain times, your opponent can, if he/she wishes, opt out; if he/she does this, both of you will receive nothing. As a first mover you cannot opt out.

The way bargaining will proceed is as follows:

You will make your opponent an offer of some share of the pie. You will get the following screen on your computer:

This is stage <b>1</b>	Time left [sec]: <b>25</b>
<p>You are a proposer</p> <p>Your contribution is 40.0</p> <p>Your opponents contribution is 40.0</p> <p>The total pie to divide is the sum of contributions: 80.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 80.0 ECUs and click on the display button.</p> <p>You may adjust your offer repeatedly to visualize the shares offered and kept (in %)</p> <p>To send your offer click on the send button</p> <p>Your opponent will choose between your offer, continued bargaining, or opt out of the game</p>	
<p>Your offer to the opponent (in ECU): <input style="width: 60px;" type="text" value=""/></p> <p>To visualize the percentage distribution of the pie press display</p> <p style="text-align: center;"><input type="button" value="Display"/></p>	
<p>Send your offer to the opponent</p> <p style="text-align: right;"><input type="button" value="Send"/></p>	

Make your offer by entering the amount you offer in the field "Your offer to the opponent (in ECU):"  
Note that you will see a pie of the implied distribution when you press the display button on the screen.

This is stage	1	Time left [sec]: 8
<p>You are a proposer</p> <p>Your contribution is 40.0</p> <p>Your opponents contribution is 20.0</p> <p>The total pie to divide is 60.0 ECU</p> <p>To make an offer to your opponent enter a number between 0 and 60.0 ECUs and click on the display button.</p> <p>You may adjust your offer repeatedly to visualize the shares offered and kept (in %)</p> <p>To send your offer click on the send button</p> <p>Your opponent will choose between your offer or continued bargaining</p>		
<p>Your offer to the opponent (in ECU): <input type="text" value="55"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p><input type="button" value="Display"/></p>	<p>This is the how you propose to share the pie (in %)</p> <p>Share of pie offered Share of pie kept</p>	
<p>Send your offer to the opponent</p> <p><input type="button" value="Send"/></p>		

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive for yourself.

After you have made your offer, your opponent can do one of three things:

1. He/she can accept your offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. Your opponent can decide to opt out of the game, in which case both of you will receive nothing.
3. Reject the offer, in which case the game moves to the next stage and the pie shrinks by 10 percent. Now it becomes your opponent's turn to make you an offer. The value of the pie is now reduced.

If your opponent rejects your offer, he will have to make you a new offer. The pie will shrink by 10 percent and you will see the following screen. Note that the pink part of the pie is the share of the pie that your opponent suggests that you will receive.

This is stage 2

Time left [sec]: 18

You are a responder  
 The pie has shrunk to 54.0 ECU  
 You are offered 20.0 ECU by your opponent  
 You have the following options

This is how your opponent proposes to share the pie (in %)



Share of pie offered  
 Share of pie kept

Now, you can do one of two things:

1. Accept your opponent's offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Reject your opponent's offer, in which case the pie shrinks by a further 10 percent and it becomes your turn once again to make your opponent an offer.

The game continues in this way, with the pie shrinking by 10 percent following each rejection, until an agreement is reached or the second mover opts out.

When the game ends you will see a screen like the following one, which gives the earnings for both you and your opponent.

This is stage 2

Time left [sec]: 20

You accepted the proposal  
Your Payoff is 20.0 ECU  
Your opponent payoff is 34.0 ECU

OK

All this information is known to your opponent.

## INSTRUCTIONS TO SECOND MOVER

You will be asked to divide a pie between yourself and an opponent.

The initial value of the pie is the sum of your contribution and your opponent's contribution.

At certain times, you can, if you wish, opt out; if you do this, both of you will receive nothing. Your opponent cannot opt out.

The way bargaining will proceed is as follows:

Your opponent will make you an offer of some share of the pie. When your opponent has made an offer you will see the following screen:

This is stage: 1
Time left [sec]: 24

You are a responder

Your contribution is 40.0

Your opponents contribution is 60.0

The total pie to divide is 100.0 ECU

You are offered 67.0 ECU by your opponent

You have the following options

Reject offer

Accept offer

Opt out of the game

---

This is the how your opponent proposes to share the pie (in %)



Share of pie offered

Share of pie kept

Note that the pink part of the pie is the share of the pay your opponent offers to you.

You can do one of three things, each represented by a red button:

1. Accept your opponent's offer, in which case the game ends and you and your opponent each receive the agreed amount.
2. You can decide to opt out of the game in which case both of you will receive nothing.
3. Reject the offer, in which case the pie shrinks by 10 percent.

If you reject the offer, it becomes your turn to make your opponent an offer. The value of the pie is now reduced and you will see the following screen:

This is stage 2	Time left [sec]: 18
<p style="text-align: center;">You rejected the offer          You are now a proposer          The pie has shrunk to 54.0 ECU          To make an offer to your opponent enter a number between 0 and 54.0 ECUs and click on the display button.          You may adjust your offer repeatedly to visualize the shares offered and kept (in %)          To send your offer click on the send button          Your opponent will choose between your offer and continued bargaining</p>	
<p>Your offer to the opponent (in ECU): <input style="width: 50px;" type="text"/></p> <p>To visualize the percentage distribution of the pie press display</p> <p style="text-align: center;"><input type="button" value="Display"/></p>	
<p style="text-align: center;">Send your offer to the opponent</p> <p style="text-align: right;"><input type="button" value="Send"/></p>	

You make your offer by entering the amount you offer in the open field on the computer. Note that you will see a pie of the implied distribution if you press the display button on the screen.

You cannot send the offer before you have displayed at least one suggested offer. The blue part of the pie is the share you suggest you should receive.

Your opponent can do one of two things:

1. He/she can accept your offer, in which case the game ends and you and your opponent receive the agreed amount.
2. Reject your offer, in which case the game moves to the next stage and the pie shrinks by a further 10 percent. Now it becomes your opponent's turn once again to make you an offer.

The game continues in this way, with the pie shrinking by 10 percent following each rejection, until an agreement is reached or you opt out.

When the game ends you will see a screen like this:

The screenshot shows a game interface with a yellow border. At the top left, a box labeled "This is stage" contains the number "2". At the top right, a box labeled "Time left [sec]" contains the number "11". The main area of the screen is light gray and contains the following text centered: "Your opponent accepted your proposal", "Your Payoff is 42.0 ECU", and "Your opponent Payoff is 12.0 ECU". In the bottom right corner, there is a gray button labeled "OK".

All this information is known to your opponent.

### Questions?

If you have questions about the experiment please raise your hand, and we will try to answer them.