Prompting the Benefit of the Doubt: The Joint Effects of Auditor-Client Social Bonds and Measurement Uncertainty on Audit Adjustments

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EXPERIMENTAL MATERIALS

Contents

Instructions for Trivia Exercise (Social Bond Manipulation)

The following instructions for the trivia exercise described in the manuscript were provided to participants in hard copy and read aloud at the beginning of the experimental session.

Welcome and thank you for participating in this study! The experiment consists of three different parts. Each part will be explained in detail as we get to it. Just for showing up today, you will receive $5. In each part of the experiment, you will have the opportunity to earn additional payment based on decisions you make and luck. While you are guaranteed at least $5, you have the possibility to receive considerably more.

There should be no talking during the session. Please help us maintain control over the experiment by refraining from unpermitted comments or other communication with your fellow participants in this session or with other students who might be participating in future sessions.

We promise to carry out the experiment in the manner described to you, with no deception of any form. Although much of this experiment has been programmed on a computer, we promise that the computer accurately reflects the instructions.

[The following four paragraphs appeared only in the condition *with* a social bond]

You have been paired with the person sitting next to you (your partner). The two of you will be working together for the first two parts of the experiment.

In the first part of the experiment, you and your partner will answer ten general knowledge trivia questions. For each question your pair answers correctly, you both will receive $1.

Once we begin, take a minute to introduce yourself to your partner. The experimenter will provide the two of you with a hard copy of the questions. Feel free to discuss the questions with your partner. When you have arrived at an answer, indicate that answer on the sheet provided. Once you have finished answering the questions, raise your hand and the experimenter will collect your answers. Once all groups have turned in their answers we will assign each person to a computer terminal, which will be used for the remainder of the experiment. While you wait for other groups to finish, please feel free to chat with you partner. The use of cell phones or other devices is prohibited during the experiment.

We will now pass out the questions (these questions are unique to this experimental session and will not be reused in future sessions). You may introduce yourself to you partner and begin discussing the questions.

[The following three paragraphs appeared only in the condition *without* a social bond]

For the first part of the study you will answer ten general knowledge trivia questions. For each question you answer correctly, you will receive $1.

We will pass out a hard copy of the questions (these questions are unique to this experimental session and will not be reused in future sessions). Once you have read through and answered the questions, raise your hand and the experimenter will collect your answers. Once all participants have finished answering questions, we will continue with the remainder of the experiment which will be conducted using your computer terminals.

The use of cell phones or other devices is prohibited throughout the experiment. There should be no talking or other communication with other participants.

Instructions for Audit Activity (Measurement Uncertainty Manipulation)

After the trivia exercise, participants in the condition with a social bond were instructed to relocate to their own computer terminal. In all conditions, participants were informed that instructions for the second of the experiment would be given on the computer terminal. Participants were instructed to follow the on screen prompts, but were also given an identical set of the instructions in hard copy. The instructions follow with z-Tree screenshots showing comprehension check questions that were interspersed throughout. Participants worked through the instructions at their own speed and were required to answer each comprehension check question correctly before continuing. If participants answered a question incorrectly, a screen appeared providing remedial information before participants made another attempt to answer the question.

Condition *without* Measurement Uncertainty

For this part of the experiment, you will be assigned later to the role of either Player A or Player B.

At this point you have a 50% chance of being either Player A or Player B, so it is important for you to pay attention to the instructions for both types.

[The following paragraph only appeared in the condition *with* a social bond]
You will be paired with the same person you worked with in Part 1, who is seated across from you in the other row. That person will have the other role (i.e., if you are Player A, the other person will be Player B, and vice versa).

[The following paragraph only appeared in the condition *without* a social bond]
Based on your seating assignment, you will be randomly paired with another person in this session. (Pairs are seated across from each other in the other row). That person will have the other role (i.e., if you are Player A, the other person will be Player B, and vice versa).

Both luck and the decisions made by you and by the other person with whom you are paired will determine your payoffs for this part of the experiment.

As a reminder, there should be no talking or other communication with other participants. If you have a problem with your computer, please notify an experimenter.

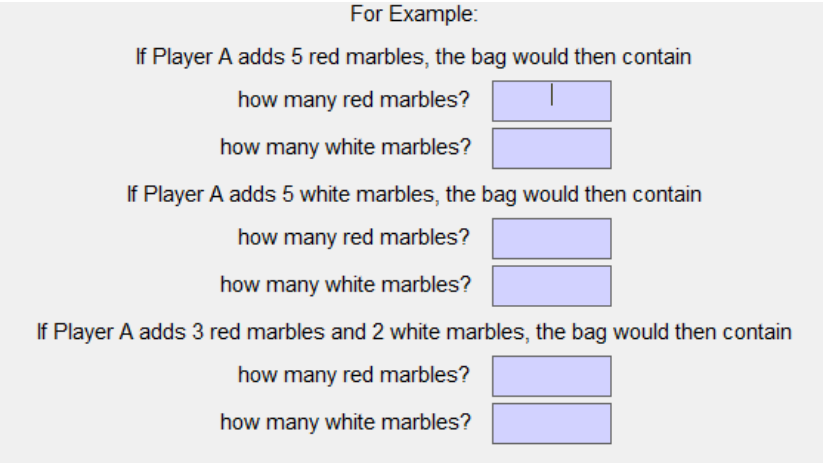
Player A's task

Imagine an empty bag and some red and white marbles. For efficiency, the experiment is programmed on a computer, such that there is no actual bag or actual marbles. However, thinking of this part of the experiment in terms of a bag with marbles will help you to understand the instructions. We promise that we have programmed the computer to follow these instructions exactly, with no deception of any form, in a manner equivalent to what would happen if we used an actual bag with actual marbles.

Player A's job is to add 5 marbles to the bag. The 5 marbles added by Player A can be red, white, or any combination of these two colors.

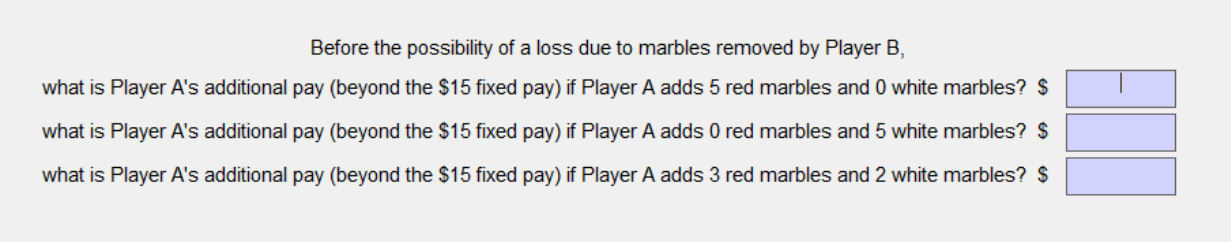
Loosely speaking, adding red marbles is desirable for Player A, but potentially harmful to Player B.

After Player A has added 5 marbles, the bag will contain 0, 1, 2, 3, 4, or 5 red marbles, depending on how many of the 5 added marbles are red and how many are white.



Player A's payoff
For this part of the experiment, Player A will start with $15 fixed pay.

In addition, Player A will receive $2 for each red marble *added* to the bag, but may lose money due to marbles removed by Player B, as explained shortly.



Possible loss for Player A
Although Player A receives $2 for each red marble that Player A adds to the bag, there is a possibility of losing money based on how many red marbles Player B *removes* from the bag.

The possibility of Player A losing money for red marbles removed by Player B applies with *60% probability*. We will explain later how we determine probabilistic outcomes for this experiment.

Thus, there is a 60% chance that Player A will still get $15 plus $2 for each red marble added, but will *lose* $3 for each red marble removed by Player B.

If this loss does *not* apply (40% chance), Player A will simply get $15 plus $2 for each red marble added.

Player B's task
Any red marbles that Player A adds to the bag increase the chances that Player B will incur a loss, as explained shortly. After Player A has added marbles to the bag, Player B will be told how many of the marbles are red and how many are white.

Player B may *remove* red marbles from the bag, up to the total number of red marbles that were added by Player A.

For example:

If Player A adds 5 red marbles, Player B may remove up to how many red marbles? ____

If Player A adds 0 (zero) red marbles, Player B may remove up to how many red marbles? ____

If Player A adds 3 red marbles, Player B may remove up to how many red marbles? ____

Player B's payoff
For this part of the experiment, Player B will start with $25 fixed pay. Player B can then choose to *pay* $2 each to remove red marbles from the bag (up to the number of red marbles added by Player A).

Removing red marbles reduce the probability of an additional loss of $15, as explained shortly.

Player B's cost to remove red marbles = $2 × the number of red marbles removed

For example:

Before the possibility of an additional loss of $15 (as explained shortly), what is Player B's cost for removing

5 red marbles? $ ____

0 (zero) red marbles? $ ____

3 red marbles? $ ____

Possible loss for Player B
Beyond the cost incurred to remove red marbles, Player B can lose an additional $15. The probability of losing an additional $15 depends on how many red marbles are in the bag *after* Player A has added up to 5 red marbles and *after* Player B has removed red marbles.

Recall that Player A can add up to 5 red marbles to the bag and Player B can remove red marbles up to the number of marbles added by Player A. After Player A's and Player B's decisions, the bag could contain any number of red marbles from 0 (zero) to 5.

Here is how the final number of red marbles remaining in the bag determines the probability that Player B loses an additional $15:

- If the bag contains *exactly 0* red marbles, Player B has a 5% chance of losing $15.
- If the bag contains *exactly 1* red marble, Player B has a 20% chance of losing $15.
- If the bag contains *exactly 2* red marbles, Player B has a 35% chance of losing $15.
- If the bag contains *exactly 3* red marbles, Player B has a 55% chance of losing $15.
- If the bag contains *exactly 4* red marbles, Player B has a 75% chance of losing $15.
- If the bag contains *exactly 5* red marbles, Player B has a 95% chance of losing $15.

Examples of Player B's payoff:
Example 1: If Player B removes 5 red marbles at a cost of 5 × $2 = $10, the bag would then contain 0 red marbles. Player B would have only a 5% chance of losing an additional $15. Player B's net pay for this part of the experiment would either be $25 - $10 = $15, with 95% probability, or $25 - $10 - $15 = $0, with 5% probability.
Also, there is a 60% chance that Player B's choice to remove 5 red marbles would impose a loss of 5 × $3.00 = $15 on *Player A*.

Example 2: If Player B removes 0 (zero) red marbles at no cost, the bag would then contain from 0 to 5 red marbles, depending on how many red marbles Player A added. Thus, the probability that Player B would lose $15 of B's initial $25 would depend entirely on whether Player A added 0, 1, 2, 3, 4, or 5 red marbles.
Also, because Player B chose not to remove any red marbles in this example, there would be no loss imposed *on Player A*.

Example 3: If Player B removes 3 red marbles at a cost of 3 × $2 = $6, the bag would then contain from 0 to 2 red marbles, depending on how many red marbles Player A added. If the bag contains 0 red marbles, Player B would have a 5% chance of losing $15. If the bag contains 1 red marble, Player B would have a 20% chance of losing $15. If the bag contains 2 red marbles, Player B would have a 35% chance of losing $15.
Also, there is a 60% chance that Player B's choice to remove 3 red marbles would impose a loss of 3 × $3.00 = $9 on *Player A.*

Recap: Player A and Player B choices and payoffs for this part of the experiment

Player A	
Player A starts out with	$15
Additional pay:	
$2 per red marble added to the bag by Player A (up to 5)	+$0 to +$10
Possible loss:	
There is a 40% chance that Player A will incur no loss due to marbles removed by Player B	-$0 (loss N/A)
If the loss applies (60% probability), Player A loses $3 per red marble removed by Player B up to the number of red marbles added by Player A	-$0 to -$15
Net payoff to Player A for this part of the experiment	$10 to $25

Player A can earn anything from $10 to $25 for this part of the experiment, depending on how many red marbles Player A chooses to add, which increase A's payoff by $2 each and, potentially, how many red marbles Player B chooses to remove (up to the total number of red marbles added by Player A). There is a 60% chance that red marbles removed by Player B will decrease Player A's payoff by $3 each, and a 40% chance that marbles removed by Player B will have no impact on Player A's payoff.

Player B	
Player B starts out with	$25
Cost of removing red marbles:	
$2 per red marble removed from the bag by Player B (max 5)	-$0 to -$10
Possible loss: probably of loss determined by final number of red marbles in the bag	
If the $15 loss *does not* apply	-$0 (loss N/A)
If the $15 loss *does* apply	-$15
Net payoff to Player B for this part of the experiment	$0 to $25

Player B can earn anything between $0 and $25 for this part of the experiment, depending on how many red marbles Player B chooses to remove (up to the number added by Player A), which decrease B's payoff by $2 each, and whether or not the $15 loss applies at the stated probability for the number of red marbles remaining in the bag.

How we determine probabilities

For Player A, the loss of $3 each from red marbles removed by Player B applies with 60% probability. To determine this outcome, each Player A will draw a single card at the end of the experiment from a customized deck with 100 cards numbered from 1 to 100. If the number on the card drawn is equal to or less than 60, the loss of $3 per red marble removed by Player B will apply to Player A's final payoff. Otherwise, (if the number on the card drawn is greater than 60), the loss will not apply.

For **Player B**, the probability of a loss of $15 is based on the number of red marbles remaining in the bag after Player A's and Players B's decisions:

- If the bag contains *exactly 0* red marbles, Player B has a 5% chance of losing $15.
- If the bag contains *exactly 1* red marbles, Player B has a 20% chance of losing $15.
- If the bag contains *exactly 2* red marbles, Player B has a 35% chance of losing $15.
- If the bag contains *exactly 3* red marbles, Player B has a 55% chance of losing $15.
- If the bag contains *exactly 4* red marbles, Player B has a 75% chance of losing $15.
- If the bag contains *exactly 5* red marbles, Player B has a 95% chance of losing $15.

The outcomes of these probabilities will be determined by having each Player B draw a single card at the end of the experiment from a customized deck with 100 cards numbered from 1 to 100. If the number on the card drawn is equal to or less than the relevant probability as stated above, the loss of $15 will apply. Otherwise, if the number on the card drawn is greater than the stated probability, the $15 loss will not apply.

Before continuing, please answer the following questions to confirm you understand how this portion of the experiment works.

1) For this part of the experiment, Player A starts with a fixed pay of $15 and Player B starts with a fixed pay of $25. ○ true ○ false

2) Player A earns $2 for each red marble Player A adds to the bag. ○ true ○ false

3) Player B can remove up to the total number of red marbles added by Player A. ○ true ○ false

4) It costs Player B $2 for each red marble Player B removes from the bag ○ true ○ false

5) There is a 60% chance that Player A will lose $3 for each red marble Player B removes from the bag ○ true ○ false

6) The number of red marbles that remain in the bag after Player A adds marbles and after Player B removes marbles determines the probability of Player B losing an additional $15 ○ true ○ false

Condition *with* Measurement Uncertainty

For this part of the experiment, you will be assigned later to the role of either Player A or Player B.

At this point you have a 50% chance of being either Player A or Player B, so it is important for you to pay attention to the instructions for both types.

[The following paragraph only appeared in the condition *with* a social bond]
You will be paired with the same person you worked with in Part 1, who is seated across from you in the other row. That person will have the other role (i.e., if you are Player A, the other person will be Player B, and vice versa).

[The following paragraph only appeared in the condition *without* a social bond]
Based on your seating assignment, you will be randomly paired with another person in this session. (Pairs are seated across from each other in the other row). That person will have the other role (i.e., if you are Player A, the other person will be Player B, and vice versa).

Both luck and the decisions made by you and by the other person with whom you are paired will determine your payoffs for this part of the experiment.

As a reminder, there should be no talking or other communication with other participants. If you have a problem with your computer, please notify an experimenter.

Player A's task

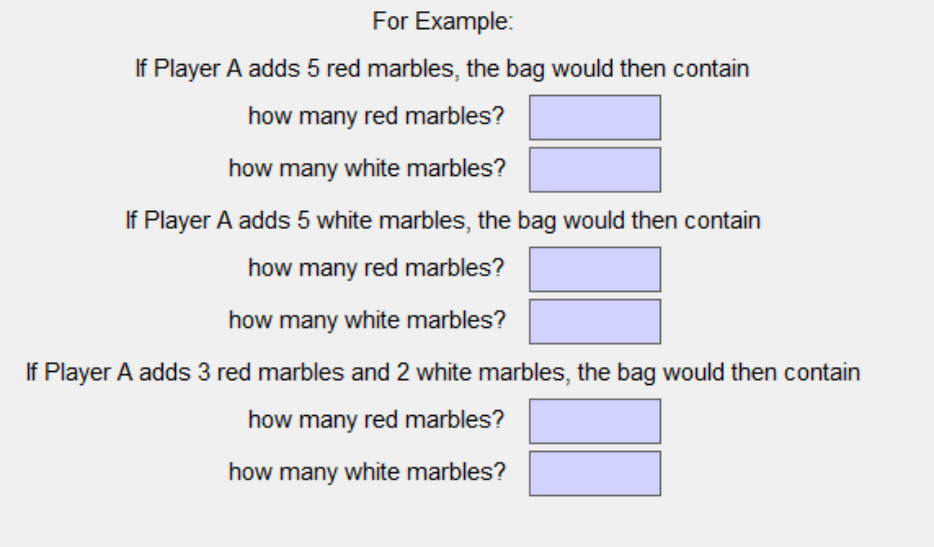
Imagine a bag that contains 5 red and 5 white marbles. For efficiency, the experiment is programmed on a computer, such that there is no actual bag or actual marbles. However, thinking of this part of the experiment in terms of a bag with marbles will help you to understand the instructions. We promise that we have programmed the computer to follow these instructions exactly, with no deception of any form, in a manner equivalent to what would happen if we used an actual bag with actual marbles.

Player A's job is to add 5 marbles to the bag (the bag already contains 5 red marbles and 5 white marbles.)

The 5 marbles added by Player A can be red, white, or any combination of these two colors.

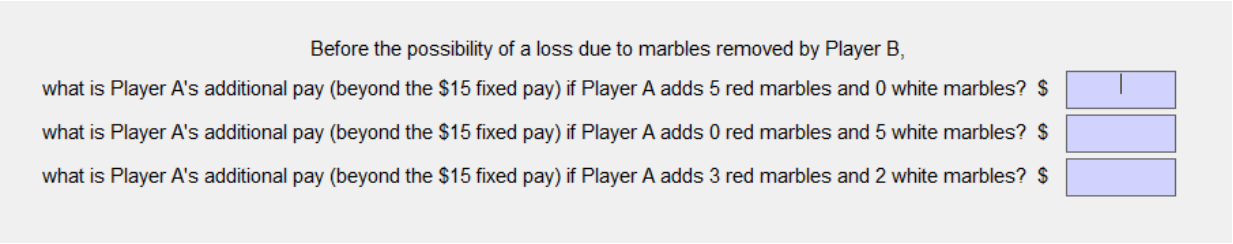
Loosely speaking, adding red marbles is desirable for Player A, but potentially harmful to Player B.

After Player A has added 5 marbles, the bag will contain 5, 6, 7, 8, 9, or 10 red marbles, depending on how many of the 5 added marbles are red and how many are white.



Player A's payoff
For this part of the experiment, Player A will start with $15 fixed pay.

In addition, Player A will receive $2 for each red marble *added* to the bag, but may lose money due to marbles removed by Player B, as explained shortly.



Possible loss for Player A
Although Player A receives $2 for each additional red marble that Player A adds to the bag, there is a possibility of losing money based on how many red marbles Player B *removes* from the bag.

The possibility of Player A losing money for red marbles removed by Player B applies with *60% probability*. We will explain later how we determine probabilistic outcomes for this experiment.

Thus, there is a 60% chance that Player A will still get $15 plus $2 for each red marble added, but will *lose* $3 for each red marble removed by Player B.

If this loss does *not* apply (40% chance), Player A will simply get $15 plus $2 for each red marble added.

Player B's task
Any red marbles that Player A adds to the bag increase the chances that Player B will incur a loss, as explained shortly. After Player A has added marbles, Player B may *remove* red marbles from the bag.

Recall that the bag originally contains 5 red marbles and 5 white marbles. Thus, after Player A has added 5 more marbles of either color, the bag could contain anywhere from 5 to 10 red marbles and anywhere from 5 to 10 white marbles.

As information to help Player B decide how many red marbles to remove, Player B will observe a sample of *5 marbles drawn at random* from the bag, *after* Player A has added 5 marbles of either color. Note that this sample will not reveal with certainty how many red marbles Player A has added, but it does provide information about the likelihood.

Because Player B will only see a randomly drawn sample of 5 marbles, Player B will ***not know for certain*** how many (if any) red marbles Player A added to the bag. However, ***in general, as the number of red marbles in the sample increases, so does the likelihood that Player A has added more red marbles to the bag.***

The maximum number of red marbles that Player B can remove is equal to the number of red marbles in the sample.

Consider the following three examples of possible samples

Case A: The sample contains 5 red marbles and 0 white marbles

Case B: The sample contains 3 red marbles and 2 white marbles

Case C: The sample contains 0 red marbles and 5 white marbles

In which of the above cases is it possible that Player A added 5 red marbles?
- ○ Case A only
- ○ Case B only
- ○ Case C only
- ○ Case A, Case B, and Case C

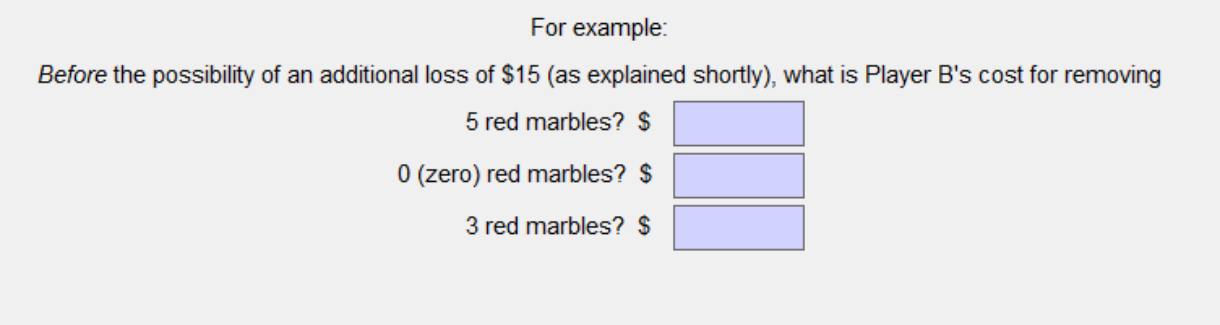
In which of the above cases is it possible that Player A added 0 (zero) red marbles?
- ○ Case A only
- ○ Case B only
- ○ Case C only
- ○ Case A, Case B, and Case C

In which of the above cases is it most likely that Player A added relatively more red marbles to the bag?
- ○ Case A
- ○ Case B
- ○ Case C

Player B's payoff:
For this part of the experiment, Player B will start with $25 fixed pay. Player B can then choose to *pay* $2 each to remove red marbles from the bag (up to the number of red marbles in the randomly drawn sample).

Removing red marbles reduces the probability of an additional loss of $15, as explained shortly.

Player B's cost to remove red marbles = $2 × the number of red marbles removed



Possible loss for Player B:
Beyond the cost incurred to remove red marbles, Player B can lose an additional $15. The probability of losing an additional $15 depends on how many red marbles are in the bag *after* Player A has added up to 5 red marbles and *after* Player B has removed red marbles.

Recall that Player A can add up to 5 red marbles to the bag (the bag starts out containing 5 red marbles and 5 white marbles). After Player A adds 5 marbles, Player B can remove red marbles up to the number of red marbles in a randomly drawn sample of 5 marbles. After Player A's and Player B's decisions, the bag could contain any number of red marbles from 0 (zero) to 10.

At one extreme, the bag could contain 0 (zero) red marbles if Player A chose not to add any red marbles but Player B removed 5 red marbles (assuming the random sample contained all 5 red marbles that were already in the bag).

At the other extreme, the bag could contain as many as 10 red marbles if Player A chose to add 5 red marbles but Player B did not choose to remove any red marbles.

Any other number of red marbles is possible, depending on both players' decisions.

The final number of red marbles remaining in the bag determines the probability of Player B incurring the $15 penalty. These probabilities are shown on the next screen.

Here is how the final number of red marbles remaining in the bag determines the probability that Player B loses an additional $15:

- If the bag contains *5 or fewer* red marbles, Player B has a 5% chance of losing $15. It does not matter for this determination if the bag contains 0, 1, 2, 3, 4, or 5 red marbles, as long as the total is 5 or fewer.
- If the bag contains *exactly 6* red marbles, Player B has a 20% chance of losing $15.
- If the bag contains *exactly 7* red marbles, Player B has a 35% chance of losing $15.

- If the bag contains *exactly 8* red marbles, Player B has a 55% chance of losing $15.
- If the bag contains *exactly 9* red marbles, Player B has a 75% chance of losing $15.
- If the bag contains *exactly 10* red marbles, Player B has a 95% chance of losing $15.

Examples of Player B's payoff:
Example 1: If Player B removes 5 red marbles at a cost of 5 × $2 = $10 (assuming the sample has five red marbles), the bag would then contain from 0 (zero) to 5 red marbles, depending on how many red marbles Player A added. Because the final number of red marbles in the bag would always be 5 or fewer in this example, Player B would have only a 5% chance of losing an additional $15. Player B's net pay for this part of the experiment would either be $25 - $10 = $15, with 95% probability, or $25 - $10 - $15 = $0, with 5% probability.
Also, there is a 60% chance that Player B's choice to remove 5 red marbles would impose a loss of 5 × $3.00 = $15 on *Player A*.

Example 2: If Player B removes 0 (zero) red marbles at no cost, the bag would then contain from 5 to 10 red marbles, depending on how many red marbles Player A added. Thus, the probability that Player B would lose $15 of B's initial $25 would depend entirely on whether Player A added 0, 1, 2, 3, 4, or 5 red marbles.
Also, because Player B chose not to remove any red marbles in this example, there would be no loss imposed *on Player A*.

Example 3: If Player B removes 3 red marbles at a cost of 3 × $2 = $6, the bag would then contain from 2 to 7 red marbles, depending on how many red marbles Player A added. If the bag contains 2, 3, 4, or 5 red marbles, Player B would have a 5% chance of losing $15. If the bag contains 6 red marbles, Player B would have a 20% chance of losing $15. If the bag contains 7 red marbles, Player B would have a 35% chance of losing $15.
Also, there is a 60% chance that Player B's choice to remove 3 red marbles would impose a loss of 3 × $3.00 = $9 on *Player A.*

Recap: Player A and Player B choices and payoffs for this part of the experiment

Player A:

Player A starts out with	$15
Additional pay:	
$2 per red marble added to the bag by Player A (up to 5)	+$0 to +$10
Possible loss:	
There is a 40% chance that Player A will incur no loss due to marbles removed by Player B	-$0 (loss N/A)

If the loss applies (60% probability), Player A loses $3 per red marble removed by Player B up to the number of red marbles added by Player A	-$0 to -$15
Net payoff to Player A for this part of the experiment	$0 to $25

Player A can earn anything from $0 to $25 for this part of the experiment, depending on how many red marbles Player A chooses to add, which increase A's payoff by $2 each and, potentially, how many red marbles Player B chooses to remove based on the sample information available to Player B. There is a 60% chance that red marbles removed by Player B will decrease Player A's payoff by $3 each, and a 40% chance that marbles removed by Player B will have no impact on Player A's payoff.

Player B:

Player B starts out with	$25
Cost of removing red marbles:	
$2 per red marble removed from the bag by Player B (up to 5)	-$0 to -$10
Possible loss: probably of loss determined by final number of red marbles in the bag	
If the $15 loss *does not* apply	-$0 (loss N/A)
If the $15 loss *does* apply	-$15
Net payoff to Player B for this part of the experiment	$0 to $25

Player B can earn anything between $0 and $25 for this part of the experiment, depending on how many red marbles Player B chooses to remove (up to the number in the randomly drawn sample), which decrease B's payoff by $2 each, and whether or not the $15 loss applies at the stated probability for the number of red marbles remaining in the bag.

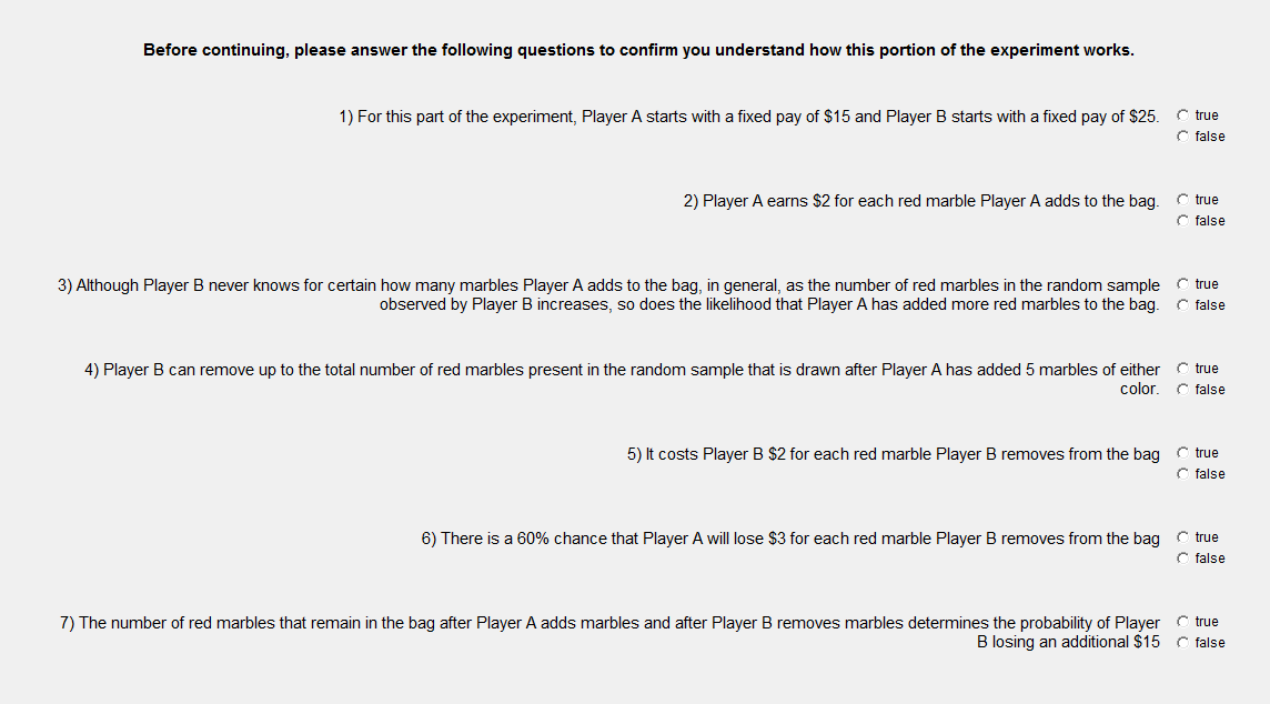
How we determine probabilities:

For Player A, the loss of $3 each from red marbles removed by Player B applies with 60% probability. To determine this outcome, each Player A will draw a single card at the end of the experiment from a customized deck with 100 cards numbered from 1 to 100. If the number on the card drawn is equal to or less than 60, the loss of $3 per red marble removed by Player B will apply to Player A's final payoff. Otherwise, (if the number on the card drawn is greater than 60), the loss will not apply.

For **Player B**, the probability of a loss of $15 is based on the number of red marbles remaining in the bag after Player A's and Players B's decisions:

- If the bag contains *5 or fewer* red marbles, Player B has a 5% chance of losing $15. It does not matter for this determination if the bag contains 0, 1, 2, 3, 4, or 5 red marbles, as long as the total is 5 or fewer.
- If the bag contains *exactly 6* red marbles, Player B has a 20% chance of losing $15.
- If the bag contains *exactly 7* red marbles, Player B has a 35% chance of losing $15.
- If the bag contains *exactly 8* red marbles, Player B has a 55% chance of losing $15.
- If the bag contains *exactly 9* red marbles, Player B has a 75% chance of losing $15.
- If the bag contains *exactly 10* red marbles, Player B has a 95% chance of losing $15.

The outcomes of these probabilities will be determined by having each Player B draw a single card at the end of the experiment from a customized deck with 100 cards numbered from 1 to 100. If the number on the card drawn is equal to or less than the relevant probability as stated above, the loss of $15 will apply. Otherwise, if the number on the card drawn is greater than the stated probability, the $15 loss will not apply.



Before continuing, please answer the following questions to confirm you understand how this portion of the experiment works.

1) For this part of the experiment, Player A starts with a fixed pay of $15 and Player B starts with a fixed pay of $25. ○ true ○ false

2) Player A earns $2 for each red marble Player A adds to the bag. ○ true ○ false

3) Although Player B never knows for certain how many marbles Player A adds to the bag, in general, as the number of red marbles in the random sample observed by Player B increases, so does the likelihood that Player A has added more red marbles to the bag. ○ true ○ false

4) Player B can remove up to the total number of red marbles present in the random sample that is drawn after Player A has added 5 marbles of either color. ○ true ○ false

5) It costs Player B $2 for each red marble Player B removes from the bag ○ true ○ false

6) There is a 60% chance that Player A will lose $3 for each red marble Player B removes from the bag ○ true ○ false

7) The number of red marbles that remain in the bag after Player A adds marbles and after Player B removes marbles determines the probability of Player B losing an additional $15 ○ true ○ false

Probability Reference Sheet

The following was provided to participants in hard copy to reference when making decisions during the audit task.

Condition *without* Measurement Uncertainty

For Player B, the probability of a loss of $15 is based on the number of red marbles remaining in the bag after Player A's and Players B's decisions:

- If the bag contains *exactly 0* red marbles, Player B has a 5% chance of losing $15.
- If the bag contains *exactly 1* red marbles, Player B has a 20% chance of losing $15.
- If the bag contains *exactly 2* red marbles, Player B has a 35% chance of losing $15.
- If the bag contains *exactly 3* red marbles, Player B has a 55% chance of losing $15.
- If the bag contains *exactly 4* red marbles, Player B has a 75% chance of losing $15.
- If the bag contains *exactly 5* red marbles, Player B has a 95% chance of losing $15.

Condition *with* Measurement Uncertainty

For Player B, the probability of a loss of $15 is based on the number of red marbles remaining in the bag after Player A's and Players B's decisions:

- If the bag contains *5 or fewer* red marbles, Player B has a 5% chance of losing $15. It does not matter for this determination if the bag contains 0, 1, 2, 3, 4, or 5 red marbles, as long as the total is 5 or fewer.
- If the bag contains *exactly 6* red marbles, Player B has a 20% chance of losing $15.
- If the bag contains *exactly 7* red marbles, Player B has a 35% chance of losing $15.
- If the bag contains *exactly 8* red marbles, Player B has a 55% chance of losing $15.
- If the bag contains *exactly 9* red marbles, Player B has a 75% chance of losing $15.
- If the bag contains *exactly 10* red marbles, Player B has a 95% chance of losing $15.

Materials Informing Players of Their Roles

The following appeared on the computer screen after participants had completed the instructions for Part 2 (the audit task) of the experiment.

Player A, condition without [with] a social bond:

You have been assigned to the role of Player A and the person across from you in the other row is [you answered trivia questions with earlier has been assigned to the role of] Player B.

As a reminder, you will decide how many white and red marbles to add to the bag.

You start with $15 and will receive an additional $2 for each red marble you add. You have a 60% chance of losing $3 for each red marble that Player B removes from the bag.

Player B, condition without [with] a social bond:

You have been assigned to the role of Player B and the person across from you in the other row is [you answered trivia questions with earlier has been assigned to the role of] Player A.

The following paragraph appeared in the condition without uncertainty only:

As a reminder, based on how many red marbles are present in the bag after Player A adds five marbles of either color to the bag, you will decide how many red marbles to remove.

The following paragraph appeared in the condition with uncertainty only:

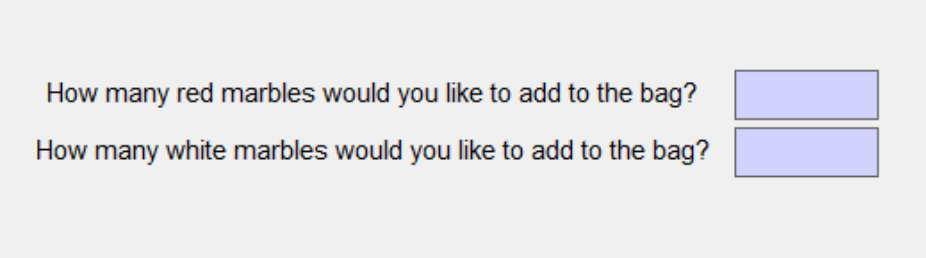
As a reminder, based on how many red marbles are present in a random sample of 5 marbles drawn after Player A adds five marbles of either color to the bag, you will decide how many red marbles to remove.

You start with $25 and it will cost you $2 for each red marble you remove. There is a 60% chance that Player A will be charged $3 for each red marble that you remove.

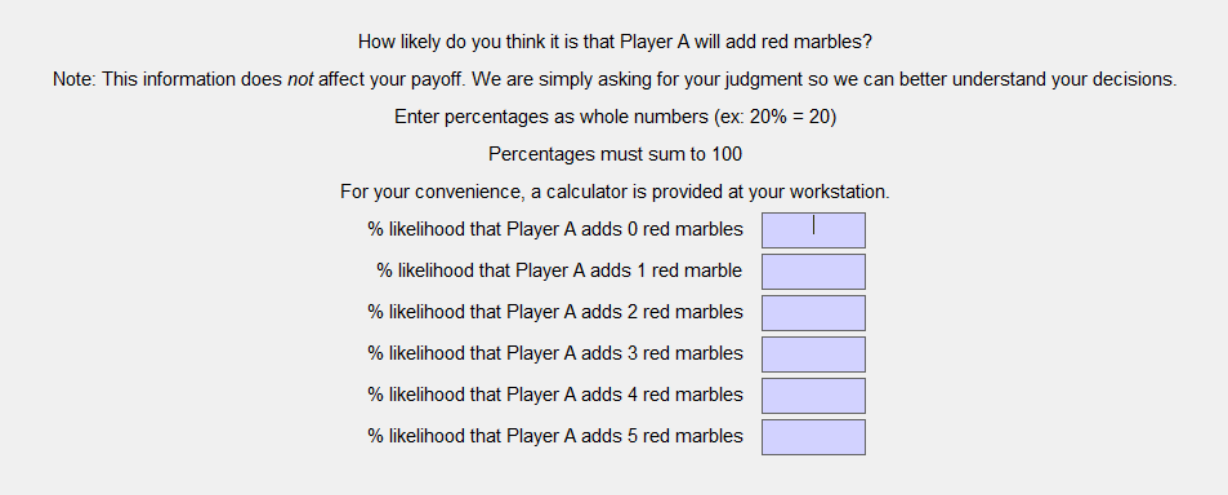
Based on the total number of red marbles that are not removed from the bag, you may be subject to losing an additional $15. At the end of the experiment we will draw a numbered card to determine whether or not this penalty is assessed based on the probabilities provided to you earlier.

Additional Relevant Screenshots from the Z-Tree Interface

Player A Adds Red Marbles:



Elicit Priors from Player B:



Player B Removes Red Marbles (condition without measurement uncertainty):

How many red marbles would you like to remove from the bag?

Remember that you will be charged $2 for each red marble you remove and that there is a 60% chance that removing marbles will impose a cost of $3 per marble removed on Player A. The final number of red marbles remaining in the bag determines your probability of incurring the $15 penalty.

If Player A adds 0 red marbles, there are no red marbles for you to remove.

If Player A adds 1 red marble, how many red marbles would you like to remove from the bag? ○ 0 ○ 1

If Player A adds 2 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2

If Player A adds 3 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2 ○ 3

If Player A adds 4 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2 ○ 3 ○ 4

If Player A adds 5 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2 ○ 3 ○ 4

Player B Removes Red Marbles (condition with uncertainty):

How many red marbles would you like to remove from the bag?

Remember that you will be charged $2 for each red marble you remove and that there is a 60% chance that removing marbles will impose a cost of $3 per marble removed on Player A. The final number of red marbles remaining in the bag determines your probability of incurring the $15 penalty.

If the random sample of 5 marbles contains 0 red marbles, you cannot remove any red marbles from the bag.

If the random sample of 5 marbles contains 1 red marble, how many red marbles would you like to remove from the bag? ○ 0 ○ 1

If the random sample of 5 marbles contains 2 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2

If the random sample of 5 marbles contains 3 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2 ○ 3

If the random sample of 5 marbles contains 4 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2 ○ 3 ○ 4

If the random sample of 5 marbles contains 5 red marbles, how many red marbles would you like to remove from the bag? ○ 0 ○ 1 ○ 2 ○ 3 ○ 4 ○ 5

Risk Preferences:

Part 3

We will reveal the number of red marbles added and subtracted, and your payoff, at the end of the experiment. For now, please continue to Part 3.

Part 3 is based only on your individual decisions. You will not be paired with another participant for this part of the experiment.

Listed below are 15 "items" that contain a sure thing and a lottery. Items near the top of the screen contain lotteries where you have a higher chance of winning. The chance of winning decreases as you move down the screen.

Your task is to select the FIRST item as you go down the list where you would prefer the sure thing over the lottery.

Example 1: If you select item 1, it means that you would prefer $2.50 for sure rather than any of the lotteries listed.

Example 2: If you select item 8, it means that, rather than receiving $2.50 for sure, you would prefer any lottery where the chance of winning $5 is greater than 50%. It also means that you would prefer $2.50 for sure rather than any lottery where the chance of winning $5 is less than or equal to 50%.

Example 3: If you select item 15, it means that you would prefer any of the lotteries listed over receiving $2.50 for sure.

After you have made your choice, we will randomly select one of the 15 items for payment by drawing a numbered chip from a container holding chips numbered 1 through 15. If the item selected for payment is higher on the list than the item you selected (the number of the chip is less than the number of the item you selected), you will participate in a lottery with odds given by item that was drawn. Otherwise, you will receive $2.50 for sure.

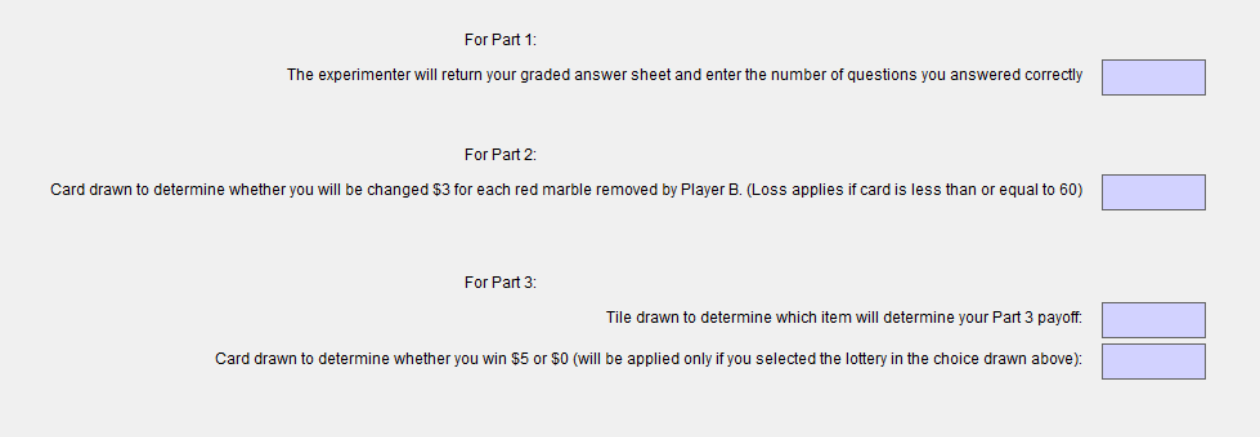
For example, assume that item 4 was selected for payment (i.e., the chip with the number 4 was drawn). If the item you chose was item 1, 2, 3, or 4, you would receive $2.50. If you chose item 5 through 15, you would have a 70% chance of receiving $5.00 and a 30% chance of receiving nothing.

The outcomes of the lottery will be determined by having each participant draw a single card at random from a customized deck with 100 cards numbered from 1 to 100. If the number on the card drawn is equal to or less than the stated probability of winning the lottery, the participant will receive $5. Otherwise, if the number on the card drawn is greater than the stated probability, the participant will receive $0.

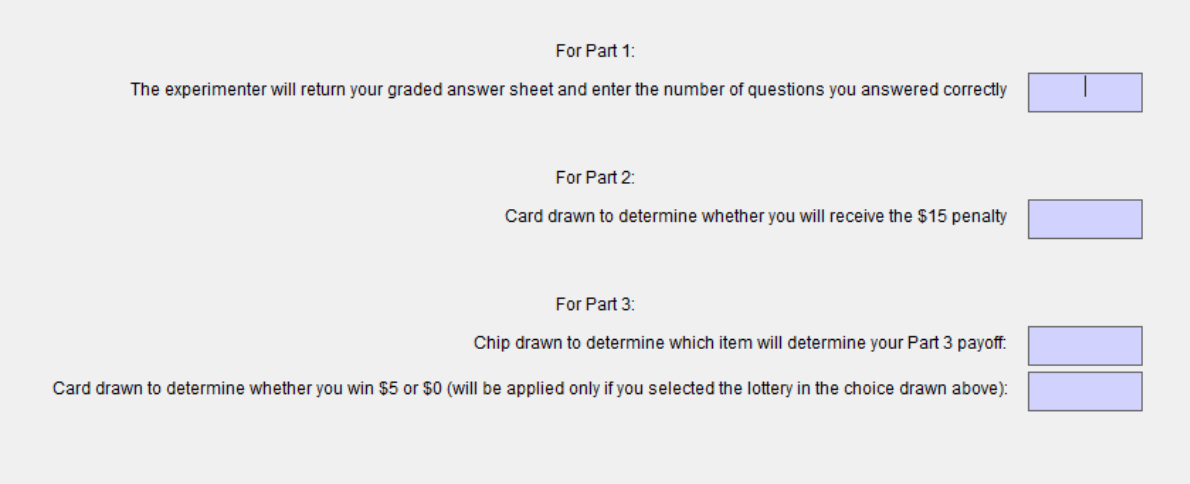
These extra payments are in addition to anything you have already earned from earlier parts of the experiment.

- ○ Item 1: I prefer $2.50 for sure over a lottery with an 85% chance to win $5 and 15% chance to win $0
- ○ Item 2: I prefer $2.50 for sure over a lottery with an 80% chance to win $5 and 20% chance to win $0
- ○ Item 3: I prefer $2.50 for sure over a lottery with an 75% chance to win $5 and 25% chance to win $0
- ○ Item 4: I prefer $2.50 for sure over a lottery with an 70% chance to win $5 and 30% chance to win $0
- ○ Item 5: I prefer $2.50 for sure over a lottery with an 65% chance to win $5 and 35% chance to win $0
- ○ Item 6: I prefer $2.50 for sure over a lottery with an 60% chance to win $5 and 40% chance to win $0
- ○ Item 7: I prefer $2.50 for sure over a lottery with an 55% chance to win $5 and 45% chance to win $0
- ○ Item 8: I prefer $2.50 for sure over a lottery with an 50% chance to win $5 and 50% chance to win $0
- ○ Item 9: I prefer $2.50 for sure over a lottery with an 45% chance to win $5 and 55% chance to win $0
- ○ Item 10: I prefer $2.50 for sure over a lottery with an 40% chance to win $5 and 60% chance to win $0
- ○ Item 11: I prefer $2.50 for sure over a lottery with an 35% chance to win $5 and 65% chance to win $0
- ○ Item 12: I prefer $2.50 for sure over a lottery with an 30% chance to win $5 and 70% chance to win $0
- ○ Item 13: I prefer $2.50 for sure over a lottery with an 25% chance to win $5 and 75% chance to win $0
- ○ Item 14: I prefer $2.50 for sure over a lottery with an 20% chance to win $5 and 80% chance to win $0
- ○ Item 15: I prefer $2.50 for sure over a lottery with an 15% chance to win $5 and 85% chance to win $0

Realization of stochastic elements for Player A:



Realization of stochastic elements for Player B:



Example of Player A Payoff Screen (condition without measurement uncertainty):

Information related to the calculation of your total payment for the experiment is shown below	
You receive a flat fee just for participating: $	5.00
Part 1:	
You receive $1 for each question you answered correctly: $	6.00
Part 2:	
Your fixed pay for this portion of the experiment: $	15.00
The number of red marbles you added to the bag	5
You receive $2 per marble added: $	10.00
The number of red marbles Player B removed from the bag	5
Numbered card drawn to determine whether you will be charged $3 for each red ball removed by Player B (loss applies if number drawn is less than or equal to 60):	5
Based on the card drawn, were you charged $3 for each red ball removed by Player B?	Yes
Your loss from red marbles removed by Player B: $	15.00
Part 3:	
"Item" you selected as the first item where you would prefer the "sure thing" to the "lottery":	4
"Item" drawn to determine payment:	5
% chance of winning $5 given by item drawn to determine payment:	65
Numbered card drawn to determine outcome of lottery (if number drawn is lower than probabilty above, you win the lottery):	4
Will your payment for this part of the experiment be based on the "sure thing" or the "lottery" contained in the item drawn to determine payment?	Sure Thing
Your payment for this part of the experiment is: $	2.50
Your total payment for the experiment is: $	23.50

Example of Player A Payoff Screen (condition with measurement uncertainty):

Information related to the calculation of your total payment for the experiment is shown below	
You receive a flat fee just for participating: $	5.00
Part 1:	
You receive $1 for each question you answered correctly: $	6.00
Part 2:	
Your fixed pay for this portion of the experiment: $	15.00
The number of red marbles you added to the bag	5
You receive $2 per marble added: $	10.00
The number of red marbles present in randomly drawn sample presented to Player B	4
The number of red marbles Player B removed from the bag (based on the randomly drawn sample)	3
Numbered card drawn to determine whether you will be charged $3 for each red ball removed by Player B (loss applies if number drawn is less than or equal to 60):	4
Based on the card drawn, were you charged $3 for each red ball removed by Player B?	Yes
Your loss from red marbles removed by Player B: $	9.00
Part 3:	
"Item" you selected as the first item where you would prefer the "sure thing" to the "lottery":	9
"Item" drawn to determine payment:	2
% chance of winning $5 given by item drawn to determine payment:	80
Numbered card drawn to determine outcome of lottery (if number drawn is lower than probabilty above, you win the lottery):	28
Will your payment for this part of the experiment be based on the "sure thing" or the "lottery" contained in the item drawn to determine payment?	Lottery
Your payment for this part of the experiment is: $	5.00
Your total payment for the experiment is: $	32.00

Example of Player B Payoff Screen (condition without measurement uncertainty):

Information related to the calculation of your total payment for the experiment is shown below	
You receive a flat fee just for participating: $	5.00
Part 1:	
You receive $1 for each question you answered correctly: $	6.00
Part 2:	
Your fixed pay for this portion of the experiment: $	25
The number of marbles Player A added to the bag:	5
The number of marbles you removed from the bag (based on the number of marbles added by Player A):	5
Your cost for removing red marbles: $	10.00
The number of marbles remaining in the bag:	0
% Chance of being assessed the $15 penalty (based on number of red marbles remaining in the bag):	5
Numbered card drawn to determine whether you will be assessed the penalty (if number drawn is lower than probabilty above, you will be assessed the penalty):	51
Will you be assessed the $15 penalty?	No
Your payment for Part 2 of the experiment is: $	15.00
Part 3:	
"Item" you selected as the first item where you would prefer the "sure thing" to the "lottery":	14
"Item" drawn to determine payment:	2
% chance of winning $5 given by item drawn to determine payment:	80
Numbered card drawn to determine outcome of lottery (if number drawn is lower than probabilty above, you win the lottery):	24
Will your payment for this part of the experiment be based on the "sure thing" or the "lottery" contained in the item drawn to determine payment?	Lottery
Your payment for this part of the experiment is: $	5.00
Your total payment for the experiment is: $	31.00

Example of Player B Payoff Screen (condition with measurement uncertainty):

Information related to the calculation of your total payment for the experiment is shown below	
You receive a flat fee just for participating: $	5.00
Part 1:	
You receive $1 for each question you answered correctly: $	6.00
Part 2:	
Your fixed pay for this portion of the experiment: $	25
The number of red marbles Player A added to the bag:	5
The number of red marbles in the randomly drawn sample of five marbles (determined by the computer)	4
The number of red marbles you removed from the bag (based on the sample above)	3
Your cost for removing red marbles: $	6.00
The number of red marbles remaining in the bag	7
% Chance of being assessed the $15 penalty (based on number of red marbles remaining in the bag)	35
Numbered card drawn to determine whether you will be assessed the penalty (if number drawn is lower than probabilty above, you will be assessed the penalty)	51
Will you be assessed the $15 penalty?	No
Your payment for Part 2 of the experiment is: $	19.00
Part 3:	
"Item" you selected as the first item where you would prefer the "sure thing" to the "lottery":	6
"Item" drawn to determine payment:	4
% chance of winning $5 given by item drawn to determine payment:	70
Numbered card drawn to determine outcome of lottery (if number drawn is lower than probabilty above, you win the lottery):	66
Will your payment for this part of the experiment be based on the "sure thing" or the "lottery" contained in the item drawn to determine payment?	Lottery
Your payment for this part of the experiment is: $	5.00
Your total payment for the experiment is: $	35.00

Post Experimental Questionnaire

Player A

Please indicate your answers to the following questions:

To what extent do you agree or disagree with the following statements about you and the person you were paired with during Part 2 of the experiment?

1. Before making any decisions about adding or removing marbles in Part 2 of the experiment, I had positive feelings toward the person I was paired with.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

2. Before making any decisions about adding or removing marbles in Part 2 of the experiment, I felt like the person I was paired with and I were working together/on the same team.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

3. Before making any decisions about adding or removing marbles in Part 2 of the experiment, I felt close to the person I was paired with.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

4. I viewed the red marbles in Part 2 of the experiment as primarily helping me rather than hurting Player B.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

5. My feelings toward Player B played a role in how many marbles I chose to add to the bag in Part 2 of the experiment.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

6. During Part 2 of the experiment, I was motivated to maximize my payoff regardless of what it meant for Player B.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

7. During Part 2 of the experiment, I wanted to make sure I got a payoff that was at least as much as Player B's payoff.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

8. Please indicate on the scale below which is most important to you:

Avoiding Negative Outcomes			Both are equally important			Getting positive outcomes
1	2	3	4	5	6	7

9. What is your gender?

1. Male
2. Female

10. What is your major? _____

11. Do you have any direct experience with financial statement auditing (work experience or have taken a course in auditing)?

1. Yes
2. No

Thank you! Once you have answered all the questions, please raise your hand and the experimenter will collect your questionnaire and assist you with determining the probabilistic outcomes relevant to calculating your final payoff.

Player B

Please indicate your answers to the following questions:

To what extent do you agree or disagree with the following statements about you and the person you were paired with during Part 2 of the experiment?

1. Before making any decisions about adding or removing marbles in Part 2 of the experiment, I had positive feelings toward the person I was paired with.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

2. Before making any decisions about adding or removing marbles in Part 2 of the experiment, I felt like the person I was paired with and I were working together/on the same team.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

3. Before making any decisions about adding or removing marbles in Part 2 of the experiment, I felt close to the person I was paired with.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

4. I viewed the red marbles in Part 2 of the experiment as primarily hurting me rather than helping Player A.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

5. During Part 2 of the experiment, I was very concerned about the risk of being assessed the $15 penalty.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

6. My feelings toward Player A played a role in how many marbles I chose to remove from the bag in Part 2 of the experiment.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

7. During Part 2 of the experiment, I was motivated to maximize my payoff regardless of what it meant for Player A

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

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8. During Part 2 of the experiment, I wanted to make sure I got a payoff that was at least as much as Player A's payoff.

1) Strongly disagree
2) Mostly disagree
3) Somewhat disagree
4) Neither agree nor disagree
5) Somewhat agree
6) Mostly agree
7) Strongly agree

9. Please indicate on the scale below which is most important to you:

Avoiding Negative Outcomes			Both are equally important			Getting positive outcomes
1	2	3	4	5	6	7

10. What is your gender?

3. Male
4. Female

11. What is your major? _____

12. Do you have any direct experience with financial statement auditing (work experience or have taken a course in auditing)?

3. Yes
4. No

Thank you! Once you have answered all the questions, please raise your hand and the experimenter will collect your questionnaire and assist you with determining the probabilistic outcomes relevant to calculating your final payoff.