

# Procedures Appendix: Instructions and Protocols

Online Appendix for “Contingent Thinking and the Sure-Thing Principle: Revisiting classic anomalies in the laboratory” by Ignacio Esponda and Emanuel Vespa

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# 1 General comments on procedures and instructions

In this document, we include the instructions and protocols (e.g. scripts read by the experimenter) used in all the sessions we conducted. For each question that subjects face, we followed a similar approach. We first read instructions. In the between- and within-subjects designs, instructions were distributed on paper and read aloud. We made sure that the only set of instructions that subjects had on their desks corresponds to the question that they face. This means that once the question was over, we collected instructions for that question prior to distributing instructions for the next question. In the within+ design, the instructions were presented directly on the subject’s screen. This was done to avoid the time it takes to collect and distribute instructions question by question.

After reading instructions, the experimenter read a script to explain to the subject how to use the interface in the question at hand (this document includes all the scripts that were read during this period). Reading the script while subjects learn to use the interface effectively meant that subjects had to go over the question for a second time. In the within+ experiment, where there are many questions per problem, we let subjects move at their own pace after we have followed the procedure for the first question in each part. However, subjects have to answer questions on understanding of the instructions question by question. We do not let them move forward to answer the question at hand until the questions on the instructions were answered correctly.

For all problems in the between and within designs we introduce the question in two steps. First, we present what we call a ‘decision problem.’ The decision-problem refers to the agent that is facing the problem as the ‘decision-maker.’ The contingent version of the decision problem describes the fixed payoff for set  $A^c$ , and the choice-dependent payoff for set  $A$ .<sup>1</sup> For example, in the case of the first question in the Ellsberg problem we describe payoffs in  $A^c$  in the following manner. “If the randomly drawn ball is blue, the decision maker gets \$10. The decision problem ends here.” After this, the instructions explain payoffs for the subjects in case the ball is not blue (that is, if it is in  $A$ ). For example, describing option 1 of question 1 in Ellsberg we say: “If the ball drawn from the jar is red, the decision maker gets \$10; If the ball drawn from the jar is yellow, the decision maker gets \$0.” In the noncontingent version, we describe the payoffs of each action for each possible state including the

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<sup>1</sup> $A^c$  is the set of states for which the agent’s choice does not change payoffs.

states in  $A^c$  within each option. For example, describing option 1 of question 1 in Ellsberg we say. “If the ball drawn from the jar is red or blue, the decision maker gets \$10; If the ball drawn from the jar is yellow, the decision maker gets \$0.”

The second step consists of describing the subject’s task. In noncontingent versions, the subject is simply told that they are the ‘decision-maker.’ In contingent versions, the subject is told that they will provide instructions regarding what to do in the decision problem. For example, in Ellsberg we tell them that they will provide instructions regarding what to do in case the ball is not blue and the decision-maker has to make a choice. In the contingent version we ask them to provide instructions regarding what to do in the decision problem because we want subjects to provide an answer where it is clear for them that the uncertainty is not resolved at that moment. Thus, the level of uncertainty is the same in the noncontingent and contingent versions of the problem.

We decided to describe the decision problem separately from the subject’s task to avoid possible confusions. Consider the alternative where instead of using ‘decision-maker’ in describing the problem we directly refer to the subject. This is the option followed in the literature to describe the noncontingent version. In the contingent version, it may create confusion. In this case, the decision-maker chooses only if the state is in  $A$ . But if we used the word ‘you’ instead of ‘decision-maker’ when describing the decision problem, subjects may think that when they make a choice they know that the state is indeed in  $A$ . Describing the decision problem separately from the task and using the language ‘provide instructions’ aims to make it clear that when they make a choice they have not been provided any information about the realization of the state of the world.

Once we decided to use the two steps in describing the problem for the contingent versions we decided to use it as well in the noncontingent version for comparability. Even though this makes the instructions of noncontingent versions slightly different relative to the literature, we find that our noncontingent versions of the problem replicate standard results in the literature.

## Between-subjects design: Session Details

We aimed at recruiting between 18 and 23 subjects per session, and then conducting three sessions per treatment. Below we reproduce instructions for all treatments. In addition, between brackets we provide aspects of the protocol (e.g. scripts for the experimenter) and other details within the session that are not in the instructions.

## 2 Between: Part 1

### Welcome

[Read by the experimenter, not distributed to subjects] You are about to participate in a session on decision-making, and you will be paid for your participation with cash, privately at the end of the session. The experiment will last approximately 30 minutes. For showing up to this experiment, you will receive \$2.50. The entire session will take place through computer terminals and there will be no interaction with participants seated at other terminals. Please turn off cell phones now.

### 2.1 Ellsberg

#### Selection of the monitor

[Read by the experimenter, not distributed to subjects] One of you will be randomly selected to be the monitor in this experiment. The monitor will get \$2.50 for helping us to conduct the experiment (in addition to the \$2.50 show up payment).

The monitor will have to choose a number from 0 to 60. Monitor: Please think of a number from 0 to 60. After you choose a number, please enter it in the computer screen. I will explain the role of the number chosen by the monitor in a minute. Notice that the monitor does not know how this number will be used.

[The monitor is asked to leave the room. After the monitor leaves the room instructions are distributed]

[Page 1 of Part 1 instructions entitled “The jar” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud.]

#### Part 1. The jar.

There is one jar in this experiment. The jar contains 90 balls. Of the 90 balls, 30 are RED, and 60 are YELLOW or BLUE.

To determine how many balls are YELLOW or BLUE, the interface will use the number between 0 and 60 chosen by the monitor.

Out of the 60 balls that are YELLOW or BLUE, the number of YELLOW balls will be equal to the number that the monitor entered in the computer. The remaining of these 60 balls will be BLUE.

You will not know, until the end of the experiment, how many of the 60 balls are YELLOW and how many are BLUE.

I now summarize the information about the composition of the jar:

- There is a total of 90 balls.
  - $1/3$  of the balls (that is, 30 balls) are RED.
  - $2/3$  of the balls (that is, 60 balls) are YELLOW or BLUE. You do not know how many of these 60 balls are YELLOW and how many are BLUE. Any combination of YELLOW and BLUE balls is possible.

At the end of the experiment, the screen will display the number chosen by the monitor.

### **Your task**

Part 1 of the experiment consists of 2 questions.

The composition of the jar will be the same in each of these 2 questions. At the end of the experiment, the interface will randomly select one of these 2 questions and I will pay you your earnings in this randomly selected question.

[Page 2 of Part 1 entitled “Part 1 Question #1” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud. From here on (in Part 1) the noncontingent and the contingent treatments differ. We first present instructions for questions 1 and 2 in the noncontingent treatment and then in the contingent treatment. The words noncontingent and contingent did not appear on the instructions we distributed to subjects.]

#### **2.1.1 Noncontingent treatment**

##### Part 1. Question #1.

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED or BLUE, the decision maker gets \$10;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
  - Option 2.
    - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$10;
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

### **Your task**

You are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the drawn ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 1**: “On your screens you can see the composition of the jar. There is a total of 90 balls. One-third of the balls are red and two-third of the balls are yellow or blue. You do not know how many balls are yellow or blue. The number of yellow balls is equal to the number that the monitor entered in the computer. Please do not click on the ‘select ball’ button, but when I ask you to click on the ‘select ball’ button the interface will select one of the 90 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not

click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. You can see two options on the screen. When we finish with instructions you can select either Option 1 or Option 2 by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted in orange and that a submit button appears. You can change your choice as long as you haven't clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question #1. Then, the experimenter distributes Page 3 of the instructions entitled Part 1 Question #2 and reads it aloud.]

#### Part 1. Question #2.

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$10;
    - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$0;
  - Option 2.
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$10;
    - \* If the ball drawn from the jar is RED or BLUE, the decision maker gets \$0;

**Your task**



You are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 1**. Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

### 2.1.2 Contingent treatment

#### Part 1. Question #1.

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$10. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$10;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
  - Option 2.
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$10;

\* If the ball drawn from the jar is RED, the decision maker gets \$0.

### Your task

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #1 will be \$10. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 2**: “On your screens you can see the composition of the jar. There is a total of 90 balls. One-third of the balls are red and two-third of the balls are yellow or blue. You do not know how many balls are yellow or blue. The number of yellow balls is equal to the number that the monitor entered in the computer. Please do not click on the ‘select ball’ button, but when I ask you to click on the ‘select ball’ button the interface will select one of the 90 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. If the selected ball were blue, your payoff for question #1 would be \$10. You have to provide instructions regarding what to do in case the selected ball were not blue. If the ball were not blue, the interface will the option that you select to determine your payoff. You can see two options on the screen. When we finish with instructions you can select either Option 1 or Option 2 by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted in orange and that a submit button appears. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button

your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question #1. Then, the experimenter distributes Page 3 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$0. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$10;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
  - Option 2.
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$10;
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

**Your task**

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #2. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #2 will be \$0. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, we will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 2**, only replacing that the payoff if the blue ball is selected is \$0. Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

## 2.2 Common-consequence Allais

[Page 1 of Part 1 instructions entitled “The jar” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud.]

### Part 1. The jar.

There is one jar in this experiment. The jar contains 100 balls. Of the 100 balls, 1 ball is RED, 10 balls are YELLOW, and 89 balls are BLUE. I now summarize the information about the composition of the jar:

- There is a total of 100 balls.
  - 1% of the balls (that is, 1 ball) is RED.
  - 10% of the balls (that is, 10 balls) are YELLOW.
  - 89% of the balls (that is, 89 balls) are BLUE.

### **Your task**

Part 1 of the experiment consists of 2 questions.

The composition of the jar will be the same in each of these 2 questions. The payoffs expressed in Part 1 are expressed in millions of dollars and are obviously hypothetical. Please try to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part 1.

[Page 2 of Part 1 entitled “Part 1 Question #1” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud. From here on (in Part 1) the noncontingent and the contingent treatments differ. We first

present instructions for questions 1 and 2 in the noncontingent treatment and then in the contingent treatment. The words noncontingent and contingent did not appear on the instructions we distributed to subjects.]

### 2.2.1 Noncontingent treatment

#### Part 1. Question #1.

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* The decision maker gets \$100 million for sure, no matter if the ball drawn from the jar is RED, YELLOW, or BLUE.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million;
    - \* If the ball drawn from the jar is BLUE, the decision maker gets \$100 million.

#### **Your task**

Suppose that you are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the ball drawn from the jar, please tell us which option you prefer, Option 1 or Option 2?

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part 1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 3**: “On your screens you can see the composition of the jar. There is a total of 100 balls. One ball is red, ten balls are yellow and eighty-nine balls blue. Please do not click on the ‘select ball’ button, but when I ask you to click on the ‘select ball’ button the interface will select one of the 100 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. You can see two options on the screen. When we finish with instructions you can select either Option 1 or Option 2 by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted in orange and that a submit button appears. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question #1. Then, the experimenter distributes Page 3 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$100 million;

- \* If the ball drawn from the jar is YELLOW, the decision maker gets \$100 million;
  - \* If the ball drawn from the jar is BLUE, the decision maker gets \$0.
- Option 2.
- \* If the ball drawn from the jar is RED, the decision maker gets \$0;
  - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million;
  - \* If the ball drawn from the jar is BLUE, the decision maker gets \$0.

### Your task

Suppose that you are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please tell us which option you prefer, Option 1 or Option 2?

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part 1.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 3**. Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

### 2.2.2 Contingent treatment

#### Part 1. Question #1.

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$100 million. The decision problem ends here.

- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* The decision maker gets \$100 million for sure, no matter if the ball drawn from the jar is RED or YELLOW.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million.

### Your task

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your hypothetical payoff for Question #1 would be \$1 million. If the ball is NOT BLUE, the interface would implement the option that you indicated to determine your hypothetical payoff.

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part 1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 4**: “On your screens you can see the composition of the jar. There is a total of 100 balls. One ball is red, ten balls are yellow and eighty-nine balls blue. Please do not click on the ‘select ball’ button, but when I ask you to click on the ‘select ball’ button the interface will select one of the 100 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment.



If the selected ball were blue, your hypothetical payoff for question #1 would be \$100 million. You have to provide instructions regarding what to do in case the selected ball were not blue. If the ball were not blue, the interface will the option that you select to determine your hypothetical payoff. You can see two options on the screen. When we finish with instructions you can select either Option 1 or Option 2 by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted in orange and that a submit button appears. You can change your choice as long as you haven't clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question 1. Then, the experimenter distributes Page 3 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$0. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* The decision maker gets \$100 million for sure, no matter if the ball drawn from the jar is RED or YELLOW.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0;

- \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million.

## Your task

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #2. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your hypothetical payoff for Question #2 would be \$0. If the ball is NOT BLUE, the interface would implement the option that you indicated to determine your hypothetical payoff.

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part 1.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 2**, only replacing that the hypothetical payoff if the blue ball is selected is \$0. Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

## 2.3 Auction

[Page 1 of Part 1 instructions entitled “Part 1” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud.]

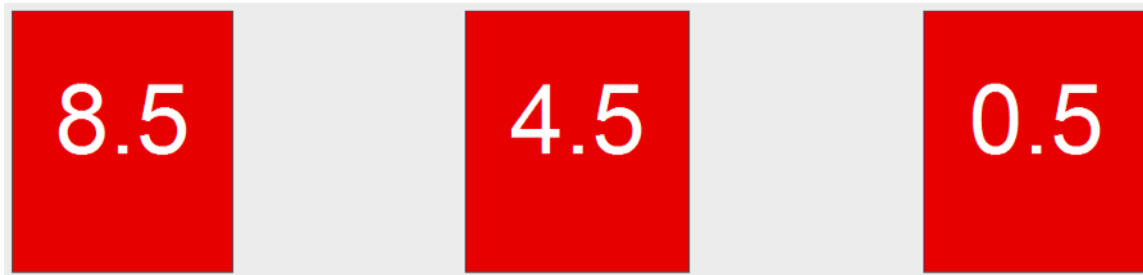
### 2.3.1 Noncontingent treatment

#### Part 1.

The decision problem

Before describing your task for Part 1, I will describe a decision problem. Your task will be based on this decision problem, so please pay attention.

- The decision maker will see the following three cards on the screen. The numbers on the cards are: 8.5, 4.5 and 0.5.



- The computer will randomly draw a card, with each card having equal chance. The decision maker will not know which card was drawn.
- The decision maker will then be asked to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8).
- Payoff of the decision maker:
  - If the number chosen by the decision maker is higher than the number on the drawn card: Payoff = 5.5 MINUS the number on the card (in dollars)
  - If the number chosen by the decision maker is lower than the number on the drawn card: Payoff = 3 dollars

### Your task

You are the decision maker in the above problem.

Please choose a number.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the three cards. The experimenter follows **Script 9**: “On your screens you can see the three cards, with numbers 8.5, 4.5 and 0.5. Please do not click on the ‘select card’ button yet, but when I ask you to click on the ‘select card’ button the interface will select one of the 3 cards. You will not know the card that was selected until the end of the experiment. Please now click on the select card button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of your payoffs. If the number that you choose is higher than the number on the drawn card, your payoff is 5.5 dollars minus the number on the card. If the number that you choose is lower than the number on the drawn card, your payoff is \$3. A card has already been selected, but you will not know the color

of the ball until the end of the experiment. You can locate a box with the heading “Your number.” When we finish with instructions you can enter in that box a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8). You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please enter a number and click on the submit button.”]

[Once all subjects finish with Part 1 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

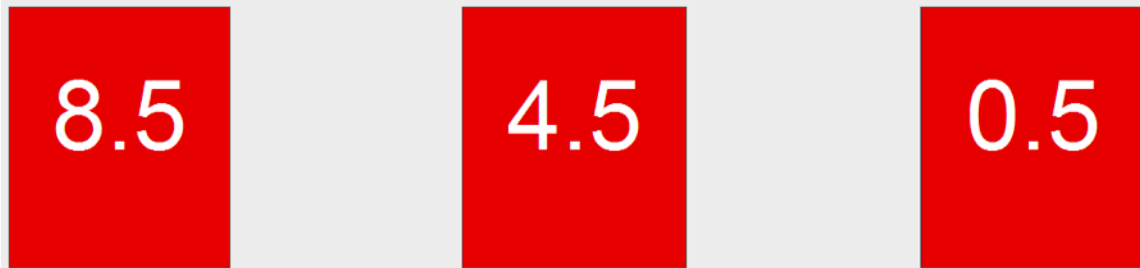
### 2.3.2 Contingent treatment

#### Part 1.

The decision problem

Before describing your task for Part 1, I will describe a decision problem. Your task will be based on this decision problem, so please pay attention.

- The decision maker will see the following three cards on the screen. The numbers on the cards are: 8.5, 4.5 and 0.5.



- The computer will randomly draw a card, with each card having equal chance. The decision maker will then observe the card drawn by the computer.
- Case 1. If the computer draws the card with the number 4.5: The decision maker will be informed that the computer drew the card with the number 4.5 and will then be asked to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8). Payoff of the decision maker:
  - If the number chosen by the decision maker is higher than the number on the drawn card: Payoff = 5.5 MINUS the number on the card (in dollars)

- If the number chosen by the decision maker is lower than the number on the drawn card: Payoff = 3 dollars
- Case 2. If the computer draws the card with the number 0.5: The decision maker will not be asked to make any choice. He/she will automatically get a payoff of 5 dollars.
- Case 3. If the computer draws the card with the number 8.5: The decision maker will not be asked to make any choice. He/she will automatically get a payoff of 3 dollars.

### Your task

You will provide instructions regarding what to do in the above problem.

Your task is to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8).

- If it turns out that the computer draws the card with the number 4.5, the interface will implement your choice and you will get a payoff as described in Case 1 above.
- If the computer draws the card with the number 0.5, you will get a payoff of 5 dollars no matter your choice.
- If the computer draws the card with the number 8.5, you will get a payoff of 3 dollars no matter your choice.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the three cards. The experimenter follows **Script 10**: “On your screens you can see the three cards, with numbers 8.5, 4.5 and 0.5. Please do not click on the ‘select card’ button yet, but when I ask you to click on the ‘select card’ button the interface will select one of the 3 cards. You will not know the card that was selected until the end of the experiment. Please now click on the select card button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of your payoffs. If the computer draws the card with the number 4.5, your payoff depends on your choice. If the number that you choose is higher than the number on the drawn card, your payoff is 5.5 dollars minus the number on the card.

If the number that you choose is lower than the number on the drawn card, your payoff is \$3. If the computer draws the card with the number 0.5, your payoff will be \$5. If the computer draws the card with the number 8.5, your payoff will be \$3. A card has already been selected, but you will not know the color of the ball until the end of the experiment. You can locate a box with the heading “Your number.” When we finish with instructions you can enter in that box a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8). If the computer selected the card with number 4.5, the choice that you enter will be used to determine your payoff. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please enter a number and click on the submit button.”]

## 2.4 Election

[Page 1 of Part 1 instructions entitled “Part 1 Question #1” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud.]

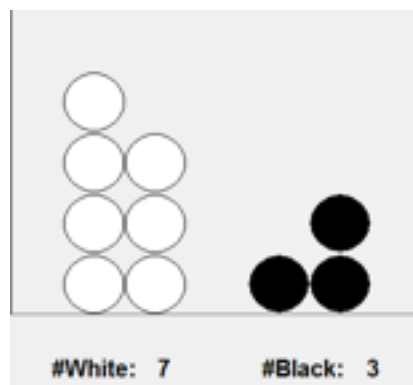
### 2.4.1 Noncontingent treatment

#### Part 1. Question #1.

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

The decision problem

- The interface will randomly draw a ball from a jar containing 7 WHITE balls and 3 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers until the end of the experiment.
- The decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### Your task

You are the decision maker in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Without knowing the color of the drawn ball or the votes of the computers, please vote for either White or Black.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 7**: “On your screens you can see the composition of the jar. There is a total of 10 balls. Three balls are black and seven

balls are white. Please do not click on the ‘select ball’ button yet, but when I ask you to click on the ‘select ball’ button the interface will select one of the 10 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. You can see two options on the screen. When we finish with instructions you can select either “vote for white” or “vote for black” by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted and that a submit button appears. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 1 of the instructions, the page that describes Part 1 Question #1. Then, the experimenter distributes Page 2 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.<sup>2</sup>

Question #2

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

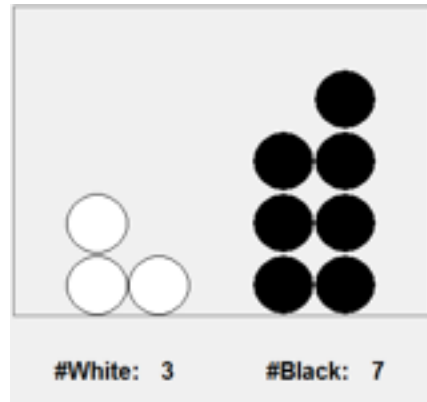
The decision problem

- The interface will randomly draw a ball from a jar containing 3 WHITE balls and 7 BLACK balls.

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<sup>2</sup>Question #2 is introduced in both contingent and noncontingent treatments to evaluate the heuristic that subjects choose the color that is more prevalent in the jar. We report the results for Question #2 in footnote 14 of the paper.





- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers until the end of the experiment.
- The decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### Your task

You are the decision maker in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Without knowing the color of the drawn ball or the votes of the computers, please vote for either White or Black.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 7**, except that the script describes the jar that corresponds to question #2 (3 white and 7 black balls). Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

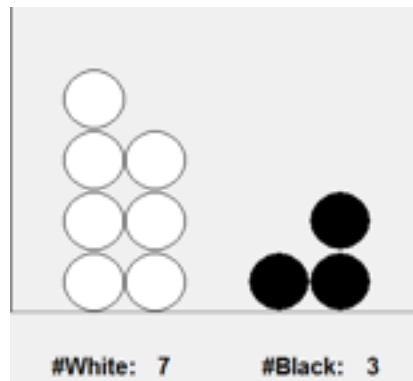
### 2.4.2 Contingent treatment

#### Part 1. Question #1.

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

The decision problem

- The interface will randomly draw a ball from a jar containing 7 WHITE balls and 3 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.

- If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers until the end of the experiment.
- If both computers vote for the same color, the decision maker gets \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise.
- If the computers vote for different colors, the decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### Your task

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Your task is to indicate whether you would vote for White or Black if the computers were to vote for different colors. If the computers vote for the same color, your payoff for Question #1 will be \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise. If the computers vote for different colors, the interface will implement the option that you indicated and pay you as described in the table above.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 8**: “On your screens you can see the

composition of the jar. There is a total of 10 balls. Three balls are black and seven balls are white. Please do not click on the ‘select ball’ button yet, but when I ask you to click on the ‘select ball’ button the interface will select one of the 10 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. If both computers vote for the same color, your payoff would be \$5 if the color computers vote for matches the color of the ball drawn from the jar. You have to provide instructions regarding what to do if computers voted for different colors. You can see two options on the screen. When we finish with instructions you can select either “vote for white” or “vote for black” by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted and that a submit button appears. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

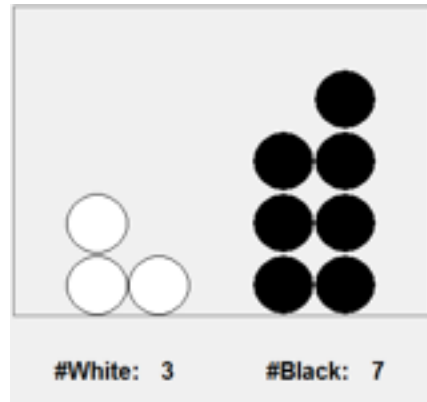
[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question #1. Then, the experimenter distributes Page 2 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

The decision problem

The interface will randomly draw a ball from a jar containing 3 WHITE balls and 7 BLACK balls.



- There are two computers, Computer 1 and Computer 2.
- Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers until the end of the experiment.
- If both computers vote for the same color, the decision maker gets \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise.
- If the computers vote for different colors, the decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### **Your task**

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Your task is to indicate whether you would vote for White or Black if the computers were to vote for different colors. If the computers vote for the same color, your payoff for Question #1 will be \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise. If the computers vote for different colors, the interface will implement the option that you indicated and pay you as described in the table above.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 8**, except that the script describes the jar that corresponds to question #2 (3 white and 7 black balls). Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.” ]

## **2.5 Common-ratio Allais**

[Page 1 of Part 1 instructions entitled “Part 1 Question #1” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud.]

### **2.5.1 Noncontingent treatment**

Part 1. Question #1.

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls.
  - 12 balls are RED (that is, 12% of the balls).

- 3 balls are YELLOW (that is, 3% of the balls).
- 85 balls are BLUE (that is, 85% of the balls).
- The interface will randomly draw a ball from the jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.
    - \* If the ball drawn from the jar is BLUE, the decision maker gets \$0.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$5.30.
    - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$0.

### Your task

Suppose that you are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the selected ball, please tell us which option you prefer, Option 1 or Option 2?

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 5**: “On your screens you can see the composition of the jar. There is a total of 100 balls. Twelve balls are red, three balls are yellow and eighty-five balls blue. Please do not click on the ‘select ball’ button yet, but when I ask you to click on the ‘select ball’ button the interface will select one of the 100 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with

the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. You can see two options on the screen. When we finish with instructions you can select either Option 1 or Option 2 by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted in orange and that a submit button appears. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question 1. Then, the experimenter distributes Page 2 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls.
  - 80 balls are RED (that is, 80% of the balls).
  - 20 balls are YELLOW (that is, 20% of the balls).
- The interface will randomly draw a ball from the jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
- Option 1.
  - If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.
- Option 2.



- If the ball drawn from the jar is RED, the decision maker gets \$5.30.
- If the ball drawn from the jar is YELLOW, the decision maker gets \$0.

### Your task

You are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 5**, except that the script describes the jar that corresponds to question #2 (80 red and 20 yellow balls). Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

### 2.5.2 Contingent treatment

#### Part 1. Question #1.

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls.
  - o 12 balls are RED (that is, 12% of the balls).
  - o 3 balls are YELLOW (that is, 3% of the balls).
  - o 85 balls are BLUE (that is, 85% of the balls).
- The interface will randomly draw a ball from the jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$0. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:

- Option 1.
  - \* If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.
- Option 2.
  - \* If the ball drawn from the jar is RED, the decision maker gets \$5.3;
  - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.

### Your task

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #1 will be \$0. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 6**: “On your screens you can see the composition of the jar. There is a total of 100 balls. Twelve balls red, three balls are yellow and eighty-five balls blue. Please do not click on the ‘select ball’ button, but when I ask you to click on the ‘select ball’ button the interface will select one of the 100 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. If the selected ball were blue, your payoff for question #1 would be \$0. You have to provide instructions regarding what to do in case the selected ball were not blue. If the ball were not blue, the interface will the option that you select to determine your payoff. You can see two options on the screen. When we finish with instructions you

can select either Option 1 or Option 2 by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted in orange and that a submit button appears. You can change your choice as long as you haven't clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question 1. Then, the experimenter distributes Page 2 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls.
  - 80 balls are RED (that is, 80% of the balls).
  - 20 balls are YELLOW (that is, 20% of the balls).
- The interface will randomly draw a ball from the jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$5.3;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.

**Your task**

You are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter reads Script 5, except that the script describes the jar that corresponds to Question #2 (80 red and 20 yellow balls). Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

### 3 Between: Part 2

[For all decision problems except for the Ellsberg problem, instructions for Part 2 are distributed and read aloud. For treatments involving the Ellsberg setup, the experimenter read the following script before distributing instructions for Part 2. “In Part 2, you will be able to receive an additional payment by answering one question. I will now ask the monitor to return to the room. [Wait for the monitor to enter the room and sit in her computer terminal.] The monitor will have to choose a number from 1 to 100. Monitor: Please think of a number between 1 and 100. After you choose a number, please enter it in the computer screen. I will explain the role of the number chosen by the monitor in a minute. Notice that the monitor does not know how this number will be used.” After selecting the number the monitor received \$5 for participating and was excused from the rest of the experiment. Once the monitor leaves the room, instructions for Part 2 are distributed.]

On the screen, you see a field composed of 100 boxes, as shown below:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

There is also a Start button—please do not click on this button until we finish reading the instructions. Once the Start button is clicked, the Part 2 of the experiment begins. Each second, a box will be collected, beginning with Box #1 and ending with Box #100. You earn 10 cents for every box that is collected. Once collected, the box changes from dark grey to light grey, and your earnings are updated accordingly. At any moment, on the information box you can see the number of boxes collected so far and the amount earned up to that point.

Such earnings are only **potential**, however, because behind one of these boxes a bomb is hidden that destroys everything that has been collected in this part of the experiment. You do not know the location of the bomb. Moreover, even if you collect the bomb, you will not know it until the end of the experiment.

Your task is to choose when to stop the collecting process. You stop the process by hitting ‘Stop’ at any time.

#### Payoffs

If at the moment you hit ‘Stop’ none of the boxes you have collected contain the bomb, you will receive the amount of money you have accumulated. If at the moment you hit ‘Stop’ you happen to have collected the box with the bomb, then you will earn \$0. Remember that you will not be told if a box that you have collected has or does not have the bomb until after you hit the ‘Stop’ button. So the earnings you see on the screen are only potential earnings, and you will earn those earnings only if none of the boxes you have collected had the bomb.

#### Location of the bomb

The interface will randomly choose a number between 1 and 100. All numbers are

equally likely. The interface will then place the bomb in the box with the randomly chosen number. [For treatments involving the Ellsberg problem, the previous lines were replaced by the following: “The interface will use the number chosen by the monitor to locate the bomb. In particular, the interface will place the bomb in the box with the number chosen by the monitor.”]

## 4 Between: Part 3

[The experimenter reads the following script: “In this last part of the experiment, you will be able to make an additional \$2 by answering 3 questions. At the end of the experiment, the interface will randomly select one of these 3 questions. If your answer is correct, you will receive \$2; if your answer is not correct, you will receive \$0. ”]

On the screen subjects see one by one the three questions of the CRT:

1. A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?
2. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?
3. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

[On the screen subjects receive feedback on outcomes and payoffs for all parts. They receive their earnings privately and are then allowed to leave the room.]

## 5 Within

### Welcome

You are about to participate in a session on decision-making, and you will be paid for your participation with cash, privately at the end of the session. The experiment will last at most for 90 minutes. For showing up to this experiment, you will receive \$5. The entire session will take place through computer terminals and there will be

no interaction with participants seated at other terminals. Please turn off cell phones now.

The experiment will consist of 11 parts and a bonus part. At the end of the experiment three of the 11 parts will be randomly selected and we will add to your payoff your earnings for the three selected parts. You will not know until the end of the experiment which parts are selected for payment, so treat each part as a part that will determine your payoffs.

## **Selection of the monitor**

One of you will be randomly selected to be the monitor in part I of this experiment. If part I is selected for payoff, the monitor will get \$7.5 for helping us to conduct the experiment.

The monitor will have to choose a number from 0 to 60. Monitor: Please think of a number from 0 to 60. After you choose a number, please write it on the piece of paper by your desk. I will explain the role of the number chosen by the monitor in a minute. Notice that the monitor does not know how this number will be used.

[Input numbers selected by monitors, then start interface.] I will now ask the monitor to leave the room and stay close to the door. I will call you back into the room in a few minutes.

I will now start the interface. Please DO NOT click on any button until I ask you to.

We start with Question 1 of Part 1 and on your screen you can follow the information that I will read.

## **5.1 Part 1**

### **Part 1. The jar.**

There is one jar in Part 1 of the experiment. The jar contains 90 balls. Of the 90 balls, 30 are RED, and 60 are YELLOW or BLUE.

To determine how many balls are YELLOW or BLUE, the interface will use the number between 0 and 60 chosen by the monitor.

Out of the 60 balls that are YELLOW or BLUE, the number of YELLOW balls will be equal to the number that the monitor entered in the computer. The remaining of these 60 balls will be BLUE.

You will not know, until the end of the experiment, how many of the 60 balls are YELLOW and how many are BLUE.

Please now click on the Move On button at the bottom right of your screens. On the current screen at the top left you can see a summary of the composition of the jar.

I now summarize the information about the composition of the jar:

- There is a total of 90 balls.
  - $1/3$  of the balls (that is, 30 balls) are RED.
  - $2/3$  of the balls (that is, 60 balls) are YELLOW or BLUE. You do not know how many of these 60 balls are YELLOW and how many are BLUE. Any combination of YELLOW and BLUE balls is possible.

At the end of the experiment, the screen will display the number chosen by the monitor.

### **Your task**

Part 1 of the experiment consists of 2 questions.

The composition of the jar will be the same in each of these 2 questions. At the end of the experiment, the interface will randomly select one of these 2 questions and if this part is selected for payment, I will pay you your earnings in this randomly selected question.

### **Part 1. Question #1.**

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED or BLUE, the decision maker gets \$10;



- \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
- Option 2.
  - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$10;
  - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

### **Your task**

You are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the drawn ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

Please click on the ‘Move On’ button.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you’re ready, please click on the “Select Ball” button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don’t click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you’re ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2: After all participants submitted their first choice]

## **Part I. Question #2.**

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$10;
    - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$0;
  - Option 2.
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$10;
    - \* If the ball drawn from the jar is RED or BLUE, the decision maker gets \$0;

### **Your task**

You are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

Please click on the ‘Move On’ button.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you’re ready, please click on the “Select Ball” button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

## 5.2 Part 2

Part 2 of the experiment consists of 2 questions. At the end of the experiment, the interface will randomly select one of these 2 questions and if this part is selected for payment, I will pay you your earnings in this randomly selected question.

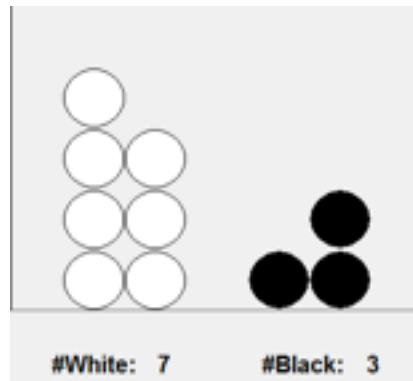
[QUESTION 1]

We start with Question 1 of Part 2 and on your screen you can follow the information that I will read. I start describing the decision problem.

### Part 2. Question #1.

The decision problem

- The interface will randomly draw a ball from a jar containing 7 WHITE balls and 3 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.

- If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
- If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers
- The decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### Your task

Please now click on More.

You are the decision maker in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Without knowing the color of the drawn ball or the votes of the computers, please vote for either White or Black.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

Now please click on next. Now you will ask the interface to select a ball from the jar. Please click on the select ball button.

Now you can make your choice by clicking on either Vote for White or Vote for Black. Now you can make your choice by clicking on either Vote for White or Vote for Black. You can change your choice as long as you don't click on the submit button. Once you click on the submit button your choice is final.

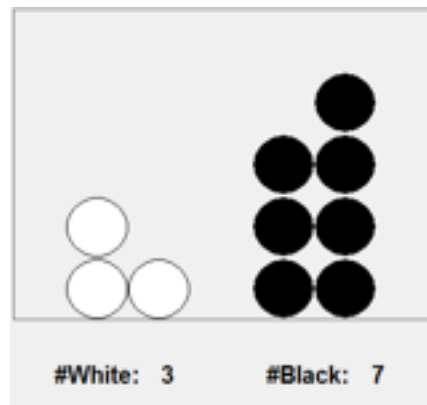
Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

[QUESTION 2]

### **Part 2. Question #2.**<sup>3</sup>

The decision problem

- The interface will randomly draw a ball from a jar containing 3 WHITE balls and 7 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers
- The decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the

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<sup>3</sup>Question #2 is introduced in both contingent and noncontingent treatments to evaluate the heuristic that subjects choose the color that is more prevalent in the jar. We report the results for Question #2 in footnote 14 of the paper.

decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### Your task

You are the decision maker in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Without knowing the color of the drawn ball or the votes of the computers, please vote for either White or Black.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

Now please click on next. Now you will ask the interface to select a ball from the jar. Please click on the select ball button.

Now you can make your choice by clicking on either Vote for White or Vote for Black. Now you can make your choice by clicking on either Vote for White or Vote for Black. You can change your choice as long as you don't click on the submit button. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

## 5.3 Part 3

The jar.

There is one jar in this experiment. The jar contains 100 balls. Of the 100 balls, 1 ball is RED, 10 balls are YELLOW, and 89 balls are BLUE. I now summarize the information about the composition of the jar:

- There is a total of 100 balls.
  - 1% of the balls (that is, 1 ball) is RED.

- 10% of the balls (that is, 10 balls) are YELLOW.
- 89% of the balls (that is, 89 balls) are BLUE.

### **Your task**

Part 3 of the experiment consists of 2 questions.

The composition of the jar will be the same in each of these 2 questions. The payoffs expressed in Part 3 are expressed in millions of dollars and are obviously hypothetical. Please try to put yourself in this hypothetical scenario and provide a truthful response. If Part 3 is selected for payment, we will pay you \$5 for answering Part 3.

[QUESTION 1]

### **Part 3. Question #1.**

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* The decision maker gets \$100 million for sure, no matter if the ball drawn from the jar is RED, YELLOW, or BLUE.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million;
    - \* If the ball drawn from the jar is BLUE, the decision maker gets \$100 million.

### **Your task**

Suppose that you are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the ball drawn from the jar, please tell us which option you prefer, Option 1 or Option 2?

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. If this part is selected for payoff, we will pay you \$5.

Please click on the ‘Move On’ button.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you’re ready, please click on the “Select Ball” button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don’t click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you’re ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2]

### **Part 3. Question #2.**

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:



- Option 1.
  - \* If the ball drawn from the jar is RED, the decision maker gets \$100 million;
  - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$100 million;
  - \* If the ball drawn from the jar is BLUE, the decision maker gets \$0.
- Option 2.
  - \* If the ball drawn from the jar is RED, the decision maker gets \$0;
  - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million;
  - \* If the ball drawn from the jar is BLUE, the decision maker gets \$0.

### **Your task**

Suppose that you are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please tell us which option you prefer, Option 1 or Option 2?

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. If this part is selected for payment, we will pay you \$5.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

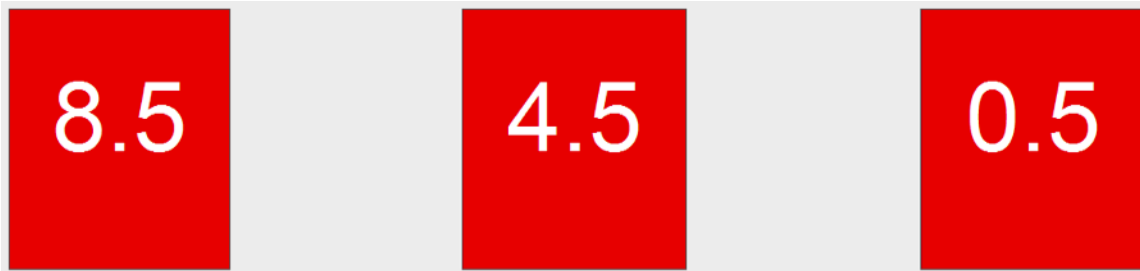
Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

## 5.4 Part 4

The decision problem

Before describing your task for Part 4, I will describe a decision problem. Your task will be based on this decision problem, so please pay attention.

- The decision maker will see the following three cards on the screen. The numbers on the cards are: 8.5, 4.5 and 0.5.



- The computer will randomly draw a card, with each card having equal chance. The decision maker will not know which card was drawn.
- The decision maker will then be asked to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8).
- Payoff of the decision maker:
  - If the number chosen by the decision maker is higher than the number on the drawn card:  $\text{Payoff} = 5.5 \text{ MINUS the number on the card (in dollars)}$
  - If the number chosen by the decision maker is lower than the number on the drawn card:  $\text{Payoff} = 3 \text{ dollars}$

Please now click on More.

### **Your task**

You are the decision maker in the above problem.

Your task is to choose a number. If this part is selected for payment, the payoff that you receive will be added to your earnings.

When you click on Next you will ask the interface to select one of the three cards randomly. You will not be told which card was selected. After that you can choose a number. You can change your choice until you click on the submit button. Once you click on the submit button your decision is final. Take your time, make a choice and when you are ready, click on the submit button.

## 5.5 Part 5

Part 5 of the experiment consists of 2 questions. At the end of the experiment, the interface will randomly select one of these 2 questions and if Part 5 is selected for payment, I will pay you your earnings in this randomly selected question.

[QUESTION 1]

Now we start with Question 1 of Part 5 and on your screen you can follow the information that I will read.

### Part 5. Question #1.

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls.
  - 12 balls are RED (that is, 12% of the balls).
  - 3 balls are YELLOW (that is, 3% of the balls).
  - 85 balls are BLUE (that is, 85% of the balls).
- The interface will randomly draw a ball from the jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.
    - \* If the ball drawn from the jar is BLUE, the decision maker gets \$0.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$5.30.
    - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$0.

## **Your task**

Suppose that you are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the selected ball, please tell us which option you prefer, Option 1 or Option 2?

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2]

## **Part 5. Question #2.**

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls.
  - 80 balls are RED (that is, 80% of the balls).

- 20 balls are YELLOW (that is, 20% of the balls).
- The interface will randomly draw a ball from the jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
- Option 1.
  - If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.
- Option 2.
  - If the ball drawn from the jar is RED, the decision maker gets \$5.30.
  - If the ball drawn from the jar is YELLOW, the decision maker gets \$0.

### **Your task**

You are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

## 5.6 Part 6

I will now ask the monitor to come back in the room.

The monitor will have to choose a number from 0 to 60. Monitor: Please think of a number from 0 to 60. After you choose a number, please enter it in the computer screen. Notice that the monitor does not know how this number will be used. I will now pay the monitor \$10 for helping us conduct the experiment and he/she is free to go.

### Part 6. The jar.

There is one jar in this experiment. The jar contains 90 balls. Of the 90 balls, 30 are RED, and 60 are YELLOW or BLUE.

To determine how many balls are YELLOW or BLUE, the interface will use the number between 0 and 60 chosen by the monitor.

Out of the 60 balls that are YELLOW or BLUE, the number of YELLOW balls will be equal to the number that the monitor entered in the computer. The remaining of these 60 balls will be BLUE.

You will not know, until the end of the experiment, how many of the 60 balls are YELLOW and how many are BLUE.

I now summarize the information about the composition of the jar:

- There is a total of 90 balls.
  - $1/3$  of the balls (that is, 30 balls) are RED.
  - $2/3$  of the balls (that is, 60 balls) are YELLOW or BLUE. You do not know how many of these 60 balls are YELLOW and how many are BLUE. Any combination of YELLOW and BLUE balls is possible.

At the end of the experiment, the screen will display the number chosen by the monitor.

### **Your task**

Part 6 of the experiment consists of 2 questions.

The composition of the jar will be the same in each of these 2 questions and I will pay you your earnings in this randomly selected question.

[QUESTION 1]

**Part 1. Question #1.**

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$10. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$10;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
  - Option 2.
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$10;
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

**Your task**

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #1 will be \$10. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2]

### **Part 1. Question #2.**

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 90-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$0. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$10;



- \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
- Option 2.
  - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$10;
  - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

### **Your task**

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #2. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #2 will be \$0. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, we will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

## 5.7 Part 7

Part 7 of the experiment consists of 2 questions. At the end of the experiment, the interface will randomly select one of these 2 questions and I will pay you your earnings in this randomly selected question.

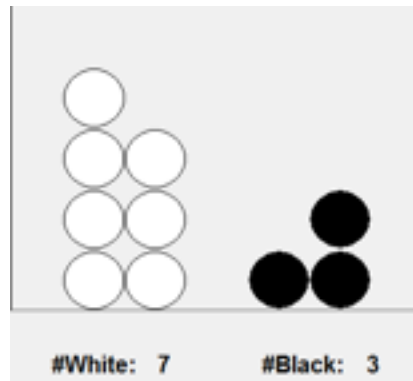
[QUESTION 1]

### Part 7. Question #1.

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

The decision problem

- The interface will randomly draw a ball from a jar containing 7 WHITE balls and 3 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers

- If both computers vote for the same color, the decision maker gets \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise.
- If the computers vote for different colors, the decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### Your task

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Your task is to indicate whether you would vote for White or Black if the computers were to vote for different colors. If the computers vote for the same color, your payoff for Question #1 will be \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise. If the computers vote for different colors, the interface will implement the option that you indicated and pay you as described in the table above.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

Now please click on next. Now you will ask the interface to select a ball from the jar. Please click on the select ball button.

Now you can make your choice by clicking on either Vote for White or Vote for Black. Now you can make your choice by clicking on either Vote for White or Vote for Black. You can change your choice as long as you don't click on the submit button. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

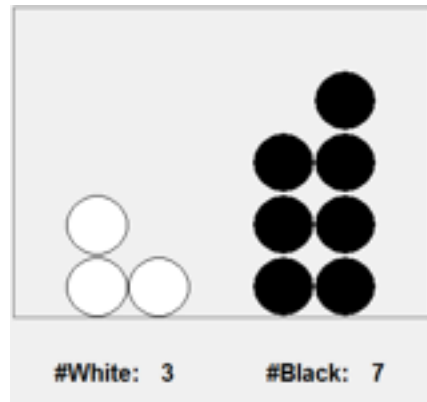
[QUESTION 2]

## Part 7. Question #2.

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

The decision problem

The interface will randomly draw a ball from a jar containing 3 WHITE balls and 7 BLACK balls.



- There are two computers, Computer 1 and Computer 2.
- Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- The decision maker will not observe the ball drawn from the jar and the votes of the computers
- If both computers vote for the same color, the decision maker gets \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise.
- If the computers vote for different colors, the decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5;

otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

### Your task

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Your task is to indicate whether you would vote for White or Black if the computers were to vote for different colors. If the computers vote for the same color, your payoff for Question #1 will be \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise. If the computers vote for different colors, the interface will implement the option that you indicated and pay you as described in the table above.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

Now please click on next. Now you will ask the interface to select a ball from the jar. Please click on the select ball button.

Now you can make your choice by clicking on either Vote for White or Vote for Black. You can change your choice as long as you don't click on the submit button. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

## 5.8 Part 8

### The jar.

There is one jar in this experiment. The jar contains 100 balls. Of the 100 balls, 1 ball is RED, 10 balls are YELLOW, and 89 balls are BLUE. I now summarize the information about the composition of the jar:

- There is a total of 100 balls.
  - 1% of the balls (that is, 1 ball) is RED.
  - 10% of the balls (that is, 10 balls) are YELLOW.
  - 89% of the balls (that is, 89 balls) are BLUE.

### **Your task**

Part 7 of the experiment consists of 2 questions.

The composition of the jar will be the same in each of these 2 questions. The payoffs expressed in Part VII are expressed in millions of dollars and are obviously hypothetical. Please try to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part VII if it is selected for payment at the end of the session.

[QUESTION 1]

### **Part 8. Question #1.**

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$100 million. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* The decision maker gets \$100 million for sure, no matter if the ball drawn from the jar is RED or YELLOW.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0;

- \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million.

### **Your task**

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your hypothetical payoff for Question #1 would be \$1 million. If the ball is NOT BLUE, the interface would implement the option that you indicated to determine your hypothetical payoff.

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part 7 if it is selected for payment.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2]

### **Part 8. Question #2.**

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- The interface will randomly draw one ball from the 100-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$0. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* The decision maker gets \$100 million for sure, no matter if the ball drawn from the jar is RED or YELLOW.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$500 million.

### **Your task**

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #2. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your hypothetical payoff for Question #2 would be \$0. If the ball is NOT BLUE, the interface would implement the option that you indicated to determine your hypothetical payoff.

Remember that the payoffs are hypothetical. Your task in this experiment is to put yourself in this hypothetical scenario and provide a truthful response. We will pay you \$5 for answering Part 7 if it is selected for payment.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.



Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

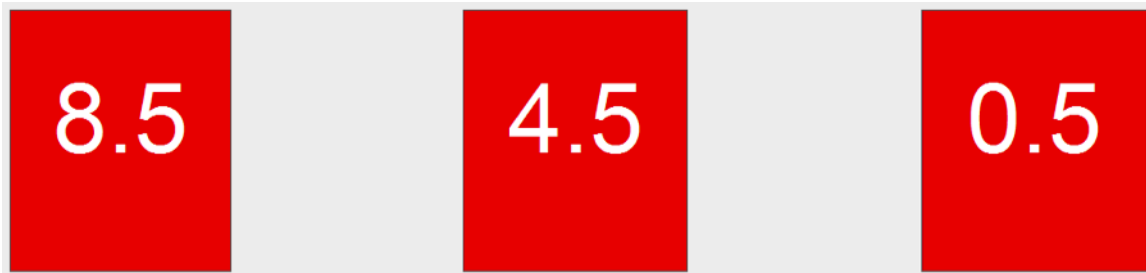
## 5.9 Part 9

### Part 9.

The decision problem

Before describing your task for Part 9, I will describe a decision problem. Your task will be based on this decision problem, so please pay attention.

- The decision maker will see the following three cards on the screen. The numbers on the cards are: 8.5, 4.5 and 0.5.



- The computer will randomly draw a card, with each card having equal chance. The decision maker will then observe the card drawn by the computer.
- Case 1. If the computer draws the card with the number 4.5: The decision maker will be informed that the computer drew the card with the number 4.5 and will then be asked to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8). Payoff of the decision maker:
  - If the number chosen by the decision maker is higher than the number on the drawn card:  $\text{Payoff} = 5.5 \text{ MINUS the number on the card (in dollars)}$

- If the number chosen by the decision maker is lower than the number on the drawn card: Payoff = 3 dollars
- Case 2. If the computer draws the card with the number 0.5: The decision maker will not be asked to make any choice. He/she will automatically get a payoff of 5 dollars.
- Case 3. If the computer draws the card with the number 8.5: The decision maker will not be asked to make any choice. He/she will automatically get a payoff of 3 dollars.

Please click on More.

### **Your task**

You will provide instructions regarding what to do in the above problem.

Your task is to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8).

- If it turns out that the computer draws the card with the number 4.5, the interface will implement your choice and you will get a payoff as described in Case 1 above.
- If the computer draws the card with the number 0.5, you will get a payoff of 5 dollars no matter your choice.
- If the computer draws the card with the number 8.5, you will get a payoff of 3 dollars no matter your choice.

When you click on Next you will ask the interface to select one of the three cards randomly. You will not be told which card was selected. After that you can choose a number. You can change your choice until you click on the submit button. Once you click on the submit button your decision is final. Take your time, make a choice and when you are ready, click on the submit button.

## **5.10 Part 10**

Part 10 of the experiment consists of 2 questions. At the end of the experiment, the interface will randomly select one of these 2 questions and if this part is selected for payment, I will pay you your earnings in this randomly selected question.

[QUESTION 1]

## **Part 10. Question #1.**

The decision problem

Before describing Question #1, I will describe a decision problem. Question #1 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls. o 12 balls are RED (that is, 12% of the balls). o 3 balls are YELLOW (that is, 3% of the balls). o 85 balls are BLUE (that is, 85% of the balls).
- The interface will randomly draw a ball from the jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$0. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$5.3;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.

### **Your task**

You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #1 will be \$0. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2]

## **Part 10. Question #2.**

The decision problem

Before describing Question #2, I will describe a decision problem. Question #2 will be based on this decision problem, so please pay attention.

- There is a jar with 100 balls.
  - 80 balls are RED (that is, 80% of the balls).
  - 20 balls are YELLOW (that is, 20% of the balls).
- The interface will randomly draw a ball from the jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$4.

– Option 2.

- \* If the ball drawn from the jar is RED, the decision maker gets \$5.3;
- \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.

### **Your task**

You are the decision maker in the above problem.

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you're ready, please click on the "Select Ball" button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don't click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

## **5.11 Part 11**

On the screen, you see a field composed of 100 boxes, as shown below:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

There is also a Start button—please do not click on this button until we finish reading the instructions. Once the Start button is clicked, the Part 2 of the experiment begins. Each second, a box will be collected, beginning with Box #1 and ending with Box #100. You earn 10 cents for every box that is collected. Once collected, the box changes from dark grey to light grey, and your earnings are updated accordingly. At any moment, on the information box you can see the number of boxes collected so far and the amount earned up to that point.

Such earnings are only **potential**, however, because behind one of these boxes a bomb is hidden that destroys everything that has been collected in this part of the experiment. You do not know the location of the bomb. Moreover, even if you collect the bomb, you will not know it until the end of the experiment.

Your task is to choose when to stop the collecting process. You stop the process by hitting ‘Stop’ at any time.

#### Payoffs

If at the moment you hit ‘Stop’ none of the boxes you have collected contain the bomb, you will receive the amount of money you have accumulated. If at the moment you hit ‘Stop’ you happen to have collected the box with the bomb, then you will earn \$0. Remember that you will not be told if a box that you have collected has or does not have the bomb until after you hit the ‘Stop’ button. So the earnings you see on the screen are only potential earnings, and you will earn those earnings only if none of the boxes you have collected had the bomb.

#### Location of the bomb

The interface will randomly choose a number between 1 and 100. All numbers are

equally likely. The interface will then place the bomb in the box with the randomly chosen number.

## **Bonus Part**

In this last part of the experiment, you will be able to make an additional \$2 by answering 3 questions.

At the end of the experiment, the interface will randomly select one of these 3 questions. If your answer is correct, you will receive \$2; if your answer is not correct, you will receive \$0.

{Not to be read to subjects: The Content of the Bonus Part is identical to Part 3 of the Between Design}

## **6 Within+**

### **Welcome**

You are about to participate in a session on decision-making, and you will be paid for your participation with cash, privately at the end of the session. The experiment will last at most 2 hours. The entire session will take place through computer terminals and there will be no interaction with participants seated at other terminals. Please turn off cell phones now.

The experiment will consist of 8 parts and a bonus part. At the end of the experiment, 4 of the 8 parts will be randomly selected and we will add to your payoff your earnings for the 4 selected parts. You will not know until the end of the experiment which parts are selected for payment, so treat each part as a part that will determine your payoffs.

### **The Monitors**

Five of you were randomly selected to be monitors in this experiment. If you are the monitor, you will be handed a green sheet of paper and a pink sheet of paper. Each monitor was asked to write down a numbers from 0 to 60 in each of the two pieces of paper. Once a monitor writes down these two numbers, he or she will get a payment of \$5 and leave the room for the remainder of the experiment.

The five monitors have now written two numbers each. One number was written in a green sheet of paper and the other number was written in a pink sheet of paper. So we have 5 numbers, from monitors 1 through 5, written on green sheets of paper. And we also have 5 numbers, from monitors 1 through 5, written on pink sheets of paper. Remember that each of these numbers is between 0 and 60. The monitors did not communicate with each other when writing down these numbers.

Please be patient while I pay the monitors so they can leave the experiment.

I will explain the role of the numbers chosen by the monitors when I read the instructions of the experiment. Notice that the monitors do not know how these numbers will be used.

## 6.1 Part 1

This part has 10 questions. One and only one of these questions will be randomly selected to determine your payoff for this part of the experiment. So in each question you should pick the option that you think is best assuming that your payoff will come from such question.

[QUESTION 1: Input numbers selected by monitors, then start interface]

I will now start the interface. Please DO NOT click on any button until I ask you to.

We start with Question 1 of Part 1 and on your screen you can follow the information that I will read.

There is a jar containing 90 balls. Of the 90 balls, 30 are RED, and 60 are YELLOW or BLUE.

Out of the 60 balls that are YELLOW or BLUE, the number of YELLOW balls will be equal to the number between 0 and 60 that was written by monitor #1 in the green sheet of paper. The remaining of these 60 balls will be BLUE.

Please now click on the Move On button at the bottom right of your screens.

On the current screen at the top left you can see a summary of the composition of the jar. We now explain the decision problem.

- The interface will randomly draw one ball from the 90-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:



- Option 1.
  - \* If the ball drawn from the jar is RED or BLUE, the decision maker gets \$10;
  - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
- Option 2.
  - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$10;
  - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

Please now click on the ‘More’ button.

Your task: You are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the drawn ball, please choose between Option 1 and Option 2.

Please click on the ‘Move On’ button.

On this screen you can see the composition of the jar again. Please answer the questions and click on Move On. [Subjects see two questions on the screen related to the composition of the jar: 1) How many of the balls are Red? 2) How many of the balls are Yellow or Blue?] If at least one of your answers is incorrect, the interface will show you an error message and ask you to try again. If you move on to the next screen, please wait for my instructions. We will wait for everybody to answer the questions correctly before we continue.

On this screen you will ask the interface to select a ball from the jar. When you click on the select ball button, the interface will randomly draw a ball from the jar. When you’re ready, please click on the “Select Ball” button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball.

Below you can see the two options that we just read. In order to make a choice, click on top of the option that you prefer. The selected option will be highlighted in orange. Once you make a choice a submit button appears at the bottom right of your screen. You can change your choice as long as you don’t click on the submit button at the bottom right of the screen. Once you click on the submit button your choice is final.

Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2: After all participants submitted their first choice]

Question 2 through Question 6 have a similar format as Question 1. We first describe the jar, and next describe a decision problem that involves choosing between two options. The composition of the jar and the options will change so please read carefully. It is possible that we use the same jar in more than one question. If a jar was used in a previous question the ball that was drawn for that previous question will be put back in the jar. [Subjects have to answer questions on the composition of the jar similar to those of Question 1 for each of Question 2 to Question 6]

Please now click on the button at the bottom right and I will not interrupt until Question 7.

[QUESTION 7: Once they reach question 7, read the following]

We start with Question 7 of Part 1 now and on your screen you can follow the information that I will read. Please do not click any button until I ask you to.

There will now be two jars for this question. Jar A contains 60 balls: 30 balls are RED and 30 balls are BLUE. Jar B contains 60 balls: the number of RED balls will be equal to the number between 0 and 60 that was written by monitor #4 in the green paper. The remaining of these 60 balls will be BLUE.

Please now click on the Move On button at the bottom right of your screens.

On the current screen at the top left you can see a summary of the composition of the jars. We now explain the decision problem.

- Option 1.
  - If the ball drawn from the jar is RED, the decision maker gets \$10;
  - If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$0;
- Option 2.
  - If the ball drawn from the jar is YELLOW, the decision maker gets \$10;
  - If the ball drawn from the jar is RED or BLUE, the decision maker gets \$0;

Please click on the ‘More’ button.

Your task: You are the decision maker in the above problem.

The interface will draw balls for Question #7. Without knowing the color of the drawn ball, please choose between Option 1 and Option 2.

Please click on the ‘Move On’ button.

On this screen you can see the composition of the jars again. Please answer the questions and click on Move On. [Subjects see two questions on the screen related to the composition of the jar: 1) How many of the 60 balls in Jar A are Red? 2) How many of the 60 balls jar B are Red? For each question there are two possible answers: 30 balls or I do not know.] We will wait for everybody to answer the questions correctly before we continue.

On this screen you will ask the interface to select one ball from each jar. When you click on the select balls button, the interface will randomly draw one ball from each jar. When you’re ready, please click on the “Select Balls” button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jars. The interface already selected one ball from each jar, but you do not know the color of the selected balls.

Please now take your time to make a choice and when you’re ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 7 before we continue. If you already submitted yours, please wait.

[QUESTION 8: After all participants submitted their seventh choice]

Question 8 through Question 10 have a similar format as Question 7. We first describe two jars, and next describe a decision problem that involves choosing between two options. The composition of the jars and the options will change so please read carefully. [Subjects have to answer questions on the composition of the jar similar to those of Question 7 for each of Question 8 to Question 10.] It is possible that we use the same jars in more than one question. If a jar was used in a previous question the ball that was drawn for that previous question will be put back in the jar.

Please now click on the button at the bottom right and I will not interrupt until you finish with Part 1.

## 6.2 Part 2

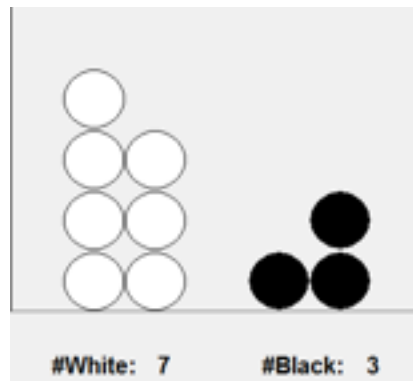
### Part 2

This part has 10 questions. One and only one of these questions will be randomly selected to determine your payoff for this part of the experiment. So in each question you should pick the option that you think is best assuming that your payoff will come from such question.

#### [QUESTION 1]

We start with Question 1 of Part 2 and on your screen you can follow the information that I will read. I start describing the decision problem.

- The interface will randomly draw a ball from a jar containing 7 WHITE balls and 3 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.

Please now click on the More button. You will have to answer a few questions on your screen. Please answer these questions. We will wait until all participants answer these questions before moving forward. [Subjects answer the following questions on the screen, where for each question they have to select an answer as indicated for

each question: 1) If the selected ball is White.... (a) Computer 1 votes White and Computer 2 votes White, (b) Computer 1 votes White and Computer 2 votes Black, (c) Computer 1 votes Black and Computer 2 votes White, (d) Computer 1 votes Black and Computer 2 votes Black. 2) If the selected ball is Black... (The same four options described for the first question are presented). 3) The number of White balls in the jar is... (subject asked to enter an integer in  $\{1, 2, \dots, 9\}$ ). 4) The number of Black balls in the jar is... (subject asked to enter an integer in  $\{1, 2, \dots, 9\}$ ).]

- The decision maker will not observe the ball drawn from the jar and the votes of the computers
- The decision maker gets paid according to the Payoff table. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0.

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

Please now click on More. Your task: You are the decision maker in the above problem.

The interface will draw a ball for Question #1 and the computers will vote as described above. Without knowing the color of the drawn ball or the votes of the computers, please vote for either White or Black.

Now please click on next. Now you will ask the interface to select a ball from the jar. Please click on the select ball button.

Now you can make your choice by clicking on either Vote for White or Vote for Black. The choice that you click on will be highlighted. You can change your choice as long as you don't click on the submit button, but once you click on the submit button your decision is final.

[QUESTION 2: After all finish with Question 1, read the following]

Questions 2 through 10 have a similar format to Question 1, except that it is possible for the composition of the jar and the rules of the computers to be different in different questions. [In each of Questions 2-Question 10 subjects have to answer questions on understanding as described for Question 1.]

## 6.3 Part 3

This part has 14 questions. One and only one of these questions will be randomly selected to determine your payoff for this part of the experiment. So in each question you should pick the option that you think is best assuming that your payoff will come from such question.

### [QUESTION 1]

I start by describing Question 1 and you can follow on your screens what I am reading.

There is a jar containing 100 balls: 5 balls are RED, 20 balls are YELLOW, and 75 balls are BLUE.

Please click on the ‘Move On’ button.

I now describe the decision problem.

- The interface will randomly draw one ball from the 100-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* ■ The decision maker gets \$10 if the ball is RED or YELLOW, or \$20 if the ball is BLUE.
  - Option 2.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0;
    - \* If the ball drawn from the jar is YELLOW or BLUE, the decision maker gets \$20

Please now click on More.

Your task: Suppose that you are the decision maker in the above problem.

The interface will draw a ball for Question #1. Without knowing the color of the ball drawn from the jar, your task is to tell us which option you prefer, Option 1 or Option 2.

Please click on the ‘Move On’ button.

Next, the interface will first ask you a question with respect to the jar. [Subjects see questions on the screen related to the composition of the jar: 1) How many of the

balls are Red? 2) How many of the balls are Yellow 3) How many balls are Blue?] After you answer all questions correctly, you will randomly select a ball from the jar. Once you select a ball, you will make a choice for this question. You can now click on More and proceed with this question at your own pace.

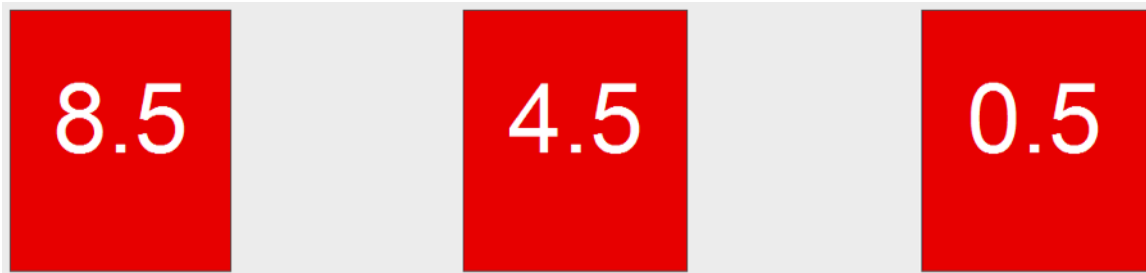
[QUESTION 2: To be read once they reach question 2]

Questions 2 through 14 have a similar format to Question #1, except that it is possible for the composition of the jar and the options available to you to be different in different questions. Please pay attention. [For each of Question 2-Question 14 the subject has to respond questions on the composition of the jar akin to those described for Question 1.]

## 6.4 Part 4

Before describing your task for Part 4, I will describe a decision problem and you can follow what I read on your screens. Your task will be based on this decision problem, so please pay attention.

- The decision maker will see the following three cards on the screen. The numbers on the cards are: 8.5, 4.5 and 0.5.



- The computer will randomly draw a card, with each card having equal chance. The decision maker will not know which card was drawn.
- The decision maker will then be asked to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8).
- Payoff of the decision maker:
  - If the number chosen by the decision maker is higher than the number on the drawn card:  $\text{Payoff} = 5.5 \text{ MINUS the number on the card (in dollars)}$

- If the number chosen by the decision maker is lower than the number on the drawn card: Payoff = 3 dollars

Please now click on More.

Your task: You will face 10 decision problems like the one described above. The numbers X and Y will be different for each question.

In each problem, you will be the decision maker and your task will be to choose a number. You will know the numbers X and Y before submitting your choice. Once you are presented with the numbers X and Y that correspond to the problem, you will have to answer a couple of questions on the screen, that ask you to report X and Y back. You can only move on once your answers to both questions are correct. [The questions that subjects answer are: 1) In this decision problem X is equal to... 2) In this decision problem Y is equal to...]

At the end of the session, the interface will randomly select one of the 10 decision problems to determine your payoff for this part.

## 6.5 Part 5

This part has 10 questions. One and only one of these questions will be randomly selected to determine your payoff for this part of the experiment. So in each question you should pick the option that you think is best assuming that your payoff will come from such question.

[QUESTION 1]

Now we start with Question 1 of Part 5 and on your screen you can follow the information that I will read.

There is a jar containing 90 balls. Of the 90 balls, 30 are RED, and 60 are YELLOW or BLUE.

Out of the 60 balls that are YELLOW or BLUE, the number of YELLOW balls will be equal to the number between 0 and 60 that was written by monitor #1 in the PINK sheet of paper. The remaining of these 60 balls will be BLUE.

Please now click on the Move On button at the bottom right of your screens.

On the current screen at the top left you can see a summary of the composition of the jar. We now explain the decision problem.

- The interface will randomly draw one ball from the 90-ball jar.



- If the randomly drawn ball is BLUE, the decision maker gets \$10. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.
    - \* If the ball drawn from the jar is RED, the decision maker gets \$10;
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$0.
  - Option 2.
    - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$10;
    - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

Please now click on the ‘More’ button.

Your task: You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #1 will be \$10. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Please click on the ‘Move On’ button.

On this screen you can see the composition of the jar again. Please answer the questions and click on Move On. [Subjects see two questions on the screen related to the composition of the jar: 1) How many of the balls are Red? 2) How many of the balls are Yellow or Blue?]

On this screen you will ask the interface to select a ball from the jar. Please click on the “Select Ball” button.

This is the screen where you will make your choice. At the top left of this screen you are reminded of the composition of the jar. The interface already selected a ball from the jar, but you do not know the color of the selected ball. If ball is Blue, the payoff is \$10.

Below you indicate what to do in case the selected ball is NOT BLUE. Please now take your time to make a choice and when you're ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 1 before we continue. If you already submitted yours, please wait.

[QUESTION 2]

Question 2 through Question 6 have a similar format as Question 1. We first describe the jar, and next describe a decision problem that involves choosing between two options. The composition of the jar and the options will change so please read carefully. It is possible that we use the same jar in more than one question. If a jar was used in a previous question the ball that was drawn for that previous question will be put back in the jar. [Subjects have to answer questions on the composition of the jar similar to those of Question 1 for each of Question 2 to Question 6]

Please now click on the button at the bottom right and I will not interrupt until Question 7.

[QUESTION 7]

Now we start with Question 7 of Part 5 and on your screen you can follow the information that I will read.

There will now be two jars for this question. Jar A contains 60 balls: 30 balls are RED and 30 balls are BLUE. Jar B contains 60 balls: the number of RED balls will be equal to the number between 0 and 60 that was written by monitor #4 in the pink paper. The remaining of these 60 balls will be BLUE.

Please now click on the Move On button at the bottom right of your screens.

On the current screen at the top left you can see a summary of the composition of the jar. We now explain the decision problem.

- The interface will randomly draw one ball from Jar A and one ball from Jar B.
- If both balls are RED, the decision maker gets \$10 and the decision problem ends here. If both balls are BLUE, the decision maker gets \$0 and the decision problem ends here.
- If the two randomly drawn balls are of different colors (either RED from Jar A and BLUE from Jar B or BLUE from Jar A and RED from Jar B), the decision maker has to make a choice between the following two options:

- Option 1.
  - \* If the drawn balls are RED from Jar A and BLUE from Jar B, the decision maker gets \$10; otherwise, the decision maker gets \$0.
- Option 2.
  - \* If the drawn balls are BLUE from Jar A and RED from Jar B, the decision maker gets \$10; otherwise, the decision maker gets \$0.

Your task: You will provide instructions regarding what to do in the above problem.

Please click on the ‘More’ button.

The interface will draw a ball from each jar for Question #7. Your task is to indicate what option you would prefer if the two balls were of different colors and you had to choose between Option 1 and Option 2. If two balls are of the same color, your payoff for Question #7 will be \$10 if both balls are RED or \$0 if both balls are BLUE. If the balls are of different colors, the interface will implement the option that you indicated.

Please click on the ‘Move On’ button.

On this screen you can see the composition of the jars again. Please answer the questions and click on Move On. [Subjects see two questions on the screen related to the composition of the jar: 1) How many of the 60 balls in Jar A are Red? 2) How many of the 60 balls in Jar B are Red? For each question there are two possible answers: 30 balls or I do not know.]

On this screen you will ask the interface to select a ball from each jar. Please click on the “Select Balls” button.

This is the screen where you will make your choice. The interface already selected one ball from each jar, but you do not know the color of the selected balls. If both balls are RED, the payoff is \$10. If both balls are BLUE, the payoff is \$0.

Below you indicate what to do in case the selected balls are of different colors. Please now take your time to make a choice and when you’re ready make a selection and click on the submit button.

We will wait until all participants have submitted their choice for Question 7 before we continue. If you already submitted yours, please wait.

[QUESTION 8]

Question 8 through Question 10 have a similar format as Question 7. We first describe two jars, and next we describe a decision problem that involves choosing

between two options. The composition of the jars and the options will change so please read carefully. It is possible that we use the same jars in more than one question. If a jar was used in a previous question the ball that was drawn for that previous question will be put back in the jar. [Subjects have to answer questions on the composition of the jar similar to those of Question 7 for each of Question 8 to Question 10.]

Please now click on the button at the bottom right and I will not interrupt until the end of Part 5.

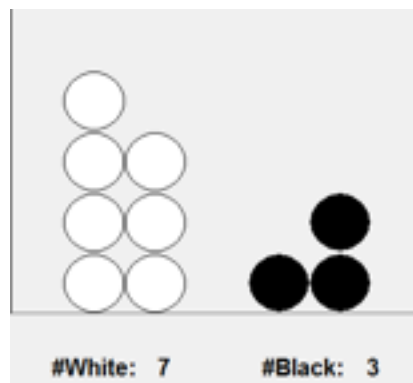
## 6.6 Part 6

This part has 10 questions. One and only one of these questions will be randomly selected to determine your payoff for this part of the experiment. So in each question you should pick the option that you think is best assuming that your payoff will come from such question.

### [QUESTION 1]

We start with Question 1 of Part 6 and on your screen you can follow the information that I will read. I start describing the decision problem.

- The interface will randomly draw a ball from a jar containing 7 WHITE balls and 3 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.

- If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.

Please now click on the 'More' button. You will have to answer a few questions on your screen. We will wait until all participants answer these questions before moving forward. [Subjects answer the following questions on the screen, where for each question they have to select an answer as indicated for each question: 1) If the selected ball is White.... (a) Computer 1 votes White and Computer 2 votes White, (b) Computer 1 votes White and Computer 2 votes Black, (c) Computer 1 votes Black and Computer 2 votes White, (d) Computer 1 votes Black and Computer 2 votes Black. 2) If the selected ball is Black... (The same four options described for the first question are presented). 3) The number of White balls in the jar is... (subject asked to enter an integer in  $\{1, 2, \dots, 9\}$ ). 4) The number of Black balls in the jar is... (subject asked to enter an integer in  $\{1, 2, \dots, 9\}$ ).]

- The decision maker will not observe the ball drawn from the jar and the votes of the computers.
- If both computers vote for the same color, the decision maker gets \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise.
- If the computers vote for different colors, the decision maker has to vote for either White or Black. If the color chosen by the majority (that is, 2 out of 3 votes) matches the color of the drawn ball, the decision maker gets \$5; otherwise, the decision maker gets \$0. In other words, the payoffs are given by the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

Your task: You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question 1 and the computers will vote as described above. Your task is to indicate whether you would vote for White or Black

if the computers were to vote for different colors. If the computers vote for the same color, your payoff for Question 1 will be \$5 if this color matches the color of the ball drawn from the jar and \$0 otherwise. If the computers vote for different colors, the interface will implement the option that you indicated and pay you as described in the table above.

Now please click on next. Now you will ask the interface to select a ball from the jar. Please click on the select ball button.

Now you can make your choice by clicking on either Vote for White or Vote for Black.

[QUESTION 2: After all finish with Question 1, read the following]

Questions 2 through 10 have a similar format to Question #1, except that it is possible for the composition of the jar and the rules of the computers to be different in different questions. Please pay attention. [In each of Questions 2-Question 10 subjects have to answer questions on understanding as described for Question 1.]

## 6.7 Part 7

This part has 14 questions. One and only one of these questions will be randomly selected to determine your payoff for this part of the experiment. So in each question you should pick the option that you think is best assuming that your payoff will come from such question.

I start by describing Question 1 and you can follow on your screens what I am reading.

There is a jar containing 100 balls: 5 balls are RED, 20 balls are YELLOW, and 75 balls are BLUE.

I now describe the decision problem

- The interface will randomly draw one ball from the 100-ball jar.
- If the randomly drawn ball is BLUE, the decision maker gets \$20. The decision problem ends here.
- If the randomly drawn ball is not BLUE, the decision maker has to make a choice. Before learning whether the ball is RED or YELLOW, the decision maker has to make a choice between the following two options:
  - Option 1.

- \* If the ball drawn from the jar is RED or YELLOW, the decision maker gets \$10;
- Option 2.
  - \* If the ball drawn from the jar is YELLOW, the decision maker gets \$20;
  - \* If the ball drawn from the jar is RED, the decision maker gets \$0.

Please click on More now.

Your task: You will provide instructions regarding what to do in the above problem.

The interface will draw a ball for Question #1. Your task is to indicate what option you would prefer if the ball were NOT BLUE and you had to choose between Option 1 and Option 2. If the ball is BLUE, your payoff for Question #1 will be \$20. If the ball is NOT BLUE, the interface will implement the option that you indicated.

Next, the interface will first ask you a question with respect to the jar. [Subjects see questions on the screen related to the composition of the jar: 1) How many of the balls are Red? 2) How many of the balls are Yellow 3) How many balls are Blue?] After you answer all questions correctly, you will randomly select a ball from the jar. Once you select a ball, you will make a choice for this question. You can now click on More and proceed with this question at your own pace.

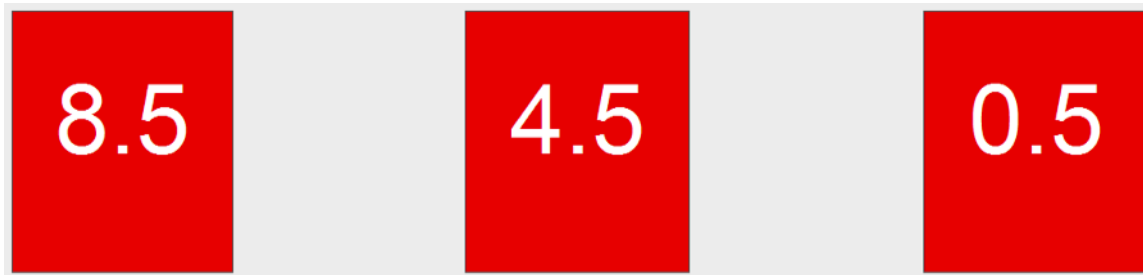
[QUESTION 2: To be read once they reach question 2]

Questions 2 through 14 have a similar format to Question 1, except that it is possible for the composition of the jar and the options available to you to be different in different questions. [For each of Question 2-Question 14 the subject has to respond questions on the composition of the jar akin to those described for Question 1.]

## 6.8 Part 8

Before describing your task for Part 8, I will describe a decision problem and on your screens you can follow what I read. Your task will be based on this decision problem, so please pay attention.

- The decision maker will see the following three cards on the screen. The numbers on the cards are: 8.5, 4.5 and 0.5.



- The computer will randomly draw a card, with each card having equal chance. The decision maker will then observe the card drawn by the computer.
- Case 1. If the computer draws the card with the number 4.5: The decision maker will be informed that the computer drew the card with the number 4.5 and will then be asked to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8). Payoff of the decision maker:
  - If the number chosen by the decision maker is higher than the number on the drawn card: Payoff =  $X$  MINUS the number on the card (in dollars)
  - If the number chosen by the decision maker is lower than the number on the drawn card: Payoff =  $Y$  dollars
  - $X$  and  $Y$  represent two numbers that will be known to the decision maker.
- Case 2. If the computer draws the card with the number 0.5: The decision maker will not be asked to make any choice. He/she will automatically get a fixed payoff of  $X-0.5$  dollars.
- Case 3. If the computer draws the card with the number 8.5: The decision maker will not be asked to make any choice. He/she will automatically get a payoff of  $Y$  dollars.

Please click on More.

Your task: You will face 10 decision problems like the one described above. In each decision problem the numbers  $X$  and  $Y$  will vary.

For each decision problem, you will provide instructions regarding what to do if the computer draws the card with the number 4.5. You will know the numbers  $X$  and  $Y$  before submitting your choice.

In each problem, your task is to choose a number between 1 and 8 (1, 2, 3, 4, 5, 6, 7, or 8).



- If it turns out that the computer draws the card with the number 4.5, the interface will implement your choice and you will get a payoff as described in Case 1 above.
- If the computer draws the card with the number 0.5, you will get a payoff of  $X - 0.5$  dollars no matter your choice.
- If the computer draws the card with the number 8.5, you will get a payoff of  $Y$  dollars no matter your choice.

At the end of the session, the interface will randomly select one of the 10 decision problems to determine your payoff for this part.

In each problem, once you are presented with the numbers  $X$  and  $Y$  that correspond to the problem, you will have to answer a couple of questions on the screen, that ask you to report  $X$  and  $Y$  back. [The questions that subjects answer are: 1) In this decision problem  $X$  is equal to... 2) In this decision problem  $Y$  is equal to...] You can only move on once your answers to both questions are correct.

{Not to be read to subjects: Once Part 8 is over, subjects are presented with the instructions in Part 2 and Part 3 of the Between design.}

## 7 Auxiliary treatment

### Welcome

You are about to participate in a session on decision-making, and you will be paid for your participation with cash, privately at the end of the session. The experiment will last approximately 30 minutes. For showing up to this experiment, you will receive \$3.

The experiment will consist of 4 parts. At the end of the experiment part 1 or part 2 will be randomly selected (with equal chance), and we will add to your payoff the earnings for the selected part. You will not know until the end of the experiment which part is selected for payment, so treat each part as a part that will determine your payoffs. We will also add the payoff that you receive in part 3 and in part 4. [Part 3 consists of the Bomb Risk Elicitation task (see Section 3 of this Procedures Appendix) and part 4 consist of the CRT questions (see Section 4).]

The entire session will take place through computer terminals and there will be no interaction with participants seated at other terminals. Please turn off cell phones now.

## Selection of the monitor

[Read by the experimenter, not distributed to subjects] One of you will be randomly selected to be the monitor in this experiment. The monitor will get \$2 for helping us to conduct the experiment (in addition to the \$3 show up payment).

The monitor will have to choose a number from 0 to 60. Monitor: Please think of a number from 0 to 60. After you choose a number, please enter it in the computer screen. I will explain the role of the number chosen by the monitor in a minute. Notice that the monitor does not know how this number will be used.

[The monitor is asked to leave the room. After the monitor leaves the room instructions are distributed]

## 7.1 Part 1: Ellsberg

[Page 1 of Part 1 instructions entitled “The jar” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud.]

### Part 1. The jar.

There is one jar in this experiment. The jar contains 90 balls. Of the 90 balls, 30 are RED, and 60 are YELLOW or BLUE.

To determine how many balls are YELLOW or BLUE, the interface will use the number between 0 and 60 chosen by the monitor.

Out of the 60 balls that are YELLOW or BLUE, the number of YELLOW balls will be equal to the number that the monitor entered in the computer. The remaining of these 60 balls will be BLUE.

You will not know, until the end of the experiment, how many of the 60 balls are YELLOW and how many are BLUE.

I now summarize the information about the composition of the jar:

- There is a total of 90 balls.
  - $1/3$  of the balls (that is, 30 balls) are RED.

- $2/3$  of the balls (that is, 60 balls) are YELLOW or BLUE. You do not know how many of these 60 balls are YELLOW and how many are BLUE. Any combination of YELLOW and BLUE balls is possible.

At the end of the experiment, the screen will display the number chosen by the monitor.

### **Your task**

Part 1 of the experiment consists of 2 questions.

The composition of the jar will be the same in each of these 2 questions. At the end of the experiment, the interface will randomly select one of these 2 questions and I will pay you your earnings in this randomly selected question.

[Page 2 of Part 1 entitled “Part 1 Question #1” distributed to participants. Once participants receive the instructions the experimenter reads instructions aloud.]

#### Part 1. Question #1.

The decision problem

- The interface will randomly draw one ball from the 90-ball jar.
- Before learning the color of the selected ball, the decision maker has to make a choice between Option 1 and Option 2:
  - If the ball drawn from the jar is RED, you get paid:
    - \* If you selected Option 1: \$10;
    - \* If you selected Option 2: \$0;
  - If the ball drawn from the jar is YELLOW, you get paid:
    - \* If you selected Option 1: \$0;
    - \* If you selected Option 2: \$10;
  - If the ball drawn from the jar is BLUE, you get paid the same regardless of your choice:
    - \* If you selected Option 1: \$10;
    - \* If you selected Option 2: \$10;

### **Your task**

The interface will draw a ball for Question #1. Without knowing the color of the drawn ball, please choose between Option 1 and Option 2.

Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #1 is the one selected for payment, I will pay you only for Question #1 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #1.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 1**: “On your screens you can see the composition of the jar. There is a total of 90 balls. One-third of the balls are red and two-thirds of the balls are yellow or blue. You do not know how many balls are yellow or blue. The number of yellow balls is equal to the number that the monitor entered in the computer. Please do not click on the ‘select ball’ button, but when I ask you to click on the ‘select ball’ button the interface will select one of the 90 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. You can see two options on the screen. When we finish with instructions you can select either Option 1 or Option 2 by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted in orange and that a submit button appears. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final. Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]

[When subjects finish with Part 1 Question #1 the experimenter collects back Page 2 of the instructions, the page that describes Part 1 Question #1. Then, the experimenter distributes Page 3 of the instructions entitled Part 1 Question #2 and reads it aloud.]

Part 1. Question #2.

The decision problem

- The interface will randomly draw one ball from the 90-ball jar.

- Before learning the color of the selected ball, the decision maker has to make a choice between Option 1 and Option 2:
  - If the ball drawn from the jar is RED, you get paid:
    - \* If you selected Option 1: \$10;
    - \* If you selected Option 2: \$0;
  - If the ball drawn from the jar is YELLOW, you get paid:
    - \* If you selected Option 1: \$0;
    - \* If you selected Option 2: \$10;
  - If the ball drawn from the jar is BLUE, you get paid the same regardless of your choice:
    - \* If you selected Option 1: \$0;
    - \* If you selected Option 2: \$0;

### Your task

The interface will draw a ball for Question #2. Without knowing the color of the selected ball, please choose between Option 1 and Option 2.

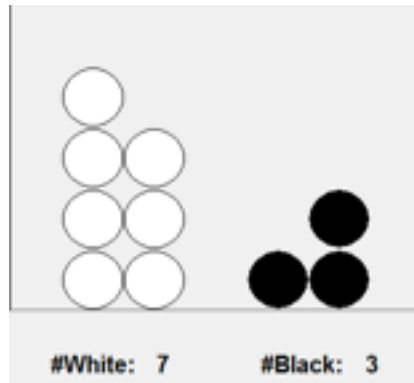
Remember that I will pay you either Question #1 or Question #2, not both. In particular, if Question #2 is the one selected for payment, I will pay you only for Question #2 and your decision in the other question will be irrelevant. So pick the option that you think is best assuming that your payoff will come from Question #2.

[The experimenter asks subjects to click on a Move On button and asks them to wait for instructions before they click anywhere else. The screen subjects see reproduces the description of the jar and the experimenter repeats **Script 1**. Once all subjects finish with Question #2 the experimenter says: “Part 1 is over I will now provide you with instructions for Part 2.”]

## 7.2 Part 2: Election

The decision problem

- The interface will randomly draw a ball from a jar containing 7 WHITE balls and 3 BLACK balls.



- There are two computers, Computer 1 and Computer 2. Each computer will cast a vote for either White or Black after observing the color of the ball drawn from the jar.
  - If the drawn ball is WHITE: Computer 1 votes White and Computer 2 votes White.
  - If the drawn ball is BLACK: Computer 1 votes White and Computer 2 votes Black.
- You will have to vote for either White or Black. You will not observe the ball drawn from the jar and the votes of the computers until the end of the experiment.
- Your payoff will depend on the ball drawn from the jar and on the color chosen by the majority (2 out of 3 votes), according to the following table:

	Color of ball drawn from jar	
	White	Black
Majority votes for White	\$5	\$0
Majority votes for Black	\$0	\$5

In other words:

- If both computers vote for the same color, that will be the color selected by the majority, and your payoff will not depend on how you voted.

- If both computers vote for White, then you will get \$5 if the ball drawn from the jar is White, and \$0 otherwise.
- If both computers vote for Black, then you will get \$5 if the ball drawn from the jar is Black, and \$0 otherwise.
- If the computers vote for different colors, then your vote will determine the color chosen by the majority.
  - If computers vote for different colors and you vote for White, then you will get \$5 if the ball drawn from the jar is White, and \$0 otherwise.
  - If computers vote for different colors and you vote for Black, then you will get \$5 if the ball drawn from the jar is Black, and \$0 otherwise.

### Your task

The interface will draw a ball for Question #1 and the computers will vote as described above. Without knowing the color of the drawn ball or the votes of the computers, please vote for either White or Black.

[The experimenter starts the interface and instructs subjects to wait for instructions before they click anywhere. The first screen subjects see reproduces the description of the jar. The experimenter follows **Script 2**: “On your screens you can see the composition of the jar. There is a total of 10 balls. Three balls are black and seven balls are white. Please do not click on the ‘select ball’ button yet, but when I ask you to click on the ‘select ball’ button the interface will select one of the 10 balls from the jar. You will not know the color of the selected ball until the end of the experiment. Please now click on the select ball button.” The interface moves on to the decision screen and the experimenter continues with the script. “Please do not click anywhere yet. I will explain first how you will make your choices. At the top of the screen you are reminded of the composition of the jar. A ball has already been selected, you will not know the color of the ball until the end of the experiment. You can see two options on the screen. When we finish with instructions you can select either “vote for white” or “vote for black” by clicking on top of your preferred option. Once you click on one option you will notice that the selected option is highlighted and that a submit button appears. You can change your choice as long as you haven’t clicked on the submit button, but once you click on the submit button your decision is final.

Now, you can take your time to consider your choice and when you are ready please select an option and click on the submit button.”]