Information Treatment

Instructions: Part 1

Welcome to our decision making study! Thank you for your participation. Please turn off and put away your cell phones, put away any books or other things you've brought with you, and please refrain from talking to other participants during the study.

Here in the Economics Experimental Lab, our research does not involve deception of any kind. You might have participated in experiments elsewhere on campus where that was not the case, but it will always be true here. What this means is that, in this Lab, we will provide you with all relevant information and we will be truthful. The instructions accurately reflect how decisions and processes will unfold. We will not deceive or lie to you in any way.

This study will take approximately 90 minutes. You will receive $10 for showing up on time. In addition to this "show up payment," you may earn additional money throughout the study. Your earnings may depend on your decisions and on elements of chance.

There are two separate "Parts" to this experiment, and each Part has multiple Tasks. These instructions are for Part 1. Part 2 will take place after Part 1 is finished. Your decisions in Part 1 will not in any way affect your decisions or payoffs in Part 2.

Task 1: Signals

The Lottery

Your earnings from Part 1 will be determined by the outcome of a lottery. At the beginning of the experiment, the computer will draw a random number between 1 and 100. Each number is equally likely to be drawn. If the computer draws 1-50, you will win the "low prize." If the computer draws 51-100, you will win the "high prize." This means there's a 50% chance you've won the high prize and a 50% chance you've won the low prize.

You will receive information about the outcome of the lottery in two steps. The computer won't reveal the number drawn, so you won't learn the outcome of the lottery immediately. However, you can receive some earlier information about the outcome, which we'll call a "signal." So the first step in learning the outcome of the lottery is the information in the signal you will receive. In the second step, you'll learn the final outcome.

Payoffs

The randomly selected number will determine your payoff from the lottery.

- If you win the high prize, you'll earn $11.
- If you win the low prize, you'll earn $2.

Overall Odds

Overall, there is a 50% chance of winning the high prize and a 50% chance of winning the low prize. Note that the chance of winning and losing is equal for everyone. This means there's a 50% chance you'll earn $11 from the lottery and a 50% chance you'll earn $2.

Your Choice

There are many possible signals that you could receive to get information about the outcome of the lottery. You will be choosing the signal that you want to receive. The type of signal that you receive does not change the Overall Odds or the likelihood of receiving the high prize or the low prize. You will choose the type of information you want to receive about the outcome of the lottery.

Choosing Signals

Though you will not learn the lottery outcome immediately, the computer will know whether you've won the high prize or the low prize. As a result, the computer can give you a "signal" about the outcome. The signal is just a piece of information that might tell you more about whether you've won the high or low prize. You will choose the kind of signal you want.

The amount and type of information varies across these signals. You will pick your most preferred information option from all of these possibilities. So you will get to determine the type of information you'd like the signal to tell you about the outcome of the lottery.

You'll do that in the following way. There are two "Urns," Urn 1 and Urn 2. You can visualize them as being filled with red and/or blue balls. The computer will randomly pick one ball from one of the Urns; this selected ball is the "signal" you will see. The computer will show you a ball from Urn 1 if you've won the low prize, and it will show you a ball from Urn 2 if you've won the high prize. You won't learn which Urn the ball was drawn from; you'll just see the ball color.

Each possible signal you get is determined by three things:

1. The likelihood of seeing a red or blue signal
2. The chance that you've won the high prize, given that you see a blue signal
3. The chance that you've won the high prize, given that you see a red signal

You'll be choosing these three things. When you make your decisions, your screen will have three "sliders" on it. The slider on top determines the likelihood of seeing a red or blue signal. The bottom left slider determines the chance that you've won the high prize, given that you see a blue signal, and the bottom right slider determines the chance that you've won the high prize, given that you see a red signal.

On your screen, you'll also see three "Auto" buttons, one corresponding to each slider. You must put exactly one slider on "Auto" at all times. You can put any of the three sliders on Auto, and then you can adjust the other two in any way you want. This way, the computer will automatically adjust the Auto slider in order to maintain the Overall Odds. We'll go through some examples in a minute to give you an idea how the computer interface works.

Lottery Details

- The first important thing to realize is that the likelihood of winning the high prize or low prize **does not change** when you make your decisions or adjust the sliders. No matter what type of

information you choose, there is a 50% chance of winning the high prize and a 50% chance of winning the low prize. No information choices affect the number that the computer draws to determine whether you win the high or low prize.

- When you choose your information, you are choosing what you want to learn from the signal you see.
- For example, in Information 4 in the table shown, the signal tells you for sure whether you've won the high or low prize.
- On the other hand, in Information 1 shown, the signal does not give you any information about the lottery outcome. You will know that there is a 50% chance you've won the high prize and a 50% chance you've won the low prize, regardless of the signal you see.
- For Lotteries 2 and 3, the signals give you some, but not all, information about whether you've won the high or low prize.

Another important thing to note is that the computer is set up so that there will always be a less than or equal to 50% chance you've won the high prize if you see a blue ball and a greater than or equal to 50% chance you've won the high prize if you see a red ball.

- This ensures that, if you see a red ball as your signal, it's more likely to have come from Urn 2, which means it's more likely that you've won the high prize.
- Thus, seeing a red ball means that your chances of having won the high prize are either equal to or higher than 50%, and seeing a blue ball means that your chances are either equal to or lower than 50%.
- How much your chances of having won changes after you see a red or blue ball depends on the contents of the Urns.

Restrictions

You'll be choosing your Information under various conditions which we will call "scenarios." Remember, your information is determined by (i) The likelihood of seeing a red or blue signal, (ii) The chance that you've won the high prize, given that you see a blue signal, and (iii) The chance that you've won the high prize, given that you see a red signal.

- In some scenarios, the computer might place "restrictions" on one or more of these things.
- For example, the computer might require that there's no more than a 20% chance you've won the high prize, given that you see a blue signal.

Preferences

There are no right or wrong answers in any of these scenarios. We are simply interested in your preferences, so please consider the options carefully and choose the one lottery you most prefer in each scenario. In fact, you should answer each question as if it will directly determine your Part 1 earnings, since one of the scenarios will. If you don't answer according to your actual preferences, you might end up with something you prefer less than another available option.

Experiment Timing

Task 1

Part a:

You will have the chance to participate in a practice scenario, so you can get used to how the computer sliders work, how to pick your preferred signals, etc. As you're getting familiar with the task, we will also ask you a few comprehension questions.

Part b:

Next, you'll participate in the Task described above. You will choose your information from 9 different scenarios. These scenarios might differ in the restrictions that the computer places on the Urns.

Part c:

After you make all your decisions, we will determine which of the 9 scenarios will actually play out. We'll do this in the following way. The computer will randomly draw a number 1-9. Each number is equally likely to be drawn. The number chosen will correspond to the scenario that will play out. You will receive a signal according to how you chose in that scenario.

Part d:

Now that the information has been selected, you will see a signal according to the information <u>you have chosen</u> in that scenario. Here's how that works.

Let's say you've decided to make Urn 1 30% red balls and make Urn 2 80% red balls. If you've won the high prize, the computer will draw a ball from Urn 2, in which case there's an 80% chance you'll see a red ball as your signal. If you've won the low prize, the computer will draw a ball from Urn 1, in which case there's a 30% chance you'll see a red ball.

You will only see the signal, but the computer will tell you how likely it is that you've won the high prize or the low prize, given the signal you see.

Task 2 and 3

After you see the signal, you will participate in Tasks 2 and 3 of the experiment. This means that, after Part d, you will know the information from the signal, <u>but we will not tell you whether you've won the high or low prize until the very end of Part 1</u>. So when you participate in Tasks 2 and 3, you will know the information from the signal, but you won't learn anything else about the lottery outcome until the end of Tasks 2 and 3. Tasks 2 and 3 will take about 30 minutes, so you'll be waiting for those 30 minutes to learn the outcome of the lottery.

Task 2: Coloring

After you see your signal, you'll participate in Task 2. In Task 2, you will use the computer to "color" a representation of how likely it is that you've won the high prize or the low prize.

On your computer, you will see 100 circles labeled 1-100. You will color them red or blue according to the information from your signal. For example, imagine that you see a blue signal, and according to the information you've chosen, this means that there's a 30% chance you've won the high prize and a 70% chance you've won the low prize. In task 2, you would color balls 1-30 red and 31-100 blue. The computer will not allow you to color the balls in any other way. This is just to create a visual for yourself of your chances of winning the prizes.

More detailed instructions on the coloring task will follow.

Task 3: Questions

Task 3 will present you with various possible information specifications and we will ask you to answer various questions. These questions will be hypothetical. Please read the questions carefully before answering, and raise your hand with any questions.

Remember, it will have already been decided whether you've won the high prize or the low prize, and you will have already seen your signal. However, we will tell you the lottery outcome at the very end of Task 1.

Lottery Outcome

After Task 3, we will tell you the actual outcome of the lottery. The computer will reveal whether you won the high or low prize.

Part 2

After the outcome is revealed and Part 1 is finished, you will receive the instructions for Part 2, which is a short additional "bonus" task. Your decisions in Part 1 will not in any way affect your decisions or payoffs in Part 2. The two parts are completely independent.