

Appendices

A Experimental Instructions - Treatment 2A-U-IND

INSTRUCTION

Welcome to the experiment. This experiment studies decision making between three individuals. In the following two hours or less, you will participate in 21 rounds of decision making. Please read the instructions below carefully; the cash payment you will receive at the end of the experiment depends on how well you make your decisions according to these instructions.

Your Role and Decision Group

There are 24 participants in today's session. One third of the participants will be randomly assigned the role of *Member A*, another one third the role of *Member B*, and the remaining the role of *Member C*. Your role will remain fixed throughout the experiment. At the beginning of the first round, three participants, one *Member A*, one *Member B* and one *Member C*, will be matched to form a group of three. The three members in a group make decisions that will affect their rewards in all 21 rounds. That is, you will stay in the same group so that you will interact with the same two other participants throughout the 21 rounds. You will not be told the identity of the participants in your group, nor will they be told your identity—even after the end of the experiment.

Your Decision and Earning in Each of Round 1-20

In each round and for each group, the computer will select two integer numbers **A** and **B** between 0 and 100 randomly and independently. Each possible number has equal chance to be selected. The selected number **A** will be revealed only to *Member A* and the selected number **B** will be revealed only to *Member B*. *Member C*, without seeing any of these numbers, will have to choose one of two actions UP and DOWN.

The amount of Experimental Currency Unit (ECU) you earn in a round depends on the two numbers **A** and **B** as well as the action chosen by *Member C*. In particular,

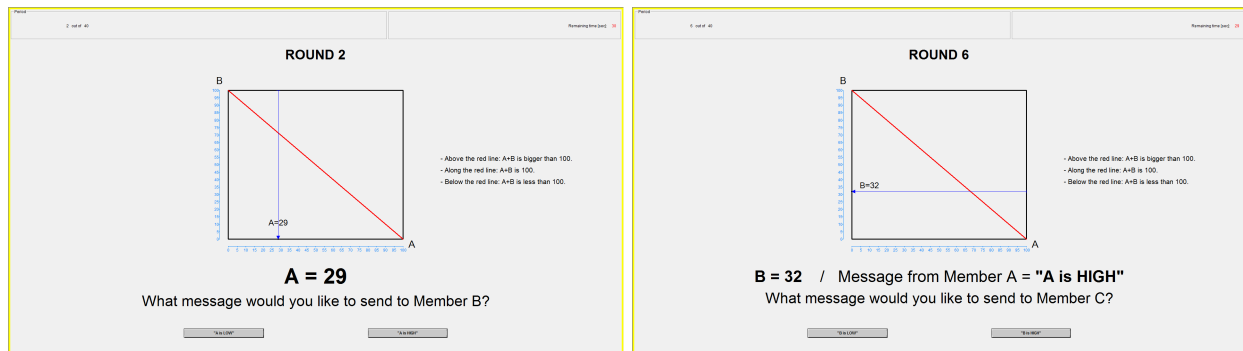
1. When $\mathbf{A} + \mathbf{B} > 100$, if *Member C* chooses
 - (a) **UP**, every member in your group will receive 50 ECU.

- (b) **DOWN**, every member in your group will receive 0 ECU.
2. When $A + B < 100$, if *Member C* chooses
- (a) **DOWN**, every member in your group will receive 50 ECU.
- (b) **UP**, every member in your group will receive 0 ECU.
3. When $A + B = 100$, every member in your group will receive 50 ECU regardless of the action chosen by *Member C*.

Member A's Decisions

You will be presented with a two-dimensional coordinate system on your screen as in Figure 5(a). The horizontal axis represents the number **A** and the vertical axis represents the number **B**. You will see a blue vertical line, which represents the actually selected number **A** in the horizontal axis. The red diagonal line represents the cases with $A + B = 100$.

With all this information on your screen, you will be asked to send one of two messages “**A is LOW**” and “**A is HIGH**” to *Member B* in your group. Once you click one of the message buttons, your decision in the round is completed and your message will be transmitted to *Member B* in your group.



(a) *Member A's Screen*

(b) *Member B's Screen*

Figure 5: Screen Shots

Member B's Decisions

You will be presented with a two-dimensional coordinate system on your screen as in Figure 5(b). The horizontal axis represents the number **A** and the vertical axis represents the number **B**. You will see a blue horizontal line, which represents the actually selected number **B** in the vertical axis. The red diagonal line represents the cases with $A + B = 100$.

You will also receive a message from *Member A* in your group. With all this information on your screen, you will be asked to send one of two messages “**B** is LOW” and “**B** is HIGH” to *Member C* in your group. Once you click one of the message buttons, your decision in the round is completed and your message will be transmitted to *Member C* in your group.

Member C’s Decisions

You will be presented with a two-dimensional coordinate system on your screen as in Figure 6. The horizontal axis represents the number **A** and the vertical axis represents the number **B**. The red diagonal line represents the cases with $A + B = 100$.

You will receive a message from *Member B* in your group. With all this information on your screen, you will be asked to take one of two actions DOWN and UP. Once you click one of the action buttons, your decision in the round is completed.

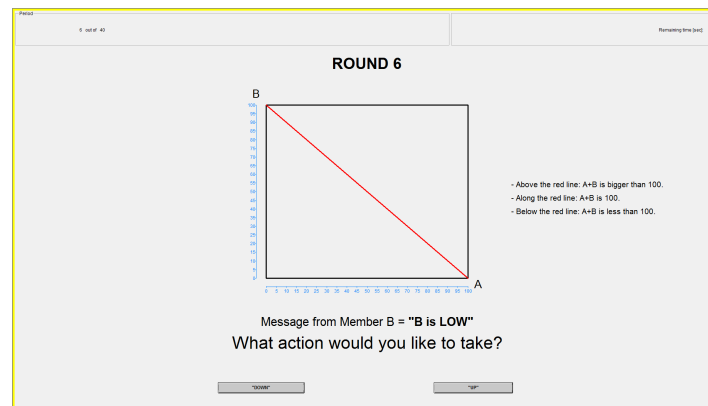


Figure 6: *Member C’s Screen*

Information Feedback

At the end of each round, the computer will provide a summary for the round: actually selected numbers **A** and **B**, *Member A’s* message, *Member B’s* message, *Member C’s* action choice, and your earning in ECU.

Your Decision in Round 21

After the 20th round, your screen will provide further instructions for your decisions in Round 21. The game you are going to play in this round is essentially the same as before, but you need to follow some new procedures. Please read the instructions carefully before you start the 21st round. You will have an opportunity to ask questions if anything is unclear about the new instructions.

Your Cash Payment

To calculate your cash payment, the experimenter will randomly select **two** rounds to calculate your cash payment. Each round between Rounds 1 and 21 has an equal chance to be selected. So it is in your best interest to take each round seriously. Your total cash payment at the end of the experiment will be the sum of ECU you earned in the two selected rounds, translated into HKD with the exchange rate of 1 ECU = 1 HKD, plus a 30 HKD show-up fee.

Quiz and Practice

To ensure your understanding of the instructions, we will provide you with a quiz and practice round. We will go through the quiz after you answer it on your own.

You will then participate in 1 practice round. The practice round is part of the instructions which is not relevant to your cash payment; its objective is to get you familiar with the computer interface and the flow of the decisions in each round. Once the practice round is over, the computer will tell you “The official rounds begin now!”

Administration

Your decisions as well as your monetary payment will be kept confidential. Remember that you have to make your decisions entirely on your own; please do not discuss your decisions with any other participants. Upon finishing the experiment, you will receive your cash payment. You will be asked to sign your name to acknowledge your receipt of the payment. You are then free to leave. If you have any question, please raise your hand now. We will answer your question individually.

1. Suppose you are assigned to be a *Member A*. The computer chooses the random numbers **A** = 25 and **B** = 50. Which of the following is true?
 - (a) Both you and *Member B* know the chosen numbers **A** and **B** but *Member C* does not know any of the numbers.
 - (b) Neither you nor *Member B* knows the chosen numbers **A** and **B**.
 - (c) You are the only person in your group who knows the chosen number **A** and *Member B* is the only person in your group who knows the chosen number **B**.
2. Suppose that the computer chooses the random numbers **A** = 25 and **B** = 50. *Member C* in your group takes action DOWN. Please calculate the earning for each player:
 - *Member A*’s payoff: _____

- *Member B's* payoff: _____
- *Member C's* payoff: _____

3. Suppose that the computer chooses the random numbers **A** = 60 and **B** = 73. *Member C* in your group takes action DOWN. Please calculate the earning for each player:

- *Member A's* payoff: _____
- *Member B's* payoff: _____
- *Member C's* payoff: _____

B Scripts for Strategy-method and Belief-elicitation - Treatment 2A-U-IND

1. Strategy - Member A

In this round, we ask you to report your plan. After you specify your plan below, *A* will be realized and your plan will be implemented accordingly.

Your plan: Send “A is LOW” if A is less than or equal to _____, and otherwise, send “A is HIGH”.

What is the number for you in the blank above?

2. Belief - Member A

In this round, Member A is going to report his/her plan according to the following form:

Send “A is LOW” if A is less than or equal to _____, and otherwise, send “A is HIGH”.

What do you think is the number for him/her in the blank above?

If your guess is in the range of the actual value (chosen by Member A) plus-minus 5, then you will receive extra 8 ECU.

3. Strategy - Member B

In this round, we ask you to report your plan. After you specify your plan below, *A* and *B* will be realized and your plan will be implemented accordingly.

(a) When receiving “A is LOW” from Member A, send “B is LOW” if B is less than or equal to _____, and otherwise, send “B is HIGH”.

(b) When receiving “A is HIGH” from Member A, send “B is LOW” if B is less than or equal to _____, and otherwise, send “B is HIGH”.

What is the number for you in the first blank above?

What is the number for you in the second blank above?

4. Belief - Member B

In this round, Member B is going to report his/her plan according to the following form:

(a) When receiving “A is LOW” from Member A, send “B is LOW” if B is less than or equal to _____, and otherwise, send “B is HIGH”.

(b) When receiving “A is HIGH” from Member A, send “B is LOW” if B is less than or equal to _____, and otherwise, send “B is HIGH”.

What do you think is the number for him/her in the blank in (a)?

What do you think is the number for him/her in the blank in (b)?

If each of your guesses for (a) and (b) is in the range of the actual value (chosen by Member B) plus-minus 5, then you will receive extra 4 ECU.

5. Strategy - Member C

In this round, we ask you to report your plan. After you specify your plan below, *A* and *B* will be realized and your plan will be implemented accordingly.

What action would you like to take if the message from Member B is

(a) B is LOW _____ (b) B is HIGH _____

6. Belief - Member C

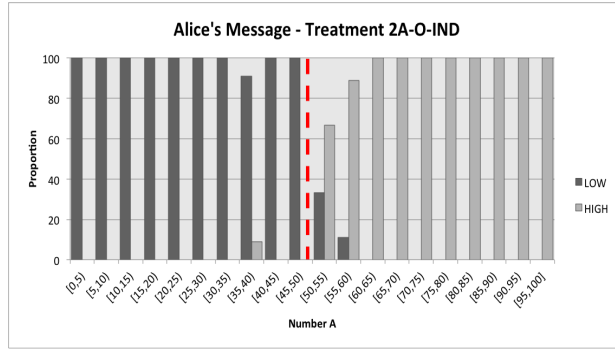
In this round, we ask Member C to report his/her plan about what action to take for each possible message.

What action do you think would Member C like to take if the message from Member B is

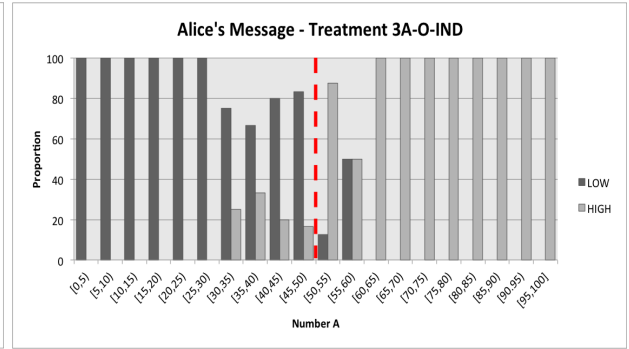
(a) B is LOW _____ (b) B is HIGH _____

If each of your guesses for (a) and (b) is correct, then you will receive extra 4 ECU.

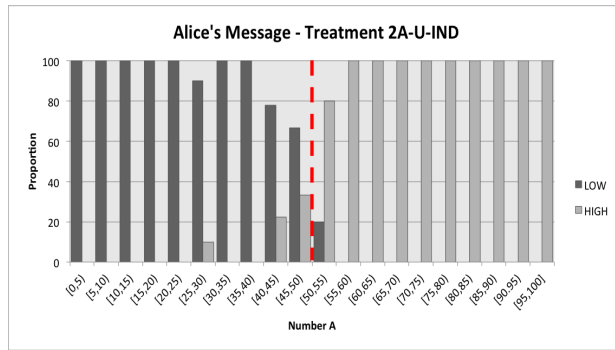
C Figures and Tables



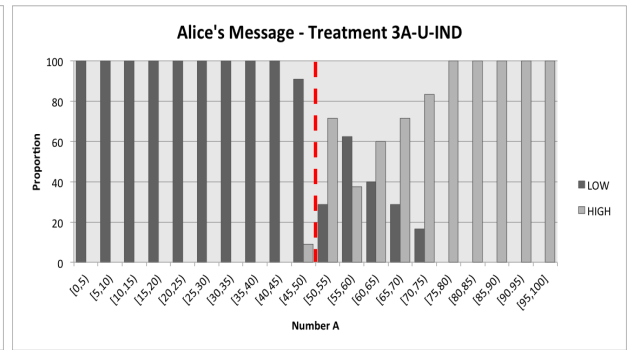
(a) Treatment 2A-O-IND



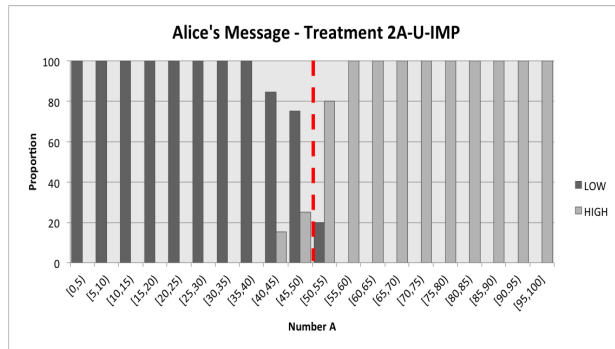
(b) Treatment 3A-O-IND



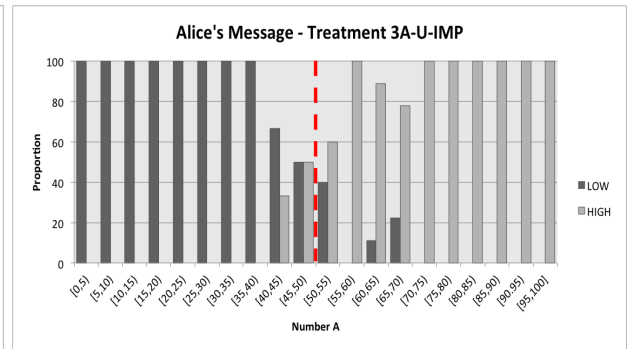
(c) Treatment 2A-U-IND



(d) Treatment 3A-U-IND



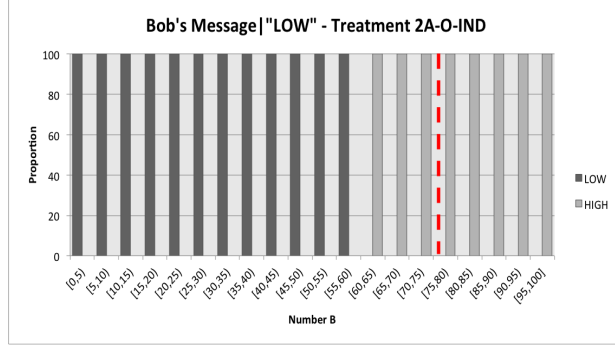
(e) Treatment 2A-U-IMP



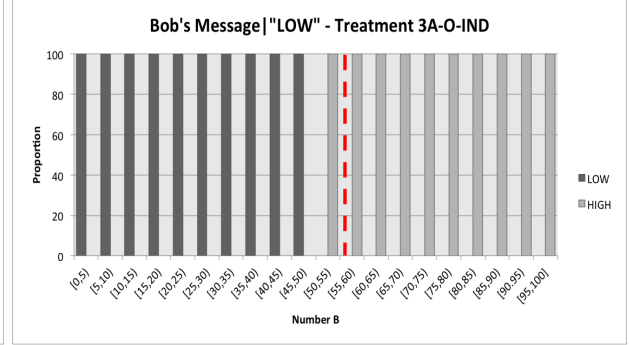
(f) Treatment 3A-U-IMP

Note: The red dotted lines indicate the optimal cut-off equilibrium strategy.

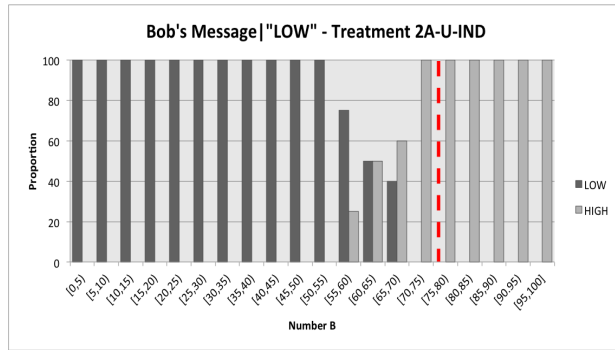
Figure 7: Alice's Messages



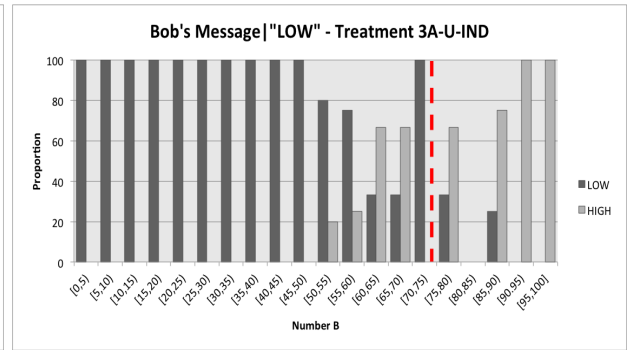
(a) Treatment 2A-O-IND



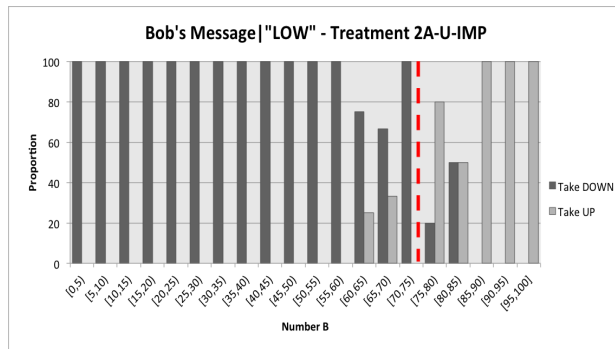
(b) Treatment 3A-O-IND



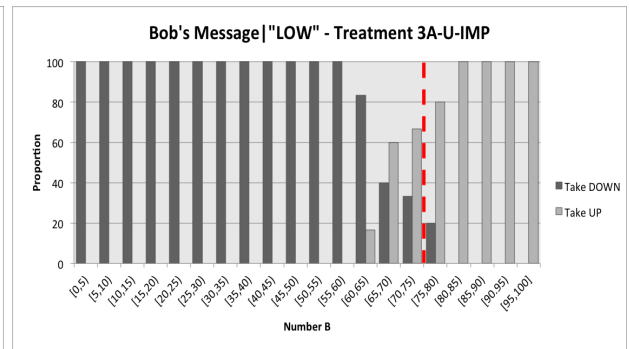
(c) Treatment 2A-U-IND



(d) Treatment 3A-U-IND



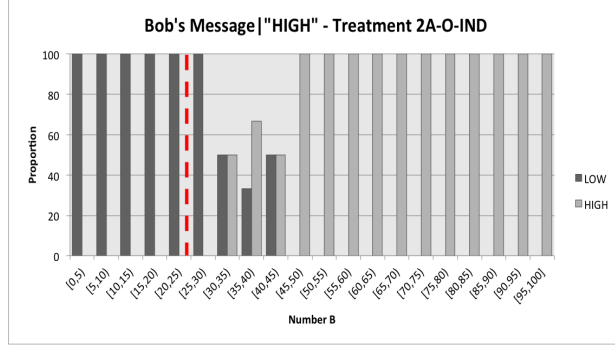
(e) Treatment 2A-U-IMP



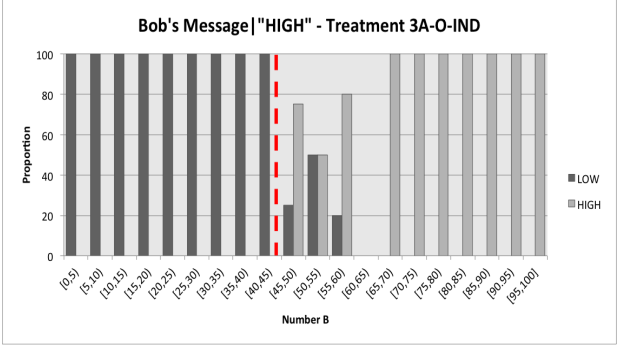
(f) Treatment 3A-U-IMP

Note: The red dotted lines indicate the optimal cut-off equilibrium strategy.

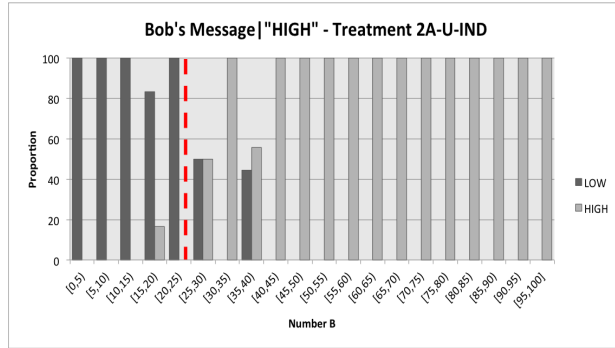
Figure 8: Bob's Messages | "Low" from Alice



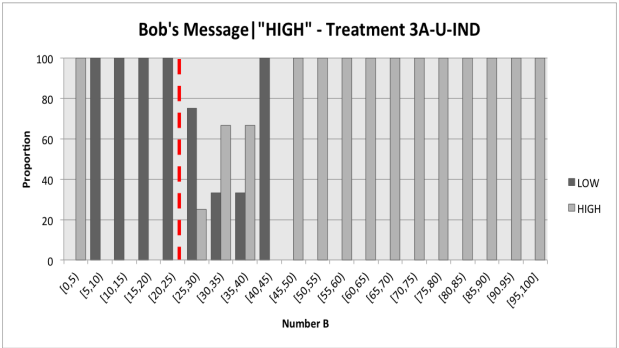
(a) Treatment 2A-O-IND



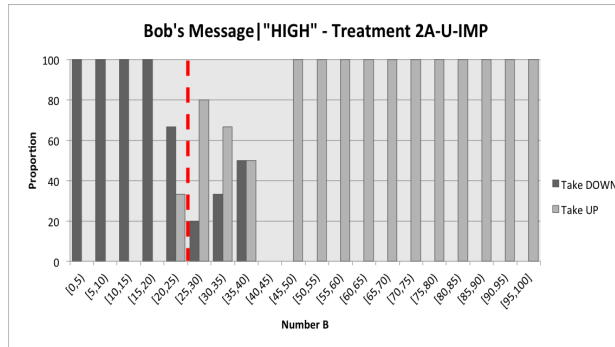
(b) Treatment 3A-O-IND



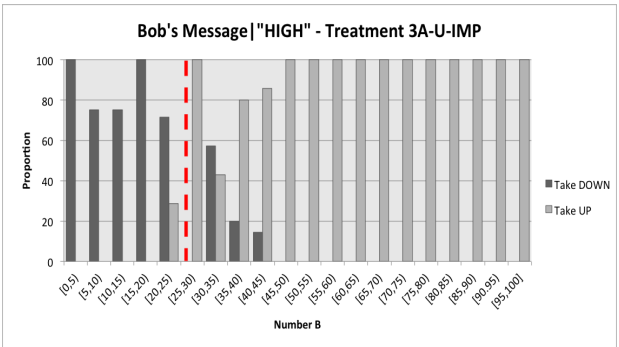
(c) Treatment 2A-U-IND



(d) Treatment 3A-U-IND



(e) Treatment 2A-U-IMP



(f) Treatment 3A-U-IMP

Note: The red dotted lines indicate the optimal cut-off equilibrium strategy.

Figure 9: Bob's Messages | "High" from Alice

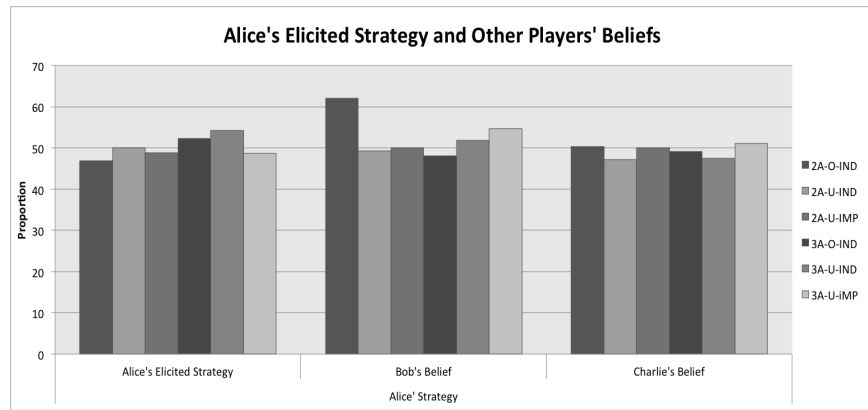


Figure 10: Alice's Elicited Strategy and Other Players' Beliefs

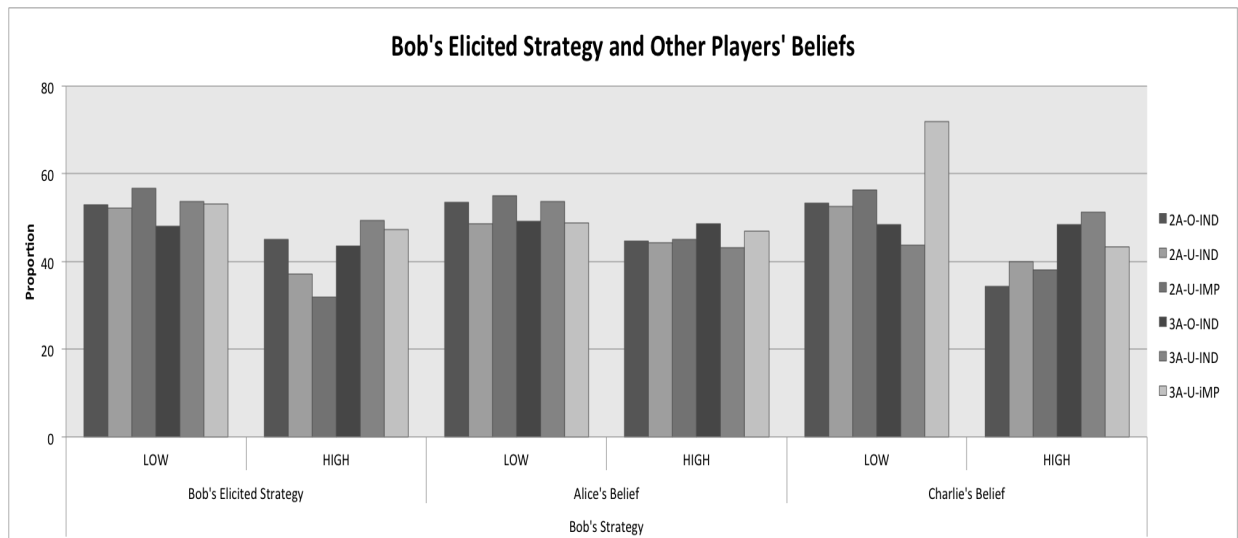
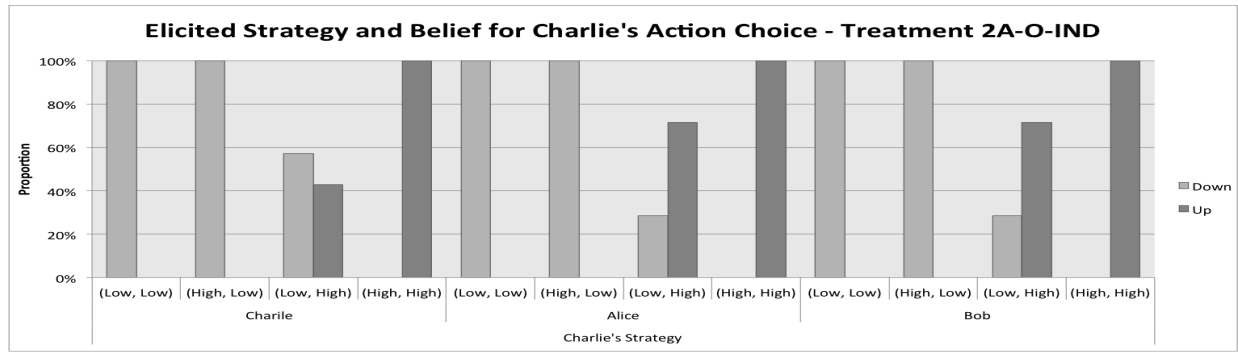
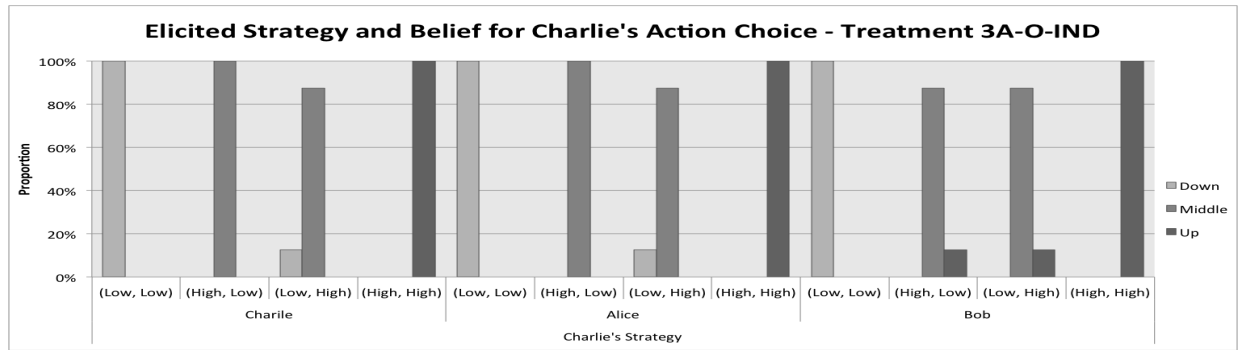


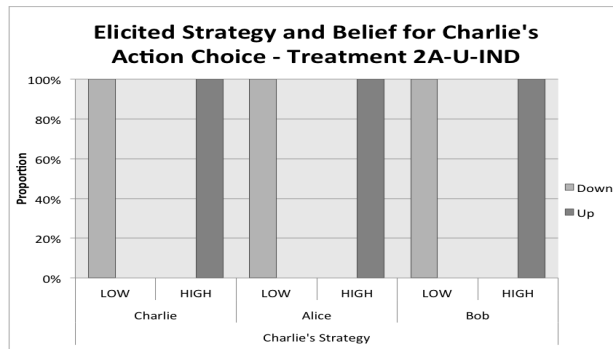
Figure 11: Bob's Elicited Strategy and Other Players' Beliefs



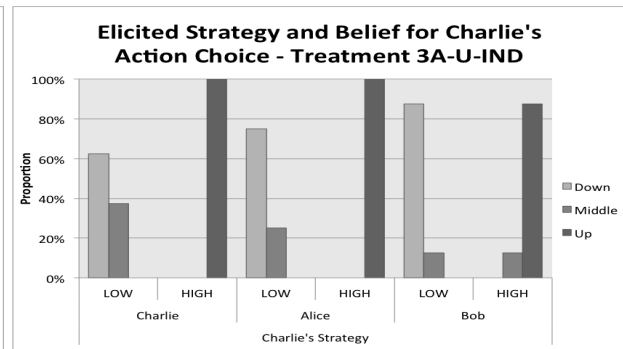
(a) Treatment 2A-O-IND



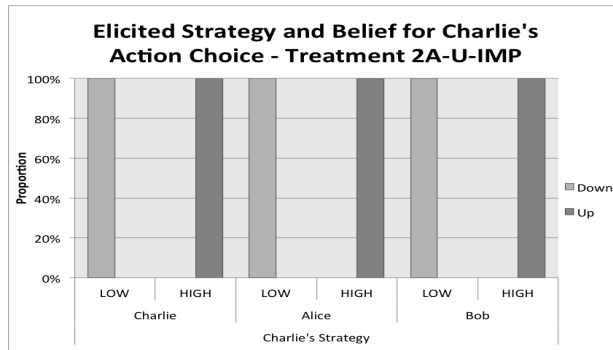
(b) Treatment 3A-O-IND



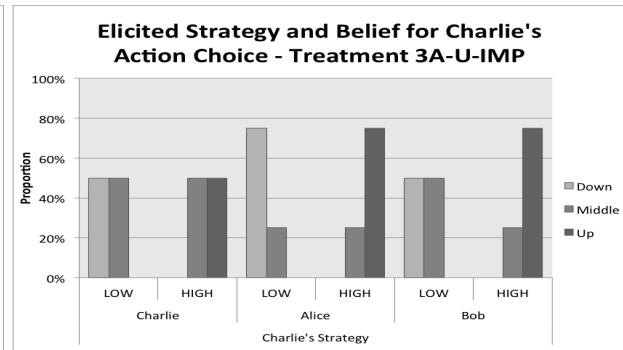
(c) Treatment 2A-U-IND



(d) Treatment 3A-U-IND



(e) Treatment 2A-U-IMP



(f) Treatment 3A-U-IMP

Figure 12: Charlie's Elicited Strategy and Other Players' Beliefs