

## **Tacit Cooperation, Strategic Uncertainty, and Coordination Failure: Evidence from Repeated Dominance Solvable Games.**

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### **APPENDIX A: Instructions text file for graphical user interface.**

**HP^CPA** This is an experiment in the economics of strategic decision making. Various agencies have provided funds for this research. If you follow the instructions and make good decisions, you can earn a significant amount of money. At the end of today's session, you will be paid in private and in cash.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

You will be making choices using a Logitech mouse, which is located on the mouse pad in the middle of your table. You may move the pad to the right or left if this would be more comfortable. Hold the mouse in a relaxed manner with your thumb and little finger on either side of the mouse. Rest your wrist naturally on the table surface. When you move the mouse, let your hand pivot from the wrist. Use a light touch. Your cursor (a white arrow on your screen) should move when you slide the mouse on the mouse pad. If it doesn't, raise your hand.

To participate, you must be able to move the cursor onto an object and click any one of the mouse buttons. We will call pointing at an object and then clicking your mouse "clicking on" an object displayed on the screen. Click on the page down icon located below to display the next page.

**E4^HM^HP^CPA** Each period you will choose a number from 1 to 5, which will select a row of your earnings table and a column of another participant's earnings table. Everyone has the same earnings table, which is displayed below and in the front of the room. Your earnings are found in the cell selected by the row corresponding to your choice and the column corresponding to the other participant's choice. The number in the cell is the number of dimes you earn that period.

For example, if you chose a 3 and the other participant chose a 2, then your earnings are found in the cell determined by the intersection of row 3 and column 2, which is 10 dimes, or one dollar. The other

participant would earn 0 dimes, since this is the value in the cell determined by the intersection of row 2, which was their choice, and column 3, which was your choice.

**^HP^CPA** At the beginning of period one, you will be randomly paired with another participant, whose decisions will influence your earnings for a randomly determined number of periods. The pairings will be anonymous, no participant will be able to identify you. A pairing goes through two phases: an initial phase, and a terminal phase. The terminal phase lasts two periods. Between each period during the initial phase, a random device will determine if your current pairing enters the terminal phase.

The random device works as follows: One chip was drawn from a bowl containing five white chips and one red chip. The color of the chip was recorded and the chip was returned to the bowl. This process was repeated many times in order to construct a sequence of white and red chips. We have constructed many sequences by this method. One of these sequences will be used in today's session.

If a white chip is reported, your current pairing will continue its initial phase. If a red chip is reported, your current pairing will enter the terminal phase. Since the bowl contained five white chips and one red chip, the initial phase of a current pairing will continue for at least one more choice 5 out of 6 times, (or about 83 percent of the time). Moreover, the initial phase will continue for six more choices on average. Since the terminal phase lasts exactly two choices, during the initial phase, your current pairing will continue for eight more choices on average. Notice that this is a conditional statement. Since the bowl always contained five white chips and one red chip, your current pairing will continue for eight more choices on average, no matter how many periods your pairing has already survived.

**^CPA^HP** Once a red chip is reported, you will know exactly how many choices your current pairing will continue. The terminal phase lasts exactly two choices. No chips are drawn during the terminal phase. Instead you will be reminded first that two choices remain in the current match. Then, during the next period, you will be reminded that only one choice remains in the current match. After the two choices of the terminal phase have been made, you will be randomly rematched with another participant. For example, if a red chip was reported at the beginning of period 70, you would have the choices for periods 70 and 71, and then be randomly rematched.

**^CPA^HP** We will now view the main screen, on which you will make your choices each period. While you view the main screen, I will read the description of the screen contained in the next three paragraphs. Click on the word "MAIN" located on the second line down from the top of your screen now. (The second line is the light blue line on your screen.)

The top line of the main screen displays the title of the screen and the current period number. The second line has the abbreviation "INSTR" and the word "RECORD" on it.

During the session you will be able to return to these instructions by clicking on "INSTR." You will also be able to view the history of play by clicking on "RECORD," which we will explain in a moment. The remainder of the screen is devoted to the earnings table.

To make a choice, click on the earnings table. When you have clicked on the earnings table, your cursor is replaced by a green highlight around the row that contained the cursor when you clicked the mouse. You can change the highlighted row by sliding your mouse up and down. Click the mouse a second time and your cursor returns, but a row remains highlighted. To select this row as your choice, click on the box labeled "PROCEED," which is located below the earnings table, and then click on the box labeled "YES" to confirm your choice.

This confirmation step lets you catch any mistakes you make. If you want to change your choice, click on "NO" and then make a different choice. Only after the confirmation step has been completed is your choice final.

To return to the instructions properly, make a choice now.

**^CPA^HP** During the session, if a white chip is reported, the following message will appear under the light blue bar on the main screen:

A white chip has been reported. Your pairing will continue eight more choices on average, including this one.

If a red chip is reported, the following message will appear under the light blue bar on the main screen:

**^CMA** A red chip has been reported. There are exactly 2 choices remaining.

**^CPA** In addition, the computer at the front of the room will beep once to signal that a red chip has been reported.

The period after a red chip is reported, the following message will appear:

**^CMA** There is exactly 1 choice remaining.

**^CPA** After the second period of the terminal phase is completed, the computer at the front of the room will beep twice to signal that all of the players have been rematched.

**^CPA^HP** During a session, a waiting screen will appear after you have made a choice. While you are waiting, you can view the instructions and the record of play by clicking on "INSTR" or "RECORD." You will be automatically switched to the outcome screen as soon as the outcome is available. We will now view the waiting screen. It will not be active. You will automatically return to the instructions. Click on "WAITING" now.

During a session, after everyone has made their choices, the outcome screen will appear. The outcome screen summarizes what happened each period for ten seconds. The column determined by the other participant's choice will be highlighted in red. The

screen is not active. We will view a hypothetical outcome screen now. You will automatically return to the instructions. Click on "OUTCOME" now.

^CPA^HP During the session the outcome screen will be displayed for ten seconds and then the record screen will be displayed for twenty seconds. You may proceed to the next period by clicking on "RETURN" before the twenty seconds have expired. Remember you can always return to the record screen from either the main screen or the waiting screen.

The record screen records the period outcomes and updates your earnings balance. While you view the record screen, I will read the description of the screen contained in the next two paragraphs. Click on the word "RECORD" located on the second line down from the top of your screen now.

The first column is labeled "Per," which is an abbreviation for period. It gives the period number for that row. Your choices will be recorded in the second column labeled "Own Choice." The other participant's choices will be recorded in the third column labeled "Other's Choice." Your earnings will be recorded in the fourth column labeled "Earnings" and in the fifth column labeled "Period Earnings." Your current balance, which includes all of your earnings up to and including the current period, will be recorded in the sixth column labeled "Balance."

Once the terminal phase begins (a red chip is reported), "\*\*\* REMATCH \*\*\*" will appear on the line after the last period of the current pairing. The record of play for each pairing will be recorded on a separate record screen. You may review these records by clicking on "PREVIOUS" to review a previous pairing and by clicking on "NEXT" to return to a more recent pairing.

^CPA^HP We have completed the instructions. Again, it is important that you remain silent and do not look on other people's work.

You will be paired with one other participant for a randomly determined number of periods. Each pairing consists of an initial phase and a terminal phase. The terminal phase always lasts exactly two periods. The initial phase ends when a red chip is reported. There is a 1 in 6 chance of a red chip being reported. Hence, a pairing lasts eight periods on average.

You make a choice by clicking on a row, which highlights the row, and then clicking the mouse, which restores your cursor, and then confirming that you want to choose the highlighted row.

Remember that you can study the instructions or the record screen by clicking on the appropriate word on the light blue bar.

Your balance at the end of the session will be paid to you in private and in cash.

We will now pass out a questionnaire. Please fill it out now. Raise your hand when you are finished and we will collect it. If there are any mistakes on anyone's questionnaire, I will go over the relevant part of the instructions again.

If you have a question, please raise your hand, and an experimenter will come to assist you.