

Additional Documentation for the Alternative Design Experiment in “The Selective Disclosure of Evidence: An Experiment”

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This additional documentation concerns the experiment with an alternative design covered in section D of the Online Appendix.

1 Instructions

We reproduce instructions for one of our treatments, namely, (K_2, N_6) . Note that the original instructions were in French and are here translated to English. Moreover, these appeared directly on subjects’ screens and were available to them for the entire experiment.

1.1 Main game

At the beginning of the task, the computer will randomly assign the role of player A to half of the participants and the role of player B to the other half. Each participant will keep their role throughout the entire task. The task consists of 15 periods. In each period, the computer will form random pairs, each composed of one player A and one player B. You cannot identify the other member of your pair, and the other member cannot identify you.

At the end of the task, one period will be randomly selected by the computer. Your earnings in that period will constitute your earnings for the task.

The task in each period

Player A observes an integer between 1 and 99, randomly selected by the computer. We denote this number N_A . Each number has the same chance of being selected.

Player A cannot directly reveal their number to player B. However, Player A can choose whether to show information to player B, as detailed below.

Player B must guess the number observed by player A. The number guessed by player B is denoted D_B .

Player A's decision

In an urn containing 100 white and black balls, the number of white balls is equal to the number observed by player A (N_A), and the number of black balls is equal to $100 - N_A$.

Six times, a ball is randomly drawn from the urn, player A observes its color, and then the ball is put back into the urn. Thus, for each ball drawn from the urn, the probability that it is a white ball is equal to N_A . For example, if $N_A = 43$, this means that with a 43% chance the drawn ball is white and with a 57% chance it is black. From the point of view of someone who does not know N_A , the higher the number of white balls drawn, the higher the probability that N_A is high.

After observing the 6 balls, for each observed ball, player A must decide whether to show it to player B. However, player A can show at most 2 balls in total.

When player A has validated their screen, player B observes the balls that player A has chosen to show them, if any. The order in which the balls are displayed is random.

Example

Suppose that 3 of the 6 balls drawn are black and the others are white.

- *If player A decides to show 1 black ball and 1 white ball, player B will see 1 black ball and 1 white ball on their screen.*
- *If player A decides to show only 1 white ball, player B will see 1 white ball on their screen.*
- *If player A decides not to show any ball, player B will see no ball on their screen.*

Player B's decision

Player B must guess player A's number N_A , that is, an integer between 1 and 99.

Earnings

Player A's earnings are independent of N_A , but they increase with the number guessed by player B (D_B). More precisely, player A's earnings, in euros, are equal to:

$$3 + 8 \times \frac{D_B}{100}.$$

Thus, player A's earnings are between €3.08 (if $D_B = 1$) and €10.92 (if $D_B = 99$).

Player B's earnings increase with the closeness between the number they guessed (D_B) and player A's number (N_A). More precisely, player B's earnings, in euros, are equal to:

$$10 - 8 \times \left(\frac{D_B - N_A}{100} \right)^2.$$

For example, if $N_A = 57$, player B's earnings are between €7.49 if $D_B = 1$ and €10 if $D_B = 57$. If $N_A = 3$, player B's earnings are between €2.63 if $D_B = 99$ and €10 if $D_B = 3$.

Note that player B's earnings are identical for the same distance between D_B and N_A , whether it is an overestimation or an underestimation. For example, if $N_A = 57$, player B's earnings are identical whether they announce $D_B = 54$ or $D_B = 60$, because in both cases the distance between D_B and N_A is 3.

Result screen

When player B has validated their screen, a result screen is displayed, showing player A's number (N_A), the number guessed by player B (D_B), and the earnings of each of the two players.

Summary of a period

- The computer randomly forms pairs, each composed of one player A and one player B.
- Player A observes an integer between 1 and 99, denoted N_A .
- Player A also observes the color of 6 balls randomly drawn from an urn of 100 balls composed of N_A white balls and $100 - N_A$ black balls.
- For each observed ball, player A decides whether or not to show it to player B. Player A can show at most 2 balls.
- Player B observes the color of the balls that player A decided to show them, if any, and must guess the number N_A observed by player A. The guessed number is denoted D_B .
- The result screen is displayed, showing N_A , D_B , and the earnings of each player.
- Player A's earnings increase with D_B ; they do not depend on N_A .
- Player B's earnings depend on the distance between D_B and N_A : the closer D_B is to N_A , the higher player B's earnings.

1.2 Individual guessing task

In this task, the computer randomly selects an integer N_A between 1 and 99. Each number has the same chance of being selected. You do not observe this number. You must guess N_A . The number you propose will be denoted D_B . Your earnings depend on the distance between N_A and D_B : the smaller the distance, the higher your earnings. More precisely, the earnings equal

$$3 - 2 \times \left(\frac{N_A - D_B}{100} \right)^2.$$

Before entering the value of D_B , you observe indirect information about N_A . Specifically, N_A represents the number of white balls in an urn containing 100 balls, made up of white and black balls. 6 balls are successively drawn at random from the urn (with replacement). Thus, for each ball drawn from the urn, the probability that it is a white ball equals $N_A\%$. However, out of these 6 draws, you observe only 2 balls.

1.3 Individual bidding task

This task is quite different from the previous one, so please read the instructions below carefully. The computer randomly selects a number N_A between 1 and 99. Each number has the same chance of being selected. You do not observe this number.

You have 3 euros and must choose how much you are willing to offer, in cents of euros (from 0 to 149), for the possibility of obtaining a prize whose value is 50% higher than A , also expressed in cents of euros.

For example, if $N_A = 45$ and you obtain the prize, the prize value will be $45 + 50\% \times 45 = 67.5$ cents. The minimum prize value is therefore 1.5 cents, when $A = 1$, and the maximum value is 148.5 cents, when $N_A = 99$.

You pay the amount of your offer and obtain the prize only if your offer is greater than or equal to N_A . There are therefore two possibilities for your earnings:

- If your bid is greater than or equal to N_A , then you pay the amount of your bid and obtain the prize. Your payoff is then

$$3 - \frac{\text{YOUR BID}}{100} + \frac{N_A}{100} + \left(\frac{N_A}{100}\right) \times 50\%.$$

Note that this payoff may be lower or higher than 3 euros, but is always positive.

- If your bid is strictly less than N_A , the amount of your bid is not deducted and you do not win the prize. Your payoff is therefore 3 euros.

2 Sample Selection and Data Collection Process

The data were collected in the laboratory facility of Montpellier University through software designed using oTree (Chen et al., 2016). No restrictions were imposed on subject recruitment other than participants being older than 18, and each participant was allowed to take part in only one session of the experiment.

All data analyses in the paper focus on the last 7 rounds of the data (the second half). The key tables are replicated on this dataset in Online Appendix D.2.

3 Variable description

Here below, one can find the description of all variables in the cleaned dataset used for the analysis (2023_final_edit_for_analysis.dta — in Stata format), in order of appearance and divided by category. Most of this information can also be found directly in the labels of variables in Stata.

Variables in the dataset used for the analysis

General

- *session*: unique session identifier
- *treatment*: treatment, 1 = LOW (K_2, N_2), 2 = HIGH_CAP (K_2, N_6), 3 = HIGH (K_6, N_6)
- *round_number*: period of the main game (ranging from 1 to 15)
- *nb_tirages*: N , number of balls drawn by the sender
- *nb_shows*: K , maximum number of balls that sender can disclose
- *participant*: unique subject identifier

Main game

- *group_id*: identifier of sender-receiver pair
- *role*: subject's role, 1 = sender, 2 = receiver
- *understanding_faults*: number of errors in the comprehension questions
- *a_number*: sender's type (true state)
- *tot_w_obs*: number of white balls (successes) observed by the sender
- *tot_b_obs*: number of black balls (failures) observed by the sender
- *tot_w_disc*: number of white balls (successes) disclosed by the sender
- *tot_b_disc*: number of black balls (failures) disclosed by the sender
- *tot_disc*: total number of balls disclosed by the sender

- *b_number*: receiver's guess about sender's type
- *payoff*: payoff
- *question_post_1*, *question_post_2*: Answers to belief elicitation questions

Additional tasks and final questionnaire

- *t1_a_number*: state in the individual guessing task
- *t1_tot_w_disc*: total white balls observed in the individual guessing task
- *t1_tot_b_disc*: total black balls observed in the individual guessing task
- *t1_b_number*: guess in the individual guessing task
- *t1_payoff*: payoff in the individual guessing task
- *t2_a_number*: state in the individual bidding task
- *t2_b_number*: bid in the individual bidding task
- *t2_payoff*: payoff in the individual bidding task
- *gender*: gender (0/1)
- *age*: age
- *nationality*: country code
- *marital_status*: marital status (0 to 4)
- *socioprofessional_group*: socio-professional category (0 to 8)
- *diplome*: highest degree obtained (0 to 9)
- *discipline*: field of study (0 to 26)
- *mathematics*, *statistics*, *economics*: familiarity with each subject (1 to 5 scale)
- *mathematics_lycee*: Math grade in high-school
- *maximized_onw_gains*: importance of own payoff motives in the game (1 to 5 scale)

- *maximized_onw_other_gains*: importance of joint payoff motives in the game (1 to 5 scale),
- *use_information*: Morality of using deception in the game (1 to 5 scale)

References

Chen, D. L., Schonger, M., & Wickens, C. (2016). oTree—An open-source platform for laboratory, online, and field experiments. *Journal of Behavioral and Experimental Finance*, 9, 88–97.