

Measuring Experimenter Demand Across Tasks:

Pre-analysis Plan

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1 Introduction

Experimenter demand effects pose an important challenge to understand and interpret results from laboratory and field experiments (Rosenthal, 1966; Zizzo, 2010). For example, experimenter demand effects are an important obstacle to interpreting effect sizes and they constitute a threat to the external validity of experiments. Experimenter demand effects also affect the optimal design of experiments; however, little or no empirical evidence exists that studies how design features affect the relevance of experimenter demand effects. Moreover, experimental economists have a very limited understanding of the relative importance of experimenter demand effects for different outcome measures or experimental paradigms.

In this experiment we manipulate subjects' beliefs about the intentions and desires of the experimenters. In particular, we are interested in the extent to which people's behavior in economic games is elastic to experimenter demand. Our estimates in turn provide us with a bound for the importance of experimenter demand effects for experimental economics.

Subjects are randomly assigned to one of four main treatment conditions: in the first two conditions we reveal our hypothesis to subjects, while in the third and the fourth condition we reveal our objectives to subjects. In the first and the third treatment condition we induce positive demand, while in the second and fourth treatment condition we induce negative demand. Moreover, we randomly assign our subjects to complete one of several tasks: 1st mover in the

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trust game, 2nd mover in the trust game, 1st mover in the ultimatum game, 2nd mover in the ultimatum game, investment in a project with uncertain returns (to measure ambiguity aversion), convex time budgets, a coinflip game (to measure lying), a real effort task without any monetary incentives as well as a real effort task with real monetary incentives.

This document proceeds as follows: first, we outline the experimental design. Then in section 3, we describe the setting as well as the sample size. Subsequently, we describe the analysis we would like to conduct.

2 Experimental Design

At the start our respondents complete a screener (Berinsky et al., 2014) that allows us to examine whether they are paying attention to our instructions. Then, our respondents are randomly assigned to play one of the following tasks which all involve real money.¹²

2.1 Convex Time Budget

We let our respondents complete one item from convex time budgets (Andreoni et al., 2013; Balakrishnan et al., 2015):

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. You can now make a choice between extra money today and in seven days. You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days. As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

We have two main demand treatment arms:

- Positive Demand (HR): We expect that participants who are shown these instructions will choose to receive more money in seven days than they normally would.

¹Our subjects are informed that the choices they make in the game will involve real money.

²As a result of the different show-up fee we need to pay for the real-effort task and all of the other games, we only randomly assign our subjects into the games outlined in sections 2.1 to 2.7. For all participants who select into the effort task, we randomly assign them into one of the two incentive conditions.

- Negative Demand (HR): We expect that participants who are shown these instructions will choose to receive more money in seven days than they normally would.

Thereafter our respondents complete a set of questions on their beliefs about the experimenters' intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?
 - They want to find that on average people choose to receive a large amount of money in seven days.
 - They want to find that on average people choose to receive a small amount of money in seven days.
- What do you think was the hypothesis of this research study?
 - The experimenters hypothesized that on average participants choose to receive a large amount of money in seven days.
 - The experimenters hypothesized that on average participants choose to receive a small amount of money in seven days.

2.2 Coinflip Game

Our participants complete a game that measures their levels of honesty (Abeler et al., 2014).

For this game you need a coin. Please go and get a coin. Your coin has one side showing the head of a person, and another one showing something else. The side with the head will be referred to as "Heads", while the other side will be referred to as "Tails". In this game, you will be asked to toss your coin ten times, and to count the number of times "Heads" comes up. For each "Heads" that comes up, you will receive 10 cents. For example if you toss three times "Heads" you will receive 30 cents. How many times did "Heads" come up?

We have four main demand treatment arms³:

- Positive Demand (HR): We expect that participants who are shown these instructions will report more "Heads" than they normally would.

³We will refer to hypothesis-revealing demand treatments as "HR" and to objective-revealing demand treatments as "OR".

- Negative Demand (HR): We expect that participants who are shown these instructions will report fewer “Heads” than they normally would.
- Positive Demand (OR): You will do us a favor if you report more “Heads” than you normally would.
- Negative Demand (OR): You will do us a favor if you report fewer “Heads” than you normally would.

Then individuals use a slider in order to choose the number of “Heads” they observed.

Thereafter our respondents complete a set of questions on their beliefs about the experimenters’ intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?
 - They want to find that on average people report a large number of “Heads”.
 - They want to find that on average people report a small number of “Heads”.
- What do you think was the hypothesis of this research study?
 - The experimenters hypothesized that on average participants report a large number of “Heads”.
 - The experimenters hypothesized that on average participants report a small number of “Heads”.

2.3 Ambiguity Aversion

Our subjects complete a measure of ambiguity aversion:

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a project. Money that is not invested in the project is yours to keep. There are in total 100 balls which are either red or black. Their relative proportion has already been set, but you do not know what it is. You must choose a color, and then we will randomly draw one ball for you.

The color of the ball determines whether the project succeeds or fails.

- If the color drawn is the same as you chose, you will receive 3 times the amount you invested.

- If the color drawn is not the same as you chose, you will receive nothing.

Which color would you like to choose?

- Black
- Red

Participants then use a slider to specify how much money to invest.

Participants are randomly assigned to one of the following four treatment arms:

- Positive Demand (HR): We expect that participants who are shown these instructions will invest more in the project than they normally would.
- Negative Demand (HR): We expect that participants who are shown these instructions will invest less in the project than they normally would.
- Positive Demand (OR): You will do us a favor if you invest more in the project than you normally would.
- Negative Demand (OR): You will do us a favor if you invest less in the project than you normally would.

Then participants use the slider to choose how much money to invest in this project.

Thereafter our respondents complete a set of questions on their beliefs about the experimenters' intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?
 - They want to find that on average people invest a large amount in the project.
 - They want to find that on average people invest a small amount in the project.
- What do you think was the hypothesis of this research study?
 - The experimenters hypothesized that on average participants will invest a large amount in the project.
 - The experimenters hypothesized that on average participants will invest a small amount in the project.

2.4 Trust Game: 1st mover

Our subjects play the role of the 1st mover in the trust game:

There are two players, whom we shall refer to as person A and person B. You will play the role of person A and another randomly selected mTurker from this experiment will play the role of person B. Person A starts with \$1. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1. Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A. What amount would you like to send to player B?

We have four main demand treatment arms:

- Positive Demand (HR): We expect that participants who are shown these instructions will send more to the other participant than they normally would.
- Negative Demand (HR): We expect that participants who are shown these instructions will send less to the other participant than they normally would.
- Positive Demand (OR): You will do us a favor if you send more to the other participant than you normally would.
- Negative Demand (OR): You will do us a favor if you send less to the other participant than you normally would.

Then our participants use the slider to decide how much money to send to the other participant:

Thereafter our respondents complete a set of questions on their beliefs about the experimenters' intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?
 - They want to find that on average people will send a large amount to the other participant.
 - They want to find that on average people will send a small amount to the other participant.

- What do you think was the hypothesis of this research study?
 - The experimenters hypothesized that on average participants will send a large amount to the other participant.
 - The experimenters hypothesized that on average participants will send a small amount to the other participant.

2.5 Trust Game: 2nd mover

Our subjects play the role of the 2nd mover in the trust game:

There are two players, whom we shall refer to as person A and person B. You will play the role of person B and another randomly selected mTurker from this experiment will play the role of person A. Person A starts with \$1. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1. Then person B will have to choose how much money to send back to person A.

Participants are randomly assigned to one of the following four treatment arms:

- Positive Demand (HR): We expect that participants who are shown these instructions will send back more to the other participant than they normally would.
- Negative Demand (HR): We expect that participants who are shown these instructions will send back less to the other participant than they normally would.
- Positive Demand (OR): You will do us a favor if you send back more to the other participant than you normally would.
- Negative Demand (OR): You will do us a favor if you send back less to the other participant than you normally would.

Then, our participants use the slider to specify how much money they would like to send back to player A for all different strategies.

Thereafter our respondents complete a set of questions on their beliefs about the experimenters' intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?

- They want to find that on average people will send back a large amount to the other participant.
- They want to find that on average people will send back a small amount to the other participant.
- What do you think was the hypothesis of this research study?
 - The experimenters hypothesized that on average participants will send back a large amount to the other participant.
 - The experimenters hypothesized that on average participants will send back a small amount to the other participant.

2.6 Ultimatum Game: 1st mover

Our participants complete a standard ultimatum game.

There are two players, whom we shall refer to as person A and person B. You will play the role of person A and another randomly selected mTurker from this experiment will play the role of person B. At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

Participants are randomly assigned to one of the following four treatment arms:

- Positive Demand (HR): We expect that participants who are shown these instructions will offer more to the other participant than they normally would.
- Negative Demand (HR): We expect that participants who are shown these instructions will offer less to the other participant than they normally would.
- Positive Demand (OR): You will do us a favor if you offer more to the other participant than you normally would.
- Negative Demand (OR): You will do us a favor if you offer less to the other participant than you normally would.

Then, participants decide how much to offer to player B.

Thereafter our respondents complete a set of questions on their beliefs about the experimenters' intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?
 - They want to find that on average people will offer a high amount to the other participant.
 - They want to find that on average people will offer a low amount to the other participant.
- What do you think was the hypothesis of this research study?
 - The experimenters hypothesized that on average participants will offer a high amount to the other participant.
 - The experimenters hypothesized that on average participants will offer a low amount to the other participant.

2.7 Ultimatum Game: 2nd mover

Our participants complete a standard ultimatum game.

There are two players, whom we shall refer to as person A and person B. You will play the role of person B and another randomly selected mTurker from this experiment will play the role of person A. At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

We have four main demand treatment arms:

- Positive Demand (HR): We expect that participants who are shown these instructions will require a higher minimum amount than they normally would.
- Negative Demand (HR): We expect that participants who are shown these instructions will require a higher minimum amount than they normally would.

- Positive Demand (OR): You will do us a favor if you require a higher minimum amount than you normally would.
- Negative Demand (OR): You will do us a favor if you require a higher minimum amount than you normally would.

Then, our respondents choose the minimum amount that player A would need to offer them for them to accept the offer.

Thereafter our respondents complete a set of questions on their beliefs about the experimenters' intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?
 - They want to find that on average people will require a large minimum amount.
 - They want to find that on average people will require a small minimum amount.
- What do you think was the hypothesis of this research study?
 - The experimenters hypothesized that on average participants will require a large minimum amount.
 - The experimenters hypothesized that on average participants will require a small minimum amount.

2.8 Effort Game

We use the same real effort task as in the work by DellaVigna and Pope (2016). In this task subjects have to press two buttons on the keyboard alternately. In particular they receive the following instructions:

“On the next page you will play a simple button-pressing task. The object of this task is to alternately press the a and b buttons on your keyboard as quickly as possible for 10 minutes. Every time you successfully press the ‘a’ and then the ‘b’ button, you will receive a point. Note that points will only be rewarded when you alternate button pushes: just pressing the ‘a’ or ‘b’ button without alternating between the two will not result in points. Buttons must be pressed by hand only (key-bindings or automated button-pushing programs/scripts cannot be used) or the task will not be approved. Feel free to score as many points as you can.”

We also use two of the treatment arms employed by DellaVigna and Pope (2016):

- No monetary incentives: “Your score will not affect your payment.”
- Monetary incentives: “You will be paid one extra cent for every 100 points.”

On top of the the two main treatment arms, we cross-randomize subjects into one of the following two “demand treatment arms”:

- Positive Demand (HR): Our subjects receive the following instructions: *We expect that participants who are shown these instructions will work harder than they normally would.*
- Negative Demand (HR): Our participants get the following instructions: *We expect that participants who are shown these instructions will work less hard than they normally would.*

2.9 Demographics

Finally, we ask participants to complete a questionnaire on demographics, which includes variables on gender, age, education, income etc.

3 Setting, Sample Size and Power

We will run our experiment on Amazon Mechanical Turk, an online platform which is widely used to conduct experiments. We will only recruit participants who currently live in the United States. Moreover, workers must have completed at least 500 HITs, and they must have an overall rating of more than 95 percent. We pay our participants a show-up fee of \$.25. Given that the average duration of the experiment is 2 minutes, this implies an average hourly wage of \$7.50 which is above the average pay on mTurk.⁴

We plan to recruit in total 6000 participants, with 800 participants randomly assigned to all games⁵⁶ except for convex time budgets for which we only recruit 400 participants.⁷ Half of our respondents in each game will be in a positive demand arm, while the rest of the participants will

⁴For the people in the real effort task from DellaVigna and Pope (2016) we pay a show-up fee of \$1 so as to replicate their design.

⁵As a result of the different show-up fee we need to pay for the real-effort task and all of the other games, we only randomly assign our subjects into the games outlined in sections 2.1 to 2.7.

⁶In the effort game we will have 400 people in the “incentive condition” and 400 people in the “no incentive condition”.

⁷We already have data on the effect of “objective revealing demand” on people’s choices in convex time budgets from a previous experiment.

be in the negative demand condition. Half of the participants will receive hypothesis revealing demand, while the other half will receive objective revealing demand instructions.

The key object of interest in this experiment is evaluating the relative total demand effects across games separately for the “hypothesis revealing” and “objective revealing” demand treatments. The minimum detectable effect size for any cross-game comparison for a power of 0.8 and $\alpha = 0.05$ is .28 of a standard deviation (separately for HR and OR demand). If we pool observations from the OR and HR demand treatments, then the minimum detectable effect size for any cross-game comparison is .2 of a standard deviation for a power of 0.8 and $\alpha = 0.05$.

4 Analysis

We present our main results on the total demand effect for each of the different games separately for the “hypothesis revealing demand treatments” and the “objective revealing demand treatment”. We normalize our outcome measures at the game-level, i.e. we calculate the z-scored behavior using the average and the standard deviation from all people completing a particular game.

4.1 Figure 1: Hypothesis Revealing demand

We only consider observations of participants in the “hypothesis revealing” demand treatments. We present our estimate of the demand effect (i.e. the difference in behavior between respondents in the positive and negative demand condition) for all of the games separately by the means of bar charts and by providing conventional 95 percent confidence intervals around the mean.⁸ We also add our total demand estimates from previous experiments on the dictator game and the investment game to this figure.⁹

4.2 Figure 2: Objective Revealing demand

We only consider observations of participants in the “objective revealing” demand treatments. We present our estimate of the demand effect (i.e. the difference in behavior between respondents in the positive and negative demand condition) for all of the games separately by the means of bar charts and by providing conventional 95 percent confidence intervals around the mean. We

⁸For our measure of trustworthiness we look at the mean amount of money subjects specify to send back across all of their five choices (i.e. the mean of the five choices).

⁹We only focus on the subset of respondents completing these tasks for real incentives.

also add our total demand estimates from previous experiments on the dictator game, convex time budgets, effort with monetary incentives, effort without any monetary incentives and the investment game to this figure.¹⁰

4.3 Does demand differ across games?

4.3.1 HR demand

We regress our z-scored outcome variable for all individuals who are in the hypothesis-revealing demand treatments, ZY_i^{HR} , on a treatment indicator, POS_i , which takes value one for people who receive the positive demand treatment, and value zero for all the participants who receive the negative demand treatment interacted with dummy variables for the different games.¹¹ Specifically, $TrustW_i$ takes value one for all individuals completing the role of the second mover in the trust game, $UG1_i$ takes value one for all participants playing the role of the first mover in the ultimatum game, $UG2_i$ takes value one for all participants completing the role of the second mover in the ultimatum game, Amb_i takes value one for all participants completing our task measuring ambiguity aversion, $Lying_i$ takes value one for all subjects completing the coinflip game, CTB_i takes value one for all participants completing convex time budgets, $Risk_i$ takes value one for all participants completing an investment game and DG_i takes value one for all participants who play the dictator game. $EffortInc_i$ takes value one for all subjects who complete the incentivized real effort task, and $EffortNoInc_i$ takes value one for all participants who complete the real effort task without any monetary incentives. The omitted game category is given by the behavior of the first mover in the trust game. To formally test for heterogenous response to demand by the different games, we estimate the following equation:

$$\begin{aligned} ZY_i^{HR} = & \beta_0 + \beta_1 POS_i + \beta_2 POS_i \times TrustW_i + \beta_3 POS_i \times UG1_i + \\ & \beta_4 POS_i \times UG2_i + \beta_5 POS_i \times Amb_i + \beta_6 POS_i \times Lying_i + \beta_7 POS_i \times CTB_i + \\ & + \beta_8 POS_i \times Risk_i + \beta_9 POS_i \times DG_i + \beta_{10} POS_i \times EffortInc_i + \beta_{11} POS_i \times EffortNoInc_i + \varepsilon_i \end{aligned}$$

We conduct an omnibus test to test whether there is any heterogeneous response to “hypothesis

¹⁰For the dictator game, the investment game and convex time budgets we only focus on the subset of respondents completing these tasks for real incentives.

¹¹As before, we also use data from previous incentivized experiments on the dictator game and the investment game.

revealing” experimenter demand for any of the games except for the real-effort tasks¹²:

$$H_0^{HR} : \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = 0, H_1^{HR} : \text{not } H_0^{HR}$$

4.3.2 OR demand

Here, we conduct the same test as above focusing on participants in the objective-revealing demand conditions.¹³ In particular, similarly to above we estimate the following equation:

$$\begin{aligned} ZY_i^{OR} = & \beta_0 + \beta_1 POS_i + \beta_2 POS_i \times TrustW_i + \beta_3 POS_i \times UG1_i + \\ & \beta_4 POS_i \times UG2_i + \beta_5 POS_i \times Amb_i + \beta_6 POS_i \times Lying_i + \beta_7 POS_i \times CTB_i + \\ & + \beta_8 POS_i \times Risk_i + \beta_9 POS_i \times DG_i + \beta_{10} POS_i \times EffortInc_i + \beta_{11} POS_i \times EffortNoInc_i + \varepsilon_i \end{aligned}$$

Then, we conduct an omnibus test focusing on all of the games except for the real-effort tasks.

$$H_0^{OR} : \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = 0, H_1^{OR} : \text{not } H_0^{OR}$$

We correct for multiple hypothesis testing in these two omnibus tests (for both OR and HR demand) by using the “sharpened q-value approach” (Anderson, 2008; Benjamini et al., 2006). In particular, we will adjust our p-values for a false discovery rate of .05.

4.3.3 Auxiliary test

In addition, we also conduct an omnibus test pooling the observations from the effort experiment for both HR and OR demand:

$$\begin{aligned} H_0^{HR} : \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = \beta_{11} = 0, H_1^{HR} : \text{not } H_0^{HR} \\ H_0^{OR} : \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = \beta_{11} = 0, H_1^{OR} : \text{not } H_0^{OR} \end{aligned}$$

We correct for multiple hypothesis testing in these two additional tests by using the “sharpened

¹²Since we had a different show-up fee for them and the nature of the real effort tasks is quite different from the nature of the other tasks.

¹³As before, we also use data from previous incentivized experiments on the dictator game, the investment game, convex time budgets, as well as the effort experiments.

q-value approach” (Anderson, 2008; Benjamini et al., 2006). In particular, we will adjust our p-values for a false discovery rate of .05.

4.4 Are there differences between HR and OR demand?

Finally, we pool together all observations across games to examine whether the response to “hypothesis -revealing demand” differs from the response to “objective-revealing demand”. In particular, HR_i takes value one for all individuals in the “hypothesis-revealing” demand conditions and value zero for all individuals in the “objective-revealing” condition.

$$ZY_i = \beta_0 + \beta_1 POS_i + \beta_2 POS_i \times HR_i + \beta_3 HR_i + \varepsilon_i$$

We examine whether there are any systematic differences in behaviors between “HR” and “OR” demand by testing whether $\beta_2 \neq 0$.

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A Experimental Instructions

A.1 Screener

When a big news story breaks people often go online to get up-to-the-minute details on what is going on in the world. We want to know which websites people trust to get this information. We also want to know if people are paying attention to the question. To show that you've read this much, please ignore the question and select NBC News and Huffington Post as your two answers.

When there is a big news story, which is the one news website would you visit first? (Please only choose one)

<input type="checkbox"/> New York Times website	<input type="checkbox"/> The Drudge Report	<input type="checkbox"/> The Associated Press (AP) website
<input type="checkbox"/> Huffington Post	<input type="checkbox"/> Google News	<input type="checkbox"/> Reuters website National Public Radio (NPR) website
<input type="checkbox"/> Washington Post website	<input type="checkbox"/> ABC News website	<input type="checkbox"/> USA Today website
<input type="checkbox"/> CNN.com	<input type="checkbox"/> CBS News website	<input type="checkbox"/> None of these websites
<input type="checkbox"/> FoxNews.com	<input type="checkbox"/> NBC News website	<input type="checkbox"/> New York Post Online
<input type="checkbox"/> MSNBC.com	<input type="checkbox"/> Yahoo! News	

Next >>

A.2 Lying

A.2.1 Positive: HR

We will now ask you to complete a task which involves real money.

For this game you need a coin. Please go and get a coin.

Your coin has one side showing the head of a person, and another one showing something else. The side with the head will be referred to as "Heads", while the other side will be referred to as "Tails". In this game, you will be asked to toss your coin **10 times**, and to count the number of times "Heads" comes up.

For each "Heads" that comes up, you will receive 10 cents. For example, if you toss three times "Heads" you will receive 30 cents.

We expect that participants who are shown these instructions will report more "Heads" than they normally would.

Now, please toss the coin 10 times, and count the number of times "Heads" comes up. Please do not toss the coin more than 10 times.

How many times did "Heads" come up?

Number of "Heads":

0 10

Next >>

A.2.2 Negative: HR

We will now ask you to complete a task which involves real money.

For this game you need a coin. Please go and get a coin.

Your coin has one side showing the head of a person, and another one showing something else. The side with the head will be referred to as "Heads", while the other side will be referred to as "Tails". In this game, you will be asked to toss your coin **10 times**, and to count the number of times "Heads" comes up.

For each "Heads" that comes up, you will receive 10 cents. For example, if you toss three times "Heads" you will receive 30 cents.

We expect that participants who are shown these instructions will report fewer "Heads" than they normally would.

Now, please toss the coin 10 times, and count the number of times "Heads" comes up. Please do not toss the coin more than 10 times.

How many times did "Heads" come up?

Number of "Heads":

0 10

Next >>

A.2.3 Positive: OR

We will now ask you to complete a task which involves real money.

For this game you need a coin. Please go and get a coin.

Your coin has one side showing the head of a person, and another one showing something else. The side with the head will be referred to as "Heads", while the other side will be referred to as "Tails". In this game, you will be asked to toss your coin **10 times**, and to count the number of times "Heads" comes up.

For each "Heads" that comes up, you will receive 10 cents. For example, if you toss three times "Heads" you will receive 30 cents.

You will do us a favor if you report more "Heads" than you normally would.

Now, please toss the coin 10 times, and count the number of times "Heads" comes up. Please do not toss the coin more than 10 times.

How many times did "Heads" come up?

Number of "Heads":

0 10

Next >>

A.2.4 Negative: OR

We will now ask you to complete a task which involves real money.

For this game you need a coin. Please go and get a coin.

Your coin has one side showing the head of a person, and another one showing something else. The side with the head will be referred to as "Heads", while the other side will be referred to as "Tails". In this game, you will be asked to toss your coin **10 times**, and to count the number of times "Heads" comes up.

For each "Heads" that comes up, you will receive 10 cents. For example, if you toss three times "Heads" you will receive 30 cents.

You will do us a favor if you report fewer "Heads" than you normally would.

Now, please toss the coin 10 times, and count the number of times "Heads" comes up. Please do not toss the coin more than 10 times.

How many times did "Heads" come up?

Number of "Heads":

0 10

Next >>

A.3 Trust: 1st mover

A.3.1 Positive: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person A** and another randomly selected mTurker from will play the role of person B.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive 2x20 cents=40 cents. If person B decides to send back 15 cents to person A, then person A will end up with \$1- 20 cents + 15 cents= 95 cents, while person B will end up with 40 cents - 15 cents= 25 cents.

We expect that participants who are shown these instructions will send more to the other participant than they normally would.

What amount would you like to send to player B?

Amount sent to player B:

\$0 \$1

[Next >>](#)

A.3.2 Negative: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person A** and another randomly selected mTurker will play the role of person B.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive 2x20 cents=40 cents. If person B decides to send back 15 cents to person A, then person A will end up with \$1- 20 cents + 15 cents= 95 cents, while person B will end up with 40 cents - 15 cents= 25 cents.

We expect that participants who are shown these instructions will send less to the other participant than they normally would.

What amount would you like to send to player B?

Amount sent to player B:

\$0 \$1

[Next >>](#)

A.3.3 Positive: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person A** and another randomly selected mTurker will play the role of person B.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive $2 \times 20 \text{ cents} = 40 \text{ cents}$. If person B decides to send back 15 cents to person A, then person A will end up with $\$1 - 20 \text{ cents} + 15 \text{ cents} = 95 \text{ cents}$, while person B will end up with $40 \text{ cents} - 15 \text{ cents} = 25 \text{ cents}$.

You will do us a favor if you send more to the other participant than you normally would.

What amount would you like to send to player B?

Amount sent to player B:

\$0 \$1

Next >>

A.3.4 Negative: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person A** and another randomly selected mTurker will play the role of person B.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive $2 \times 20 \text{ cents} = 40 \text{ cents}$. If person B decides to send back 15 cents to person A, then person A will end up with $\$1 - 20 \text{ cents} + 15 \text{ cents} = 95 \text{ cents}$, while person B will end up with $40 \text{ cents} - 15 \text{ cents} = 25 \text{ cents}$.

You will do us a favor if you send less to the other participant than you normally would.

What amount would you like to send to player B?

Amount sent to player B:

\$0 \$1

Next >>

A.4 Trust: 2nd mover

A.4.1 Positive: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person B** and another randomly selected mTurker will play the role of person A.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive $2 \times 20 \text{ cents} = 40 \text{ cents}$. If person B decides to send back 15 cents to person A, then person A will end up with $\$1 - 20 \text{ cents} + 15 \text{ cents} = 95 \text{ cents}$, while person B will end up with $40 \text{ cents} - 15 \text{ cents} = 25 \text{ cents}$.

Next >>

We expect that participants who are shown these instructions will send back more to the other participant than they normally would.

As person B, how much money would you send back to person A if person A sent you \$0.2, i.e. you received \$0.4? Please click on the slider to choose the appropriate amount.

Amount sent back to Person A:

\$0 \$0.4

Next >>

A.4.2 Negative: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person B** and another randomly selected mTurker will play the role of person A.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive $2 \times 20 \text{ cents} = 40 \text{ cents}$. If person B decides to send back 15 cents to person A, then person A will end up with $\$1 - 20 \text{ cents} + 15 \text{ cents} = 95 \text{ cents}$, while person B will end up with $40 \text{ cents} - 15 \text{ cents} = 25 \text{ cents}$.

Next >>

We expect that participants who are shown these instructions will send back less to the other participant than they normally would.

As person B, how much money would you send back to person A if person A sent you \$0.2, i.e. you received \$0.4? Please click on the slider to choose the appropriate amount.

Amount sent back to Person A:

\$0 \$0.4

Next >>

A.4.3 Positive: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person B** and another randomly selected mTurker will play the role of person A.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive $2 \times 20 \text{ cents} = 40 \text{ cents}$. If person B decides to send back 15 cents to person A, then person A will end up with $\$1 - 20 \text{ cents} + 15 \text{ cents} = 95 \text{ cents}$, while person B will end up with $40 \text{ cents} - 15 \text{ cents} = 25 \text{ cents}$.

Next >>

You will do us a favor if you send back more to the other participant than you normally would.

As person B, how much money would you send back to person A if person A sent you \$0.2, i.e. you received \$0.4? Please click on the slider to choose the appropriate amount.

Amount sent back to Person A:

\$0 \$0.4

Next >>

A.4.4 Negative: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.

There are two players, whom we shall refer to as person A and person B. **You will play the role of person B** and another randomly selected mTurker will play the role of person A.

Person A starts with \$1 and person B with nothing. Then, person A can choose to send some money to person B. Person A can either choose to send \$0, \$.20, \$.40, \$.60, \$.80 or \$1.

Person B will receive 2 times the amount sent by person A. Then person B will have to choose how much money to send back to person A.

For example, imagine that person A sends 20 cents to person B, then person B will receive $2 \times 20 \text{ cents} = 40 \text{ cents}$. If person B decides to send back 15 cents to person A, then person A will end up with $\$1 - 20 \text{ cents} + 15 \text{ cents} = 95 \text{ cents}$, while person B will end up with $40 \text{ cents} - 15 \text{ cents} = 25 \text{ cents}$.

Next >>

You will do us a favor if you send back less to the other participant than you normally would.

As person B, how much money would you send back to person A if person A sent you \$0.2, i.e. you received \$0.4? Please click on the slider to choose the appropriate amount.

Amount sent back to Person A:

\$0

\$0.4

Next >>

A.5 Ambiguity Aversion

A.5.1 Positive: HR

We will now ask you to complete a task which involves real money.

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a project. Money that is not invested in the project is yours to keep.

There are in total 100 balls which are either red or black. Their relative proportion has already been set, but you do not know what it is. You must choose a color, and then we will randomly draw one ball for you.

The color of the ball determines whether the project succeeds or fails.

- If the color drawn is the same as you chose, you will receive 3 times the amount you invested.
- If the color drawn is not the same as you chose, you will receive nothing.

Which color would you like to choose?

☐ Black

☐ Red

We expect that participants who are shown these instructions will invest more in the project than they normally would.

What amount would you like to invest in the project?

Amount invested:

\$0 \$1

[Next >>](#)

A.5.2 Negative: HR

We will now ask you to complete a task which involves real money.

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a project. Money that is not invested in the project is yours to keep.

There are in total 100 balls which are either red or black. Their relative proportion has already been set, but you do not know what it is. You must choose a color, and then we will randomly draw one ball for you.

The color of the ball determines whether the project succeeds or fails.

- If the color drawn is the same as you chose, you will receive 3 times the amount you invested.
- If the color drawn is not the same as you chose, you will receive nothing.

Which color would you like to choose?

☐ Black

☐ Red

We expect that participants who are shown these instructions will invest less in the project than they normally would.

What amount would you like to invest in the project?

Amount invested:

\$0 \$1

[Next >>](#)

A.5.3 Positive: OR

We will now ask you to complete a task which involves real money.

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a project. Money that is not invested in the project is yours to keep.

There are in total 100 balls which are either red or black. Their relative proportion has already been set, but you do not know what it is. You must choose a color, and then we will randomly draw one ball for you.

The color of the ball determines whether the project succeeds or fails.

- If the color drawn is the same as you chose, you will receive 3 times the amount you invested.
- If the color drawn is not the same as you chose, you will receive nothing.

Which color would you like to choose?

☐ Black

☐ Red

You will do us a favor if you invest more in the project than you normally would.

What amount would you like to invest in the project?

Amount invested:

\$0 \$1

Next >>

A.5.4 Negative: OR

We will now ask you to complete a task which involves real money.

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a project. Money that is not invested in the project is yours to keep.

There are in total 100 balls which are either red or black. Their relative proportion has already been set, but you do not know what it is. You must choose a color, and then we will randomly draw one ball for you.

The color of the ball determines whether the project succeeds or fails.

- If the color drawn is the same as you chose, you will receive 3 times the amount you invested.
- If the color drawn is not the same as you chose, you will receive nothing.

Which color would you like to choose?

☐ Black

☐ Red

You will do us a favor if you invest less in the project than you normally would.

What amount would you like to invest in the project?

Amount invested:

\$0 \$1

Next >>

A.6 Ultimatum Game: 1st mover

A.6.1 Positive: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person A and another randomly selected mTurker will play the role of person B.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

We expect that participants who are shown these instructions will offer more to the other participant than they normally would.

What amount would you like to offer to player B?

Amount offered to Player B:

\$0 \$1

Next >>

A.6.2 Negative: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person A and another randomly selected mTurker will play the role of person B.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

We expect that participants who are shown these instructions will offer less to the other participant than they normally would.

What amount would you like to offer to player B?

Amount offered to Player B:

\$0 \$1

Next >>

A.6.3 Positive: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person A and another randomly selected mTurker will play the role of person B.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

You will do us a favor if you offer more to the other participant than you normally would.

What amount would you like to offer to player B?

Amount offered to Player B:

\$0 \$1

Next >>

A.6.4 Negative: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person A and another randomly selected mTurker will play the role of person B.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

You will do us a favor if you offer less to the other participant than you normally would.

What amount would you like to offer to player B?

Amount offered to Player B:

\$0 \$1

Next >>

A.7 Ultimatum Game: 2nd mover

A.7.1 Positive: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person B and another randomly selected mTurker will play the role of person A.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

We expect that participants who are shown these instructions will require a higher minimum amount than they normally would.

As person B, what is the minimum amount that person A would have to offer you, in order for you to accept their offer? Please click on the slider to choose the appropriate amount.

Minimum amount required:

\$0 \$1

Next >>

A.7.2 Negative: HR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person B and another randomly selected mTurker will play the role of person A.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

We expect that participants who are shown these instructions will require a lower minimum amount than they normally would.

As person B, what is the minimum amount that person A would have to offer you, in order for you to accept their offer? Please click on the slider to choose the appropriate amount.

Minimum amount required:

\$0 \$1

Next >>

A.7.3 Positive: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person B and another randomly selected mTurker will play the role of person A.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

You will do us a favor if you require a higher minimum amount than you normally would.

As person B, what is the minimum amount that person A would have to offer you, in order for you to accept their offer? Please click on the slider to choose the appropriate amount.

Minimum amount required:

\$0 \$1

Next >>

A.7.4 Negative: OR

We will now ask you to complete a task which involves real money.

There are two players, whom we shall refer to as person A and person B.
You will play the role of person B and another randomly selected mTurker will play the role of person A.

At the beginning of this game, person A receives \$1, while person B receives nothing. Then, person A has to make an offer to person B on how to split the \$1. Person B chooses either to accept the offer made by person A, or to refuse it. If person B refuses the offer, both players receive nothing. If person B accepts the offer, each player receives the amount specified in the offer.

You will do us a favor if you require a lower minimum amount than you normally would.

As person B, what is the minimum amount that person A would have to offer you, in order for you to accept their offer? Please click on the slider to choose the appropriate amount.

Minimum amount required:

\$0 \$1

Next >>

A.8 Convex Time Budgets

A.8.1 Positive: HR

We will now ask you to complete a task which involves real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. You can now make a choice between extra money today and in seven days.

You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days.

As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

We expect that participants who are shown these instructions will choose to receive more money in seven days than they normally would.

What amount would you like to get today and what amount would you like to get in seven days?

Amount in 7 days:

Amount today:

\$1 today and \$0 in 7 days. \$1.20 in 7 days and \$0 today

Next >>

A.8.2 Negative: HR

We will now ask you to complete a task which involves real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. You can now make a choice between extra money today and in seven days.

You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days.

As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

We expect that participants who are shown these instructions will choose to receive less money in seven days than they normally would.

What amount would you like to get today and what amount would you like to get in seven days?

Amount in 7 days:

Amount today:

\$1 today and \$0 in 7 days. \$1.20 in 7 days and \$0 today

Next >>

A.9 Effort Experiment: Incentives

A.9.1 Positive: HR

You have 5 minutes maximum to read this page. If you finish early, you may proceed to the next page at your discretion.

On the next page you will play a simple button-pressing task. The object of this task is to alternately press the 'a' and 'b' buttons on your keyboard as quickly as possible for 10 minutes. Every time you successfully press the 'a' and then the 'b' button, you will receive a point. Note that points will only be rewarded when you **alternate** button pushes: just pressing the 'a' or 'b' button without alternating between the two will not result in points.

Buttons must be pressed by hand only (key-bindings or automated button-pushing programs/scripts cannot be used) or task will not be approved.

Feel free to score as many points as you can.

As a bonus, you will be paid an extra 1 cent for every 100 points that you score. This bonus will be paid to your account within 24 hours.

Below is an example of how the task will work. Try pressing 'a' and 'b' alternately to score points. We have limited the point total below to a maximum of 5 as this is just practice, but the actual task will not have a limit.

Press 'a' then 'b'...

Points: 0

Press 'a' then 'b'...

Points: 0
Bonus Payout: \$ 0

You will be paid an extra 1 cent for every 100 points that you score.

We expect that participants who are shown these instructions will work harder than they normally would.

A.9.2 Negative: HR

You have 5 minutes maximum to read this page. If you finish early, you may proceed to the next page at your discretion.

On the next page you will play a simple button-pressing task. The object of this task is to alternately press the 'a' and 'b' buttons on your keyboard as quickly as possible for 10 minutes. Every time you successfully press the 'a' and then the 'b' button, you will receive a point. Note that points will only be rewarded when you **alternate** button pushes: just pressing the 'a' or 'b' button without alternating between the two will not result in points.

Buttons must be pressed by hand only (key-bindings or automated button-pushing programs/scripts cannot be used) or task will not be approved.

Feel free to score as many points as you can.

As a bonus, you will be paid an extra 1 cent for every 100 points that you score. This bonus will be paid to your account within 24 hours.

Below is an example of how the task will work. Try pressing 'a' and 'b' alternately to score points. We have limited the point total below to a maximum of 5 as this is just practice, but the actual task will not have a limit.

Press 'a' then 'b'...

Points: 0

Press 'a' then 'b'...

Points: 0
Bonus Payout: \$ 0

You will be paid an extra 1 cent for every 100 points that you score.

We expect that participants who are shown these instructions will work less hard than they normally would.

A.10 Effort Experiment: No monetary incentives

A.10.1 Positive: HR

You have 5 minutes maximum to read this page. If you finish early, you may proceed to the next page at your discretion.

On the next page you will play a simple button-pressing task. The object of this task is to alternately press the 'a' and 'b' buttons on your keyboard as quickly as possible for 10 minutes. Every time you successfully press the 'a' and then the 'b' button, you will receive a point. Note that points will only be rewarded when you alternate button pushes: just pressing the 'a' or 'b' button without alternating between the two will not result in points.

Buttons must be pressed by hand only (key-bindings or automated button-pushing programs/scripts cannot be used) or task will not be approved.

Feel free to score as many points as you can.

Your score will not affect your payment in any way.

Below is an example of how the game will work. Try pressing 'a' and 'b' alternately to score points. We have limited the point total below to a maximum of 5 as this is just practice, but the actual game will not have a limit.

Press 'a' then 'b'...

Points: 0

Press 'a' then 'b'...

Points: 0

Your score will not affect your payment in any way.

We expect that participants who are shown these instructions will work harder than they normally would.

A.10.2 Negative: HR

You have 5 minutes maximum to read this page. If you finish early, you may proceed to the next page at your discretion.

On the next page you will play a simple button-pressing task. The object of this task is to alternately press the 'a' and 'b' buttons on your keyboard as quickly as possible for 10 minutes. Every time you successfully press the 'a' and then the 'b' button, you will receive a point. Note that points will only be rewarded when you alternate button pushes: just pressing the 'a' or 'b' button without alternating between the two will not result in points.

Buttons must be pressed by hand only (key-bindings or automated button-pushing programs/scripts cannot be used) or task will not be approved.

Feel free to score as many points as you can.

Your score will not affect your payment in any way.

Below is an example of how the game will work. Try pressing 'a' and 'b' alternately to score points. We have limited the point total below to a maximum of 5 as this is just practice, but the actual game will not have a limit.

Press 'a' then 'b'...

Points: 0

Press 'a' then 'b'...

Points: 0

Your score will not affect your payment in any way.

We expect that participants who are shown these instructions will work less hard than they normally would.