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Cooperation, framing and political attitudes*

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This paper shows that political attitudes are linked to cooperative behavior in an incentivized experiment with a large sample randomly drawn from the Danish population. However, this relationship depends on the way the experiment is framed. In the standard game in which subjects *give* to a public good, contributions are the same regardless of political attitudes. In an economically equivalent version, in which subjects *take* from a public good, left-wingers cooperate significantly more than subjects in the middle or to the right of the political spectrum. Through simulation techniques we find that this difference in the framing effect across political point of views is to some extent explained by differences in beliefs and basic cooperation preferences.

Keywords: Cooperation, Social Dilemma, Political Ideology, Experiment, Simulation

JEL-codes: H41, C90, D03

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I. Introduction

One of the great divisions between the political right and left is the view on how big a role government should have in society. Individuals at different ends of the political spectrum may agree on the need for cooperation and provision of public goods, but disagree on the means to achieve these ends. While the left typically advocates governmental involvement, the right often prefers private solutions and charitable institutions. These different stances could come about for a variety of reasons. The case for government involvement may be driven by a preference for cooperation and a larger degree of public goods provision, but it could also be a manifestation of disbelief in people's ability to voluntarily cooperate. Analogously, the right's reluctance towards governmentally provided social policy could be rooted in preferences for less public good provision, but could also be the result of a belief in people's willingness to cooperate in a decentralized manner.

Surprisingly little is known about how people's political attitudes are linked to cooperative behavior and beliefs at the individual level. To shed light on this issue, we run a public good experiment using a large heterogeneous sample. We manipulate the framing of the public good; the actions of subjects are either framed as giving to a public pool or as taking from or a common pool. In the standard give version of the public good game, we observe no difference in cooperation levels between the right wingers and left wingers. But we find that effects of re-framing the game as taking from a common pool is heterogeneous and vary with political attitudes. While right-wingers slightly decrease contributions in the take-frame, left-wingers significantly increase their contributions. We also find that this difference in the reaction to re-framing the game is to some extent explained by framing differences in beliefs and basic cooperation preferences (elicited in a strategy version of the public good game.

Yet, there is also a substantial unexplained effect indicating that left wingers simply have a greater inclination to contribute in this institutional setting, conditional on cooperation preferences and beliefs, then right wingers do. Thus the answer to a question like 'are left-wingers more generous and right wingers more greedy?' depends critically on the institutional setting in which the question is asked.

Our paper contributes to a thin but growing literature that relates behavior in controlled experiments to political attitudes.[1] (Anderson et al., 2005) find that ideology is unrelated to public good contributions, but liberals display slightly more trust and trustworthiness. It should be noted that the paper uses a small sample of 48 students in the public good game so it is not clear how robust this finding is and how it generalizes to non-student samples. Previous literature has found that sharing behavior in the dictator game is strongly related to political preferences. In a sample of Norwegian students Cappelen et al., (2016) report that people voting for left-wing parties give about 10 percent more. Dawes et al., (2012) find similar results. In contrast, Thomsson and Vostroknutov (2016) find no difference in dictator game giving between the left and the right. But they show that the reasons for giving are different: while right-leaning individuals share in accordance with what they believe constitutes a social norm in the dictator game, left-leaning individuals follow more abstract reasoning about redistribution.

There is also some evidence from the field. Bolsen et al. (2014) find that people who are frequent voters are more likely to respond to pro-social messages urging for water conservation. However, the effect of messages did not differ between Republican and Democrat households. In contrast, Costa and Kahn (2013) found

[1] There is also a stream of literature using survey-based methods. See for example Brooks (2006), who shows that right-wingers contribute more to charities than left wingers.

heterogeneous responses to electricity-conservation nudges, with effects being two to four times larger with political liberals than with conservatives.

Our paper also contributes to the voluminous literature on framing effects in social dilemma experiments.[2] We do not intend to make a cohesive account of this literature, but note that most previous studies have strived to find general explanations that are uniformly applicable across the population. In contrast, we investigate heterogeneity in framing effects. To the best of our knowledge, no previous study has addressed this issue.

The paper is organized as follows. Section 2 describes the experimental design, and section 3 presents our results. Section 4 concludes the paper.

II. Experimental design:

General outline of the experiment

The experiment was conducted online through the iLEE platform (internet Laboratory for Experimental Economics) at the Department of Economics, the University of Copenhagen in spring 2008.[3] Other aspects of the public good experiment have previously been studied in Fosgaard et al. (2016, 2014) and the description of the experimental design follows these papers closely.

The Danish National Bureau of Statistics (Statistics Denmark) sent out hard-copy invitation letters to a sample of 18,027 randomly selected individuals between 18 and 80 years of age residing in Denmark. The invitation letter contained a personal log in code and the internet address of the experiment. The subjects were informed that they had a week to respond to the invitation. During

[2] See e.g. (Andreoni, 1995; Cubitt et al., 2011a, 2011b; Dufwenberg et al., 2011; Frey and Meier, 2004; Grant, 2013; Grossman and Eckel, 2012; Korenok et al., 2013; List, 2007; Messer et al., 2007). We have previously (Fosgaard et al., 2016, 2014) used the same data as in the present paper to investigate framing effects. But we have previously not investigated heterogeneity in framing effects, which is the focus of the present paper.

[3] See http://www.econ.ku.dk/cee/iLEE/iLEE_home.htm for a detailed description of the iLEE platform. The platform has been used for studies on a broad range of topics, see for example Thöni et al. (2012) and Andersson et al. (2016).

this week, subjects could log in and out as they wished. After this week, we matched the participants who had completed the experiment into groups, and these participants could log in again to receive feedback on the experimental results and type in their bank account number, to which their earnings during the experiment were transferred.

When logging on to the iLEE website for the first time, subjects were given general information about the scientific purpose of the experiment and told that they could earn money. After this introduction, subjects were asked to type in their sex, age, and highest completed education level. Subsequently, subjects met more specific instructions for the public good (PG) games and filled in standard control questions that asked them to calculate their earnings for different contribution scenarios. Having passed the control questions, the subjects played two versions of the PG game (details below). Immediately after the PG games, subjects carried out a misperception test. Finally, the experiment contained a series of personality and cognitive ability tests and background questions. On the screens with the instructions, control questions and the public good experiments, subjects had access to a profit calculator. Subjects could type in the contributions of the four group members and calculate the corresponding payoffs.

For the analysis in our paper, we use 1,926 subjects who answered all pre-experiment control questions correctly and who completed the entire experiment. More information about the sample and how representative it is of the Danish population is found in the Online Appendix.

The Public Good Games

Subjects played two separate one-shot public good games, with re-matching and no feedback between the two. The group size in both games was four. In the first game, the standard game, each subject was given control of 50 DDK (≈6.7 €)

which they could freely allocate, either by contributing it to the PG, or keeping for themselves.

Subjects were randomly allocated either to the *give*, or to the *take* frame. The applied framing follows the design of (Andreoni, 1995). In the give frame, subjects were initially given the 50 DDK as a private endowment, and they were then asked what part of the endowment they wanted to contribute to the common pool. In the take frame, the 50 DKK was initially allocated to the common pool and subjects were then asked how much of the 50 DKK they wanted to withdraw from the common pool. Under both frames, the money allocated to the PG was doubled and shared equally among all group members. Hence, the earnings of a subject consisted of the amount not contributed to the public good plus an amount equal to half of the total public good contributions.

After completing the standard game, subjects were informed that they had been matched into new groups and that they were to participate in another PG game. This time, they played a strategy version of the public good game (the strategy game). We used a modified version of the design developed by Fischbacher et al., (2001) in which a profile of PG contributions, conditional on different levels of average contributions of other group members, is elicited from each subject. The subjects were divided into new groups of four and asked to make two types of PG decisions. First, the unconditional contribution was elicited in exactly the same way as the contribution in the previous standard game. Second, subjects were asked to indicate their contribution conditional on the values of the other three group members' average contribution, varying from 0 to 50 DKK in steps of 5 DKK. Thus, each subject was asked how much they wanted to contribute if the other group members on average contributed 0 DKK, if they on average contributed 5 DKK, and so on up to 50 DKK. Prior to making these choices, subjects were informed that there was a 25% chance that their payoff would be calculated based on their conditional contribution and a 75% chance that it would

be calculated based on their unconditional contribution profile. When calculating payoffs, we used the unconditional contributions for three randomly selected group members, while the fourth subject's contribution was calculated based on the conditional contribution profile based on the average of the unconditional contributions from the other three group members.

Since contribution profiles are conditional on the contributions of the other group members', they are unaffected by beliefs about the other group members' contributions. Fischbacher et al. (2001) show that the strategy method provides incentives to disclose the conditional contribution profile associated with the unconditional contribution elicited in the standard PG game.

Other measures

Right after the strategy game, subjects were asked incentivized control questions to test for misperception. Previous studies show that misperception or confusion can explain some of the cooperative behavior in public goods games (Bayer et al., 2013; Burton-Chellew et al., 2016; Houser and Kurzban, 2002) and may be linked to framing effects (Ferraro and Vossler, 2010; Fosgaard et al., 2016). In our misperception test, we used the contribution profile setup introduced in the strategy game to ask participants to delineate the contribution profiles of imaginary subjects who either only care about their own payoff, or only care about the payoffs of others. The test consisted of six questions. It was emphasized that each question only had one correct answer and that the subjects would earn 5 DDK (≈0.7 €) for each correct answer. The first three questions asked the subject what public good contribution a person, who only cares about own payoff, would choose if the other subjects, on average, contribute 0 DKK (question 1), 25 DKK (question 2) and 50 DKK (question 3). The last three questions asked what contribution a person who only cares about the payoff to other group members would choose, when the others on average contribute 0 DKK (question 4), 25

DKK (question 5) and 50 DKK (question 6). We interpret incorrect answers to these questions as an indication that the subject has misperceptions about how to implement the specified goals.

After the experiment, we included several well-established cognitive ability and personality tests. Subjects' ability to think logically was measured using a 20-item progressive matrices test (referred to as the Cognitive ability test). The 3-item Cognitive Reflection test, proposed by Frederick (2005), (referred to as the CR test) was used to measure whether subjects resist giving fast intuitive answers, and instead carefully deriving the correct answer. Finally, we applied the Danish version of the Big 5 personality test. The test consists of 60 statements covering personality traits in five dimensions: agreeableness, conscientiousness, extraversion, neuroticism, and openness. These tests were identical for both treatments. A more detailed description of the measures, as well as the screenshots, is available in the Online Appendix.

Political attitudes

Our measure of political attitudes is based on the following question taken from the World Values Survey: "In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?" Answers were given on a 10-point scale between 1 (Left) and 10 (Right). We divide subjects into two groups according to their answer to the political attitude question; subjects 1-5 are denoted *left* (997 subjects) and 6-10 are denoted *right* (929 subjects). Of course, political attitudes contain many dimensions, but the left-right scale remains a useful classification that has been shown to correlate with behavior and attitudes in an extensive set of contexts (see for example Jost, 2006).

We cannot rule out the existence of spillovers from the game to the political attitudes question. But such potential effects are mitigated by the fact that subjects

participated in a risk elicitation task and answered several other background questions in between the public goods game and the political attitudes question. Moreover, there is no indication that the political attitudes are related to the framing of the public good game, as the political attitudes distributions are nearly identical across treatments.

III. Results

We demonstrate our main results in three steps. *First*, we present descriptive statistics and nonparametric tests of contribution differences across treatments and political groups. *Second*, we investigate correlates of cooperation behavior using regression analysis. *Third*, we use the simulation methods introduced in Fosgaard et al. (2014) to break down the overall framing effect into parts attributed to changes in beliefs, misperceptions, and preferences.

Step 1. Figure 1 displays the average contributions by treatment across political attitudes. The left panel presents the data from the Give treatment, in which subjects on the political left give slightly more than the ones on the right. However, using the Mann-Whitney test, this difference in contributions between political groups is not significant (p-value = 0.472). The difference between political attitudes is much stronger in the right panel which displays contributions in the Take treatment. Here, there is a substantial difference between groups with the left wingers giving 11 percent more than the right wingers. This difference is highly significant using the Mann-Whitney test (p-value = 0.003).

We also find that there is no framing effect on average contributions of the right-wing group (Mann-Whitney p-value = 0.980), while there is a highly significant framing effect among the left-wingers (Mann-Whitney p-value < 0.001).

Step 2. Table 1 presents regression estimates from a series of OLS regressions with public good contributions as the dependent variable. In Model 1, contributions are regressed on a treatment dummy, basic socioeconomic controls and a dummy variable for belonging to the right of the political spectrum. Note that we restrict model 1 not to have different framing effects between right and left wingers. When we do not allow for heterogeneity, the framing effect is of limited size and insignificant and it seems that left-wingers do contribute significantly more than right-wingers. In Model 2, we have allowed the framing effect to be heterogeneous by interacting the political attitudes variables with the treatment variable. When we do this the magnitude of the left-wing dummy drops, and becomes insignificant. Further in line with the average contributions visualized in Figure 1, the interaction of take frame and left wing is positive and significant indicating that the left-wingers are affected by framing. There is no general framing effect indicating that right-wingers are not affected by the framing. When we also control for cognitive ability and cognitive reflection and big five personality scores (in Model 3), the framing parameters are left unaffected but the left-wing dummy is reduced further indicating that there is no noticeable association between political attitudes and cooperation in the give frame.

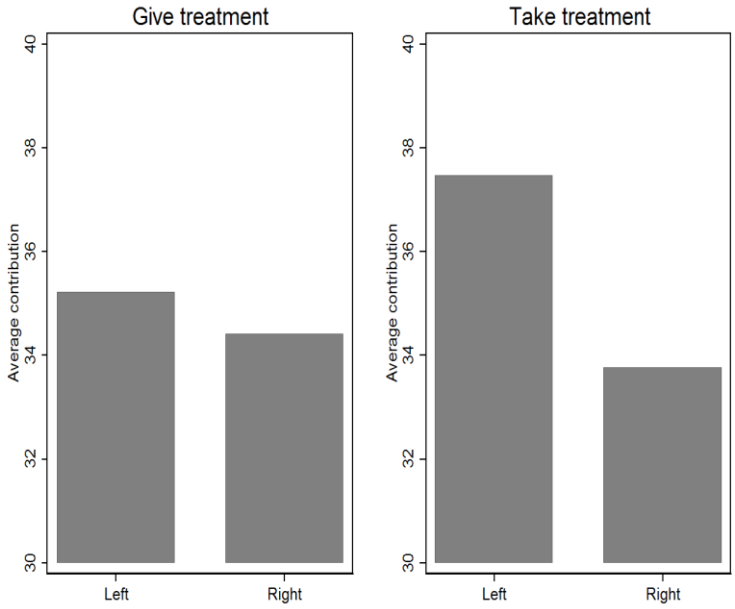

Figure 1. Mean contributions by treatment and political attitudes

Table 2. Ordinary least square regression. Dependent variable: Public good contributions

Variables:	(1)	(2)	(3)
Take Frame	0.813	-0.885	-0.872
Left wing	2.073***	0.976	0.256
Take * Left wing		3.295**	3.024**
18 ≤ Age ≤ 29	-5.295***	-5.377***	-4.926***
30 ≤ Age ≤ 39	-1.059	-1.154	-0.784
50 ≤ Age ≤ 59	-2.439**	-2.451**	-2.498**
60 ≤ Age ≤ 80	-2.817**	-2.852***	-2.920**
Basic Education	-3.147**	-3.257**	-3.021**
Short Uni Edu	-0.414	-0.540	-0.898
Long Uni Edu	1.112	1.144	0.594
Female	-1.029	-1.007	-1.338*
CRT Score			0.292
Cognitive Ability			-0.0833
Agreeableness			0.290***
Conscientiousness			-0.132*
Extroversion			0.124*
Neuroticism			-0.0842
Openness			0.127**
Constant	36.73***	37.39***	27.75***
Observations	1,926	1,926	1,926
R-squared	0.023	0.026	0.043

Notes: Take Frame is a dummy variable for subject in take frame. Left wing indicate if a subject gave answer 1-6 on the political attitudes question (approximately 50% of the sample). Take*Left wing is an interaction variable of Take and Left wing. The Basic Education category contains those with primary education only, Short Tertiary Education those with tertiary education up to 4 years and Long Tertiary Education those with a tertiary education of at least 4 years. CR-score is the score on the cognitive reflection test (0-3) and Cognitive Ability is the number of correct answers (0-20) to the IQ test. The Big 5 variables (Agreeableness, Conscientiousness, Extroversion, Neuroticism, Openness) each give a score between 0 and 48 for each of the give personality dimensions. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Step 3. *Decomposing framing effects.* The shift in contributions between frames for the left wingers could have several causes. In Fosgaard et al. (2014) we assumed an extended version of the causal model explaining contributions suggested by (Fischbacher and Gächter, 2010) and developed a methodology for distinguishing between different potential explanations of framing effects suggested by this model. We now apply the same strategy here to decompose the framing effect for each of the political groups separately. In the experiment, we elicit beliefs and test for game-form understanding using the misperception questions. In addition, we elicit subjects' conditional cooperation preferences using the Strategy game. Together, we can use these measures to simulate the framing effect on mean contribution and to decompose the total framing effect into parts explained by framing effects on:

1. Beliefs about others contributions
2. Contribution preferences
3. Misperception about the game structure
4. Unexplained framing effect

Specifically, we estimate a model explaining contribution based on the belief, preferences, and misperception measures. We begin by running separate regressions in which we use contribution, cooperation preferences, beliefs and misperceptions as dependent variables. Each of these regressions, include frame as one of the explanatory variables. Within this framework we can begin to analyze the effects of changing the frame. Specifically, we focus on all observations measured under the give frame, and simulate what would happen, in terms of cooperation, when the observations from the give frame are assigned to the take frame. We impose this transition from give to frame for each component (cooperation preference, beliefs and misperception) at a time and measure the

resulting effect on cooperation. Introducing the influence from the take frame in this stepwise fashion allow us to decompose the framing effect working through beliefs, cooperation preferences, misperception and a remaining unexplained effect. For the purpose of the present paper, the entire excise is repeated for the left winger and the right winger respectively. More details about the simulation strategy are found in Fosgaard et al. (2014).

The results from the simulation exercises are presented in Figure 2. The main findings across political groups are in line with the aggregated results presented in Fosgaard et al. (2014). Beliefs are more pessimistic in the take frame causing lower contributions but this negative effect is counterbalanced by a positive direct (unexplained) effect. What mainly distinguishes the left- and right-wingers is that the magnitudes of these effects are different. The negative belief effect is notably smaller among the left-wingers while the positive unexplained effect is larger. So while the effects cancel out for the right wingers, the overall framing is positive and significant for the left wingers. There are also a small, but significant, framing effect through changes in preferences. Left-wingers have contribution preferences that imply higher contributions in the take, whereas right-wingers display the opposite effect.

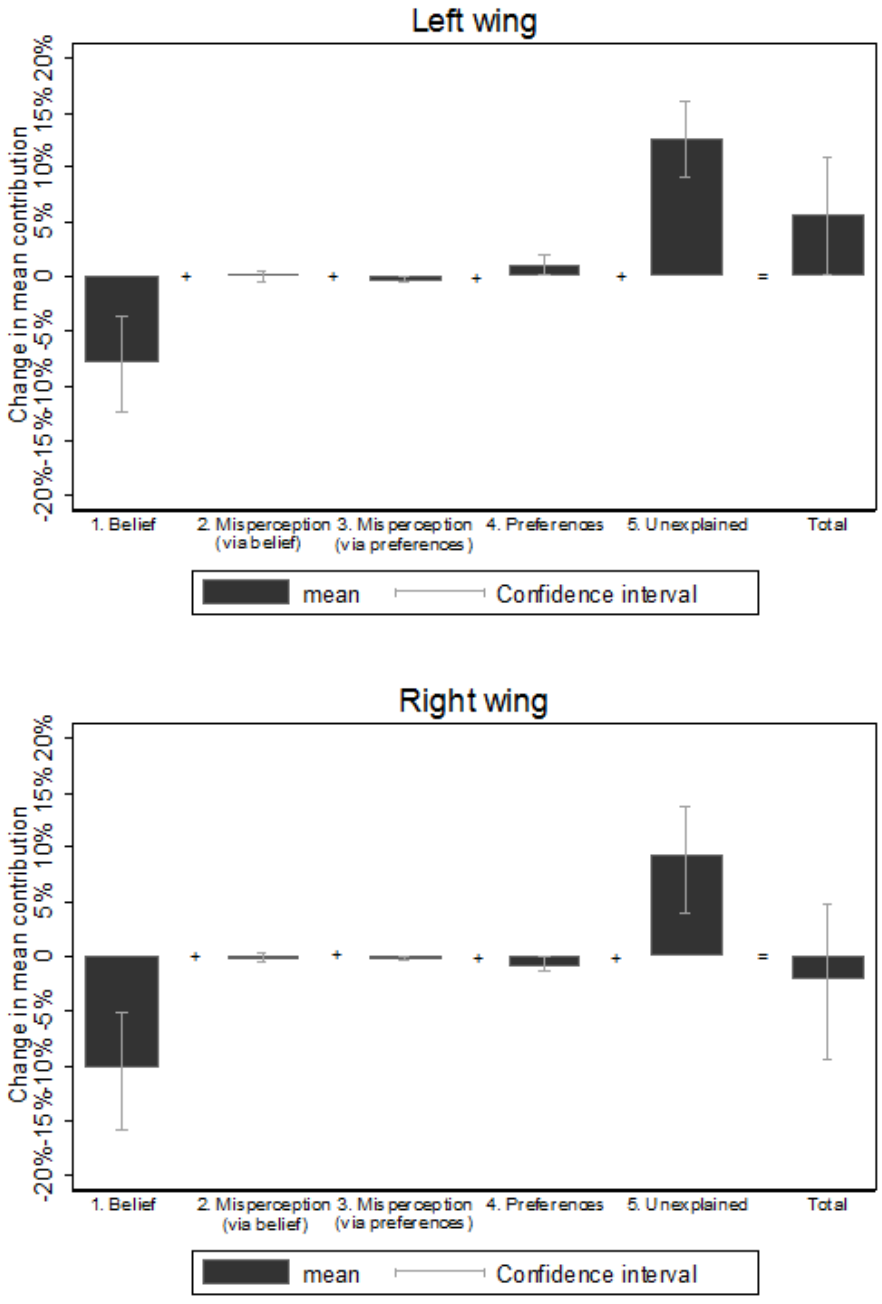

Figure 2: Simulated effects (and 95% confidence intervals) on mean contribution when moving subjects from the give frame to the take frame. Top panel displays left wingers and bottom panel display right wingers.

IV. Concluding discussion

In this paper we have shown framing effects in public goods games are heterogeneous. Individuals to the right of the political spectrum contribute similar amounts to the public good independent of how the game is framed. In contrast, individuals with left-leaning political preferences contribute more if the game is framed as taking from a common pool instead of giving to the common pool.

Our data makes it possible to decompose this difference causally and we find that framing effects on basic cooperation preferences and beliefs are part of the explanation. However a large part of the framing effect is unexplained and so we cannot draw ultimate conclusions about what the main mechanisms behind our result is. One potential explanation is that our results reflect different attitudes to centralized responsibility of coordination and cooperation on social issues. The political left is typically in favor of central authorities, such as governments, taking responsibility for social issues, while the right is typically favoring solutions based on individual actions. It could be that the take frame resembles a centralized solution, which leads left wingers to contribute more.

Another possible explanation may be found in the Moral Foundation Theory (Haidt and Graham, 2007; Haidt and Joseph, 2004) which posits that moral values derive from a set of innate psychological mechanisms that has evolved in interplay with cultural and institutional contexts. Graham et al. (2009) report that the foundations of moral judgements vary across the political spectrum; i.e. the types of considerations relevant to moral judgment are not the same for right-wingers (conservatives) and left-wingers (liberals). Right-wingers are more likely to find issues relating to ingroup/loyalty, authority/respect, and purity/sanctity to be relevant for moral judgments, whereas left-wingers put most emphasis on factors connecting to harm/care and fairness/reciprocity. In relation to our experiment, one could argue that taking from the public good relates to the

harm/care dimension. And since these issues are deemed more relevant among the left-wingers, they may be less inclined to take from the public good. It may also be that giving to a public good resembles a voluntary private institutional solution which appeals to right-wingers in-group loyalty while the take framing looks more like a government organized solution that appeals to left-wingers fairness/reciprocity. This would be consistent with differences in cooperation preferences and the unexplained effect we see in the take framing.

Irrespective of which is the mechanism, our finding indicates that framing effects are sensitive to the choice of subject pool. This could perhaps help reconciling some seemingly disparate findings in the literature. For example, in our sample, we observe more overall cooperation in the take frame, while the majority of studies find the opposite with more cooperation in the give frame. One potential explanation of our diverging finding is that our subjects have more left-leaning political preferences and thus contribute more in the take frame.

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Online Appendix

This document provides supplementary materials for the paper "Cooperation, framing and political attitudes" by Toke Reinholt Fosgaard, Lars Gårn Hansen and Erik Wengström. The document contains information about the sample, recruitment procedure and experimental design of the public good experiment. And finally, instructions and screenshots have been reprinted.

1 Description of sample

1.1 Recruitment of subjects

The participants were recruited as follows:

- Statistics Denmark, the official statistics office in Denmark, randomly selected 40,000 individuals from the Danish population.[1]
- Statistics Denmark prepared invitation letters and envelopes. See figure 1 for a picture of the invitation letter. A translation of the invitation letter can be found in Section 4.
- In total, 18.027 letters were randomly selected out of the 40,000 and sent out to the respondents in two waves on May 15 and May 30, 2008.
- The letters invited subjects to log on to our webpage, www.econ.ku.dk/ilee, using a personal identification number printed in the letter. Subjects had one week to complete the experiment.
- In total, 3,107 subjects logged on to our web page and out of these, 1,926 completed the experiment and answered the question on political attitudes that we use as our main measure.

1.2 Representativeness of sample

The sample of participants considered in the current project is generally representative of the Danish population. Below, Table A3 reports the gender, age and educational characteristics of our sample and the Danish population respectively. As can be seen from the table, the gender and age distributions of the participants in our sample quite closely mimic the corresponding distributions of the Danish population, although there are exceptions, e.g. females in the age range 41-50, who are overrepresented in our sample. The educational distribution of the sample does not follow the general population as

[1] Note that this is not a completely random sample of the Danish population because any inhabitant has the right to refuse to be contacted for research purposes (this rule applies to all research conducted in Denmark when sampling from the Central Person Register). Individuals who have claimed this right are not included in the population from which our sample of 40,000 was drawn. Around 20-25% of people in the age group 20-39 years have claimed this right, while the percentage is much lower in other age groups (5-12%). More information about the issue and the characteristics of people claiming this right is available at (http://www.dst.dk/upload/notat_om_forskerbeskyttelse_2008.pdf). Unfortunately, this material is only available in Danish.

closely as the gender and age distributions. Our sample under-represents people with a vocational educational background, whereas people with tertiary educations are overrepresented.

Table A3 – Representativeness of sample

	Our Sample	Danish population*
N	1,926	
Gender		
Women	48%	50%
Age		
18-30	17 %	20%
31-40	18 %	19%
41-50	25 %	20%
51-60	23 %	18%
61-70	13 %	15%
71-80	4 %	8%
Education		
Basic education (up to 10 years)	11%	26%
High school (up to 12 years)	14%	6%
Vocational education (up to 12 years)	12%	39%
Short tertiary education (less than 3 years)	15%	5%
Medium tertiary education (between 3 and 4 years)	31%	16%
Long tertiary education (more than 4 years)	17%	7%

*Source: Statistics Denmark (http://www.dst.dk/HomeUK.aspx). For gender and age the population is restricted to individuals between 18-80 years of age. For education the population is restricted to individuals between 18 and 69. The education of variables for the subjects of the experiment include ongoing education whereas the figures for the Danish population only refer to completed education.

2 Overview of the experiment

In short, the participants were invited to log on to our web page twice, once during the period in which the experiment was open and once during a feedback period after the experiment was closed. The first time they logged on they participated in two public goods games and completed a series of other questionnaires and tests. After the experiment closed, participants were matched together in groups for

the public good game and payments were calculated. Participants logged on to our web page again to see the results of their group and provide us with their bank details necessary for distributing the payments.

2.1 Treatments and participation

The experiment had two treatments that varied with respect to the framing of the public good game part of the experiment, which was either a Give or a Take frame. Only the instructions for the public good game differed between treatments. In both frames subjects received a letter telling that they will be contributing to scientific research and earn money.

Table A4 breaks down the subject pool into treatments. Upon logging on, a random number determined which treatment subjects were routed to. 2/3 of the subjects received the Give treatment and 1/3 the Take treatment.[2]

Table A4 - Number of letters sent out and number of subjects in each Treatment

Letters	Give	Take
18,027	1,286 (2,027)	640 (1,080)

Note: Numbers in the first column refer to the number of letters sent out. Figures in the other columns refer to the number of subjects who completed the experiment for each treatment. Numbers in parenthesis refer to the number of subjects assigned to each experiment.

2.2 Detailed account of the core part of the experiment

This section describes the core part of the experiment in detail. Screenshots, including translated instructions, are available at the end of this appendix. Subjects had access to several forms of help in understanding the instructions. Throughout the public good game part of the experiment, subjects could go back and read the instructions again at any time. In addition, from each screen, subjects could access a screen-specific help screen which provided further guidance about what to do. Subjects also had access to a profit calculator where they could see for themselves how the earnings of the four members of the group depended on the members' contributions (see Section 5 for a screenshot of the profit calculator). Finally, all help screens included a telephone number and an email address through which subjects could obtain further assistance.

2.2.1 Login and information screens

The first screen of the experiment that subjects were taken to when they entered the URL from the invitation letter was a simple login screen where subjects had to enter the personal identification code

[2] It turned out that the random number generator we used failed to generate a perfectly uniform distribution, which explains why the numbers of observations do not exactly match our intended division between treatments.

printed in the invitation letter. Upon login, subjects saw a welcome screen providing information about the experiment. They were informed that their participation in the experiment would be valuable to research in economics and reminded of the importance that the person participating was the person named in the invitation letter. Moreover, they were informed that they could earn money in the experiment (within the range of 8 to 510 DKr, corresponding to approximately 1.6 to 102 USD)) and that this is standard procedure in economic experiments. They were also cautioned that they had to complete the experiment to get their money by electronic transfer. All subjects were then informed that the experiment would last approximately 50 minutes. Finally, they were reassured that they would remain anonymous.

After answering some questions about their socioeconomic background (age, gender and highest completed education), subjects proceeded to the public good game part of the experiment.

2.2.2 The public good games

Subjects played two variants of the public good game. First they played a standard linear one-shot public good game involving one unconditional contribution choice (referred to as the Standard game). Afterwards they played a public goods game using the strategy method which involves an unconditional choice as well as a series of conditional choices (referred to as the Strategy game). Both public good games were framed according to the treatment that the subjects were assigned to.

In both games, there were four members in each group, the endowment was 50 DKr (approximately 10 USD), and the marginal per capita return was 0.5. Subjects were asked to contribute between 0-50 DKr of the private endowment to a common pool. Everything in the pool was then doubled and shared equally between the four subjects in the group. There was no feedback during game play.

Subjects began by reading the instructions for the Standard game. In order to make the rules of the public good game easy to understand, the written instructions were complemented by a series of illustrations made by a professional illustrator.

After viewing the instructions, subjects were required to correctly complete four control questions testing their ability to calculate payoffs in the game. Subjects were allowed as many attempts as necessary but could not proceed without entering the correct answer to each question. Subjects then made their choice.

Subjects then read the instructions for the strategy method version of the public good game. The strategy method was adapted to the context of the public good game by Fischbacher et al. (2001). The

idea behind the strategy method is to have subjects report the complete strategy of actions they would like to take in the event of each possible combination of actions that others could take.

After reading the instructions for the Strategy game, subjects first had to make an unconditional choice. This unconditional choice was necessary to determine the outcome of the game. Subjects then had to fill out a conditional contribution table in which they had to decide how much they would like to contribute for each of the 11 average contribution levels of the other group members that are multiples of 5 (0, 5, 10... 45, 50). Our design differs from Fischbacher et al. (2001) in this respect. In that paper, the endowment was 20 tokens and all 21 possible integer average contribution levels were included in the conditional contribution table.

The outcome of the Strategy game was determined as follows: One member of the group is randomly selected. For the other three subjects, the second unconditional choice counts as their contribution. The average of their choices is rounded to the nearest multiple of 5, and the contribution of the selected member is then determined by referencing the relevant row of his or her conditional contribution table.

2.2.3 Misperception

After the public good games, subjects continued to our test of the relation between income motives and behaviour in the public good game. The misperception test was framed according to the treatment that the subjects were assigned to.

The test consisted of six questions. The first three questions asked what public good contribution maximizes personal income. The questions were conditioned on the average contribution of other group members. First questions were conditioned on no cooperation by the other group members, the second question was conditioned on half cooperation, and the third question was conditioned on full cooperation. The last three questions of the test were conditioned in parallel to the first three questions, yet the three questions asked what public good contribution maximizes other group members' income.

The six questions were incentivized. Subjects received 5 DDK for each correct answer, and nothing otherwise.

2.2.4 Additional tests

Subjects also performed a number of tasks to test for cognitive ability and personality (Cognitive reflection and Ravens' Progressive matrices) and personality traits (Big five).

The subjects completed the visual IST 2000R[3] *Cognitive ability test*. This test asks the subjects to solve 20 different logic puzzles. The task in each puzzle is to identify one of five candidate symbols, which would finalize a sequence of pictures constituting a logical graphical string (for a snapshot example, see the appendix). For instance, subjects see three solid square boxes in a row as the logical string. Subjects are asked which of five suggested symbols would logically prolong the presented string. If subjects, for instance, can choose between a triangle, a line, a circle and a squared solid box, the correct answer is to choose the solid box, which is the only logical continuation of the sequence of symbols. The subjects were given 10 minutes to solve as many of the puzzles as possible, and were allowed to jump back and forth between the puzzles as they wished. The assumption is that the higher the number of puzzles solved, the higher the cognitive ability of the participant.

We also used an alternative measure of cognitive ability referred to as the *Cognitive Reflection Test* (CRT) (Frederick 2005). The test simply consists of three questions that have immediate and intuitive (but incorrect) answers and more cognitively demanding (but correct) answers. The three questions are shown in the appendix. The test measures whether a subject tends to give fast intuitive answers, rather than carefully trying to derive the correct answer. In other words, the test captures the individual's willingness to engage in cognitively demanding tasks (Grimm and Mengel 2012). The more correct, as opposed to immediate and intuitive, answers a subject gives, the more cognitively reflective he is.

The first cognitive ability test captures a general ability to think logically about complex and unfamiliar concepts. That is, basic cognitive abilities that do not depend on prior knowledge or acquired skills - often referred to as fluid intelligence (see Borghans et al. 2008). In contrast, the results of tests like the CRT depend, to a much larger extent, on acquired skills and so these tests are said to measure 'crystallized' intelligence (see Borghans et al. 2008). For instance, reading and math skills are certainly important when answering the CRT, but not as important for completing the Cognitive ability test. Prior to both tests, the subjects were informed that there was only one correct answer to each posed question or problem.

Finally, we applied a Danish version of the Big 5 personality test.[4] The test consists of 60 statements covering personality traits in five dimensions: agreeableness, conscientiousness, extraversion,

[3] Used with permission from the Danish Psychology Publisher, www.dpf.dk.

[4] We used the Danish NEO-PI-R Short Version test by permission of Danish Psychology Publishing (www.dpf.dk).

neuroticism, and openness.[5] Based on the answers to these statements, each subject is assigned a score for each of the big 5 dimensions. A high score for a given trait indicates that the trait is an important part of the subject's personality.

[5] The Danish NEO-PI-R Short Version consists of five 12-item scales which measure each of the 5 domains. The 12 items for each domain are chosen from the original 48 items (of the full NEO-PI-R test) as follows: for each facet, the two items (out of eight) with the highest correlation with the total factor score are chosen (this is different from the American 60-item version of NEO-PI-R, called NEO-FFI, where the 12 items with the highest correlation with the total factor score are picked, regardless of which facet the single items belong to). In the Danish short version, all facets are therefore equally represented within each domain.

3 Invitation Letter

DANMARKS STATISTIK

Name
Address

Kære ***Name***

Danmarks Statistik og Internet Laboratoriet for Eksperimentel Økonomi (iLEE) ved Økonomisk Institut på Københavns Universitet inviterer dig hermed til at deltage i et eksperiment vedrørende økonomiske beslutningsprocesser.

Eksperimenter er et vigtigt redskab inden for økonomisk forskning, idet de er med til at skabe en bedre forståelse for, hvordan mennesker træffer økonomiske beslutninger. I sidste ende kan dette være med til at forbedre den førte økonomiske politik. Et økonomisk eksperiment kan tage mange forskellige former – eksempelvis kan det gå ud på, at deltagerne skal købe og sælge varer på et fiktivt marked eller træffe beslutninger om at investere.

For at opnå et repræsentativt billede har Danmarks Statistik udvalgt et stort antal personer fra hele Danmark, som nu får mulighed for at deltage i eksperimentet. Du er blandt de tilfældigt udtrukne. Din deltagelse er naturligvis frivillig, men vi håber meget, at du vil deltage. Der kræves ingen særlig kendskab til hverken økonomi eller computere for at kunne deltage i eksperimentet, og dine beslutninger i eksperimentet bliver behandlet strengt fortroligt og anonymt.

Ved at deltage i eksperimentet får du mulighed for at tjene penge. Vi kan ikke garantere dig, at du vil tjene et bestemt beløb, idet din indtjening vil afhænge af dine egne samt andre deltageres beslutninger. De nærmere regler er beskrevet på hjemmesiden.
For at sikre deltagerne fuld anonymitet logger alle deltagere ind med et tilfældigt udvalgt nummer. Vi laver en række forskellige eksperimenter, og alle deltager derfor ikke i det samme eksperiment. For at se detaljerne i netop dit eksperiment, herunder opgaven, tidsforbrug mv., bedes du snarest muligt logge ind på vores hjemmeside:

www.econ.ku.dk/ilee med dit login nummer: **28.826-6**

Hvis du har problemer med at logge ind eller har yderligere spørgsmål, er du velkommen til at kontakte Økonomisk Institut på e-mail **ilee@econ.ku.dk** eller telefon 35 32 44 09.

Med venlig hilsen og på forhånd tak for din hjælp.

Isak Isaksen
Kontorchef, Danmarks Statistik

Jean-Robert Tyran
Professor, Økonomisk Institut

Danmarks Statistik
Sejrøgade 11
2100 København Ø

Tlf. 39 17 39 17
Fax 39 17 39 99
CVR 17-15-04-13

dst@dst.dk
www.dst.dk

Figure 1. The invitation letter

3.1 Translation of the Invitation letter

Dear [First name]

Statistics Denmark and the Internet Laboratory for Experimental Economy (iLEE) at the Institute of Economics, Copenhagen University, hereby invite you to partake in an experiment on economic decision making.

Experiments are a vital tool in economic research, since they help gain a better understanding of how people make economic decisions. This can ultimately help improve economic policy making. An economic experiment can assume many forms – e.g. the participants could be asked to buy and sell hypothetical goods or make investment decisions.

In order to obtain a representative picture, Statistics Denmark has selected a large number of persons from all of Denmark who have been given the opportunity to participate in the experiment. You are among the randomly chosen. Your participation is of course voluntary but we sincerely hope that you will participate. No special knowledge of economics or computers is required to participate in the experiment and your decisions during the experiment will be kept strictly confidential and anonymous.

By participating in the experiment, you will have an opportunity to earn money. We cannot guarantee that you will earn a specific amount since your earnings will depend on your decisions and the decisions of the other participants. The specific rules are described on the web site.

To insure complete anonymity, all contestants log on with a randomly selected number. We conduct a range of different experiments and therefore all do not participate in the same experiment. To see the details of your experiment, including the task, duration and so forth, you are requested to log on to our web site at your earliest convenience:

www.econ.ku.dk/ilee with your log in number: [ID number]

If you experience any problems logging in or have any further questions, you are welcome to contact us either via email at **ilee@econ.ku.dk** or by phone on 35 32 44 09.

Thanks in advance.

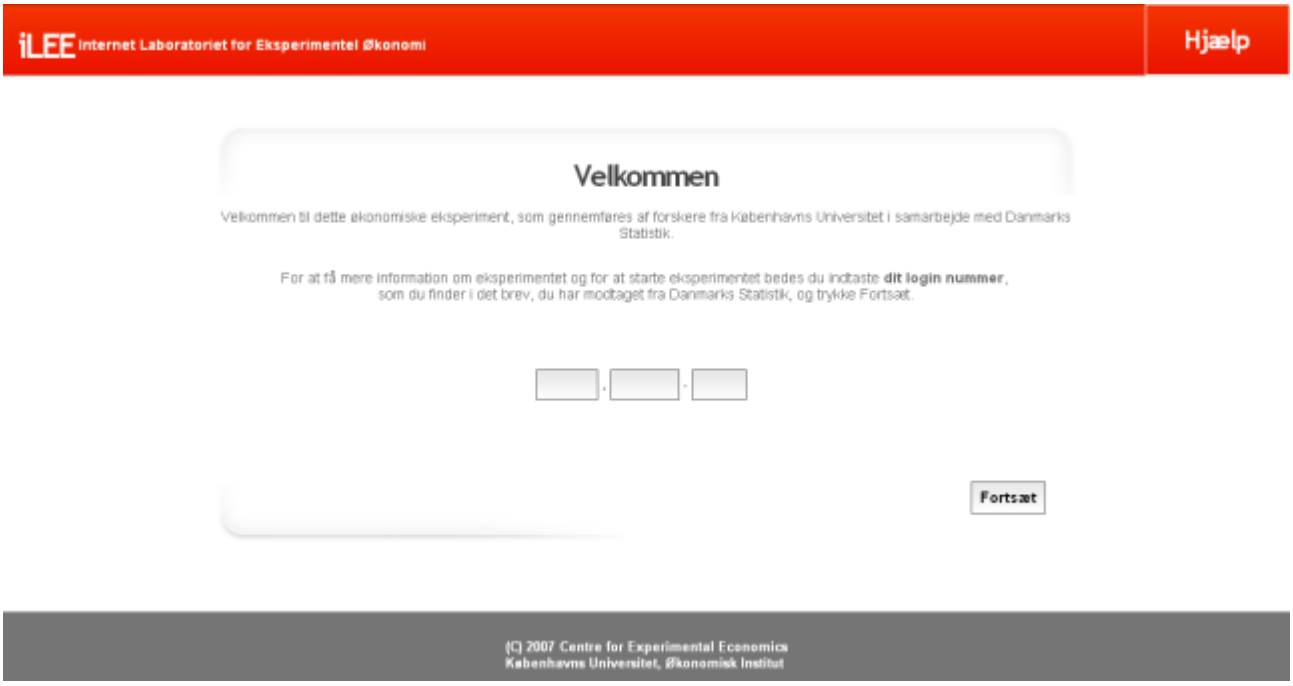
Kind regards

Isak Isaksen
Head of Section, Statistics Denmark

Jean-Robert Tyran
Professor, Department of Economics

4 Appendix: Selected screenshots

4.1 Screenshot: Login screen



4.2 Translation: Login screen

iLEE Internet Laboratory for experimental economics -Help (this header appeared on all consecutive screens)

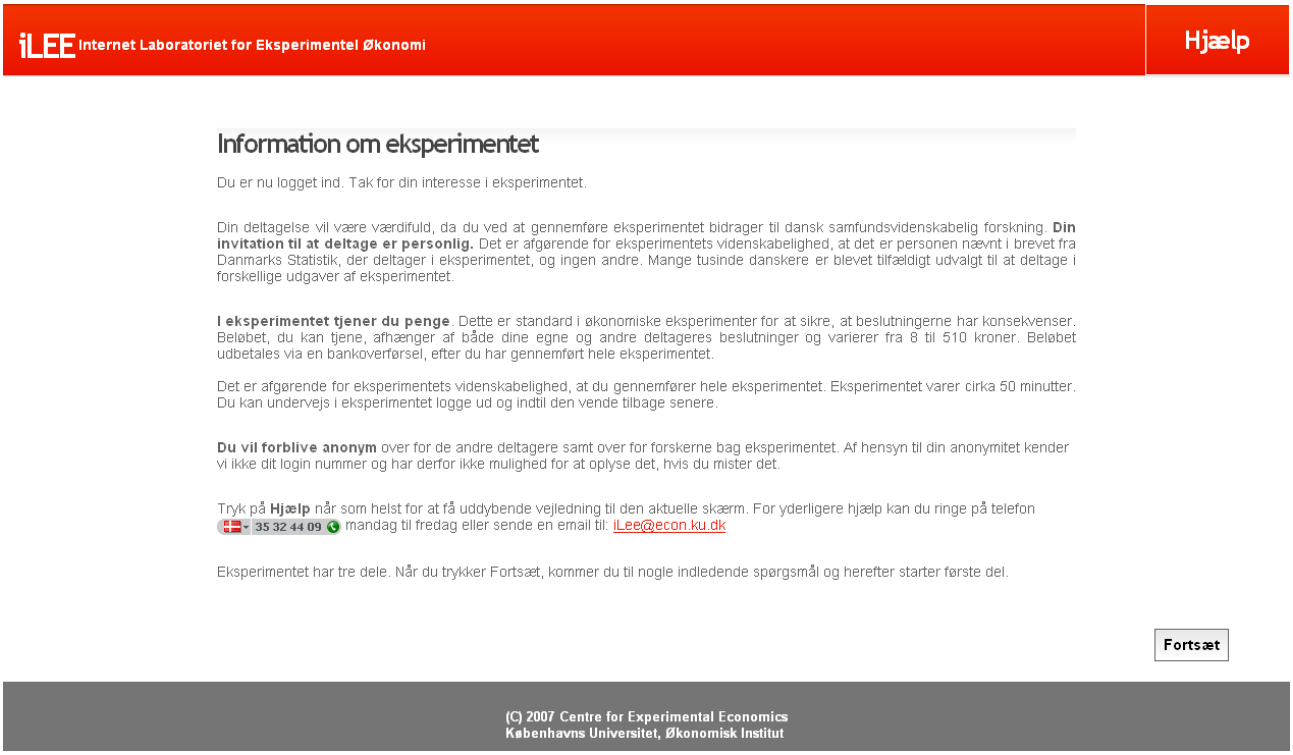
Welcome

Welcome to this economic experiment which is conducted by scientists from the University of Copenhagen in cooperation with Statistics Denmark.

To get more information about this experiment and to begin the experiment, please type in your **log in number** stated in the letter you have received from Statistics Denmark, and then press continue.

Continue

4.3 Screenshot: Information screen



4.4 Translation: Information screen

Information about the experiment

You are now logged in. Thank you for your interest in the experiment.

Your participation will be valuable, as you contribute to Danish research in social science by completing the experiment. **Your invitation for participation is personal**. It is crucial for the scientific purpose of the experiment that it is the person mentioned in the letter from Statistic Denmark who takes part in the experiment and not anyone else. Thousands of Danes have been randomly selected to take part in various versions of the experiment.

In the experiment, you earn money. This is standard in economics experiments to ensure that actions have consequences. The amount you earn depends both on your own decisions and the other participants' decisions, but it will be in the range of 8 to 510 kroner. The amount will be paid via a bank transfer after you have completed the entire experiment.

It is crucial for the scientific purpose of the experiment that you complete the entire experiment. The experiment takes approximately 50 minutes. During the experiment, it is possible for you to log out and return later.

You will remain anonymous to the other participants as well as to the scientists running the experiment. For the sake of your anonymity, we do not know your login number and therefore have no means to inform you of it, should you lose it.

Press Help anytime to receive detailed guidance for the current screen. For further help, please call 35 32 44 09 from Monday to Friday or send an email to: iLee@econ.ku.dk

The experiment consists of three parts. When you press Continue, you will continue to some preliminary questions and thereafter, the first part of the experiment.

Continue

4.5 Screenshot: Instructions Standard Game 1 (Give treatment)

(The header and footer of this screen are cut out to improve readability)

Instruktioner - Del 1

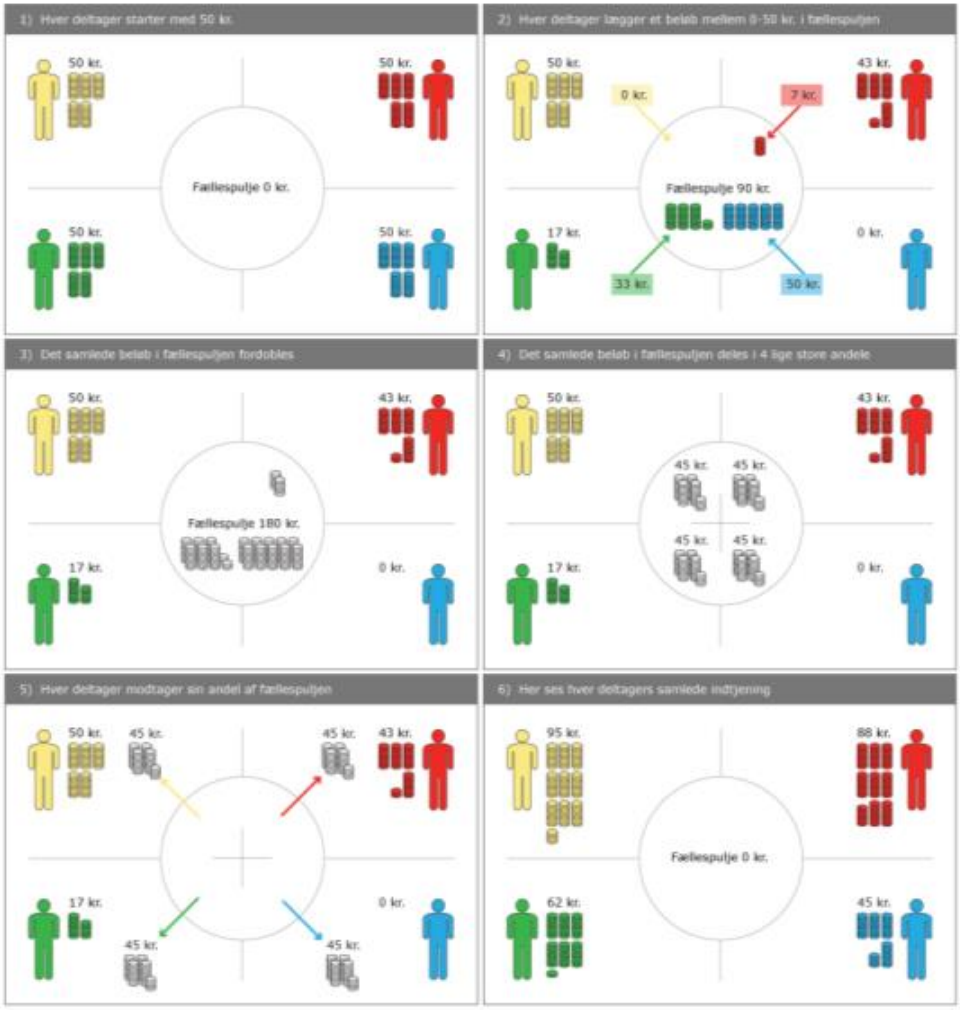
Dette er eksperimentets første del. Du bedes læse følgende instruktioner grundigt.

Du er i en gruppe med tre andre personer, som ligesom dig er blevet udvalgt til at deltage i eksperimentet. Da I alle er sikret anonymitet, vil ingen af jer nogensinde vide, hvem de andre er.

Hvert gruppemedlem modtager et startbeløb på **50 kroner** fra os. **Du og de andre skal hver især træffe en beslutning om enten at beholde pengene eller at lægge nogle af eller alle pengene i en fællespulje.** Hvert gruppemedlem står over for den samme beslutning.

De penge, du vælger at beholde, får du ganske enkelt lov til at beholde. **Det beløb, som I tilsammen lægger i fællespuljen, vil først blive fordoblet af os og dernæst delt ligeligt mellem alle fire gruppemedlemmer.** Hvert gruppemedlem får sin ligelige andel, uanset hvor meget vedkommende selv har lagt i fællespuljen.

Billederne nedenfor viser et eksempel:



Alle træffer deres egen beslutning uden at vide, hvad de andre har besluttet. Først efter gennemførelse af eksperimentet vil du blive informeret om de andres beslutninger.

4.6 Translation: Instructions Standard Game 1 (Give treatment)

Instructions – Part 1

This is the first part of the experiment. Please read the following instructions carefully.

You are a part of a group together with three other people who were selected like you to take part in this experiment. As each of you is guaranteed anonymity, none of you will ever know who the others are.

Each group member receives **50 kroner** from us. **You and the others have to decide whether to keep this amount or give some or all of the money to a common pool.** Each group member faces the same decision.

The amount of money you choose to keep is simply yours to keep. **The sum which all group members together give to the common pool will be doubled by us and then split evenly amongst all four group members.** Each group member gets an even share no matter how much they gave to the common pool.

The pictures below illustrate an example:

1) Each participant begins with 50 kroner	2) Each participant gives an amount between 0-50 kroner to the common pool.
3) The accumulated amount in the common pool is doubled.	4) The total amount in the common pool is split in 4 equal parts.
5) Each participant receives their share of the common pool.	6) Each participant's total earnings are shown here.

All participants make their own decisions without knowing what the others have decided. You will be informed about the others' decision only upon the completion of the experiment.

Continue

4.7 Screenshot: Instructions Standard Game 1 (Take treament)

(The header and footer of this screen are cut out to improve readability)

Instruktioner - Del 1

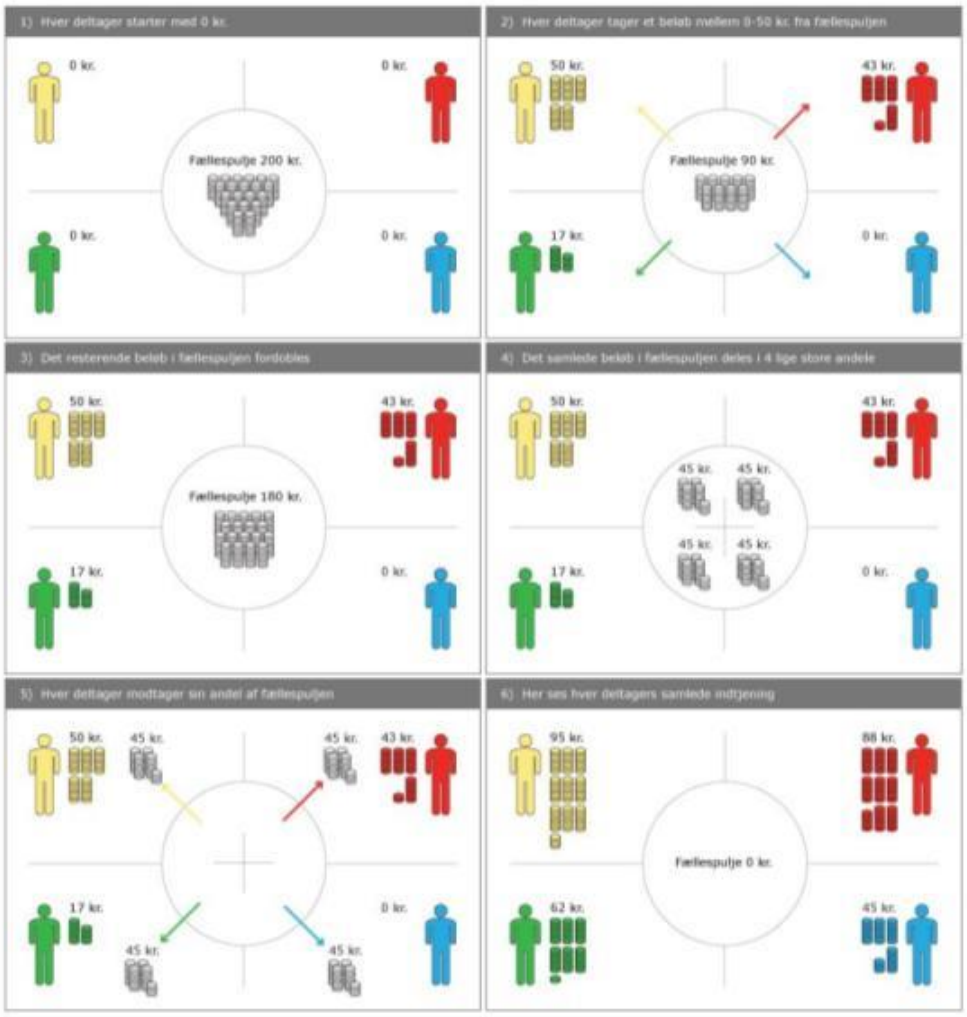
Dette er eksperimentets første del. Du bedes læse følgende instruktioner grundigt.

Du er i en gruppe med tre andre personer, som ligesom dig er blevet udvalgt til at deltage i eksperimentet. Da I alle er sikret anonymitet, vil ingen af jer nogensinde vide, hvem de andre er.

Din gruppe starter med en **fællespulje på 200 kroner**. **Du og de andre skal hver især træffe en beslutning om enten at lade pengene ligge i fællespuljen eller at tage op til 50 kroner ud af fællespuljen.** Hvert gruppemedlem står over for den samme beslutning.

De penge, du vælger at tage ud af fællespuljen, får du ganske enkelt lov til at beholde. **Det beløb, som I tilsammen lader blive i fællespuljen, vil først blive fordoblet af os og dernæst delt ligeligt mellem alle fire gruppemedlemmer.** Hvert gruppemedlem får sin ligelige andel, uanset hvor meget vedkommende selv har taget ud af fællespuljen.

Billederne nedenfor viser et eksempel:



Alle træffer deres egen beslutning uden at vide, hvad de andre har besluttet. Først efter gennemførelse af eksperimentet vil du blive informeret om de andres beslutninger.

4.8 Translation: Instructions Standard Game 1 (Take treatment)

Instructions – Part 1

This is the first part of the experiment. Please read the following instructions carefully.

You are a part of a group together with three other people who were selected like you to take part in this experiment. As each of you is guaranteed anonymity, none of you will ever know who the others are.

Your group begins with a **common pool containing 200 kroner**. **You and the others each have to make a decision about either leaving the money in the common pool or taking up to 50 kroner from the common pool.** Each group member faces the same decision.

The amount of money you choose to take from the common pool is simply yours to keep. **The sum, which you in all leave in the common pool, will be doubled by us and then split evenly amongst all four group members.** Each group member gets an even share, no matter how much they each have taken from the common pool.

The pictures below illustrate an example:

1) Each participant begins with 0 kroner

2) Each participant takes an amount between 0-50 kroner from the common pool.

3) The remaining amount in the common pool is doubled.

4) The accumulated amount in the common pool is shared in 4 equally sized parts.

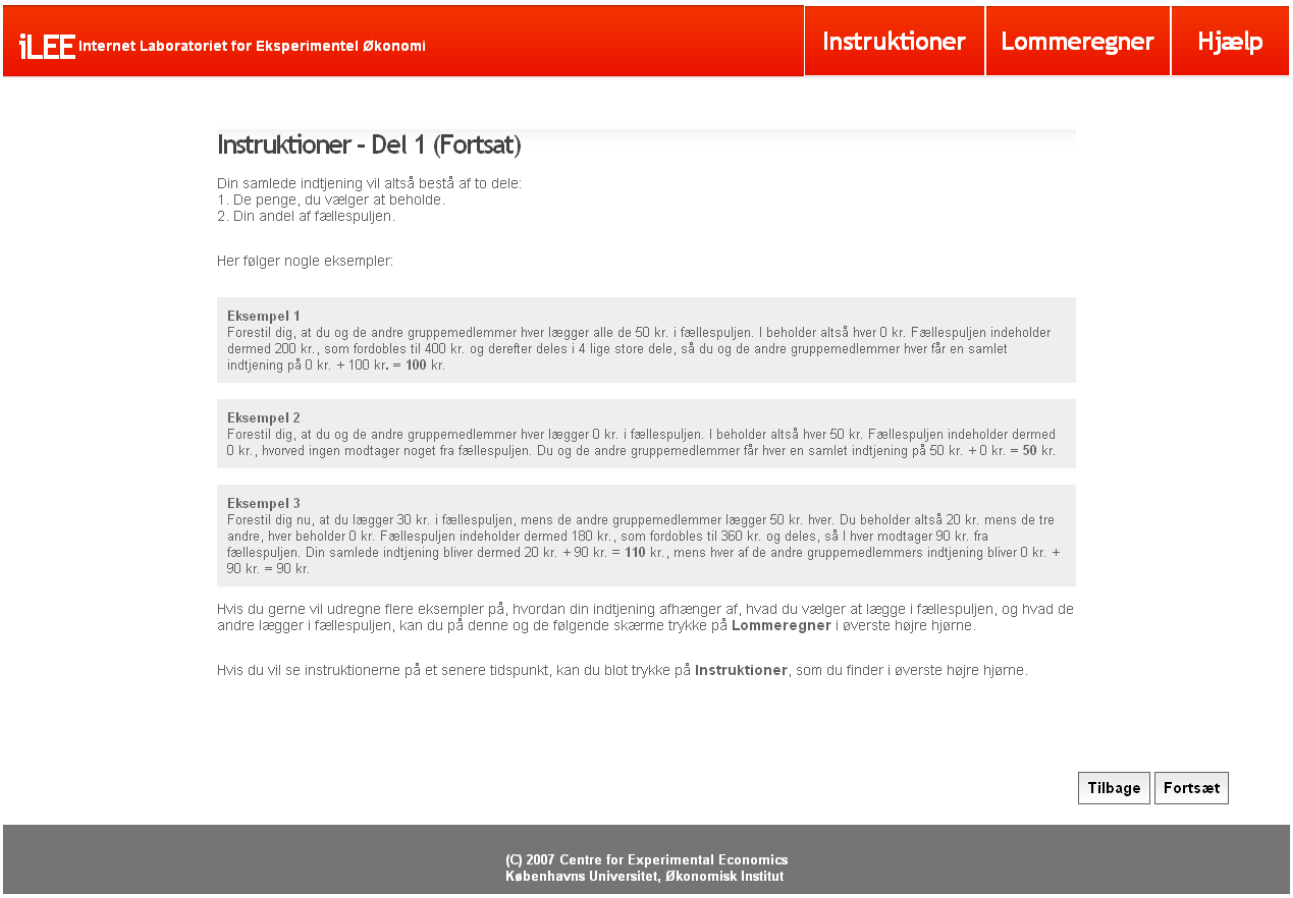
5) Each participant receives their share of the common pool.

6) Each participant's accumulated earnings are shown here.

All participants make their own decisions without knowing what the others have decided. You will be informed about the others' decision only upon the completion of the experiment.

Continue

4.9 Screenshot: Instructions standard game 2 (Give treatment)



4.10 Translation: Instructions standard game 2 (Give treatment)

iLEE Internet Laboratory for experimental economics -Instructions –Calculator- Help

(Header now contains links to the first screens of the instructions and a profit calculator)

Instruction – Part 1 (continued)

Your total earnings will thus consist of two parts:

1. The amount of money you choose to keep.
2. Your share of the common pool.

Below are some examples.

Example 1:

Imagine you and the other group members each gave Dkr. 50 to the common pool. This would mean that you would each keep Dkr.0. The common pool would thus contain Dkr.200, which would be

doubled to Dkr. 400 and split into 4 equally sized parts afterwards, so you and the other group members would each receive accumulated earnings of Dkr. 0 + Dkr. 100 = Dkr. 100.

Example 2:

Imagine you and the other group members each gave Dkr. 0 to the common pool. This would mean that you would each keep Dkr. 50. The common pool would thus contain Dkr. 0, and therefore nobody would receive anything from the common pool. You and the other group members would each receive accumulated earnings of Dkr. 0 + Dkr. 50 = Dkr. 50.

Example 3:

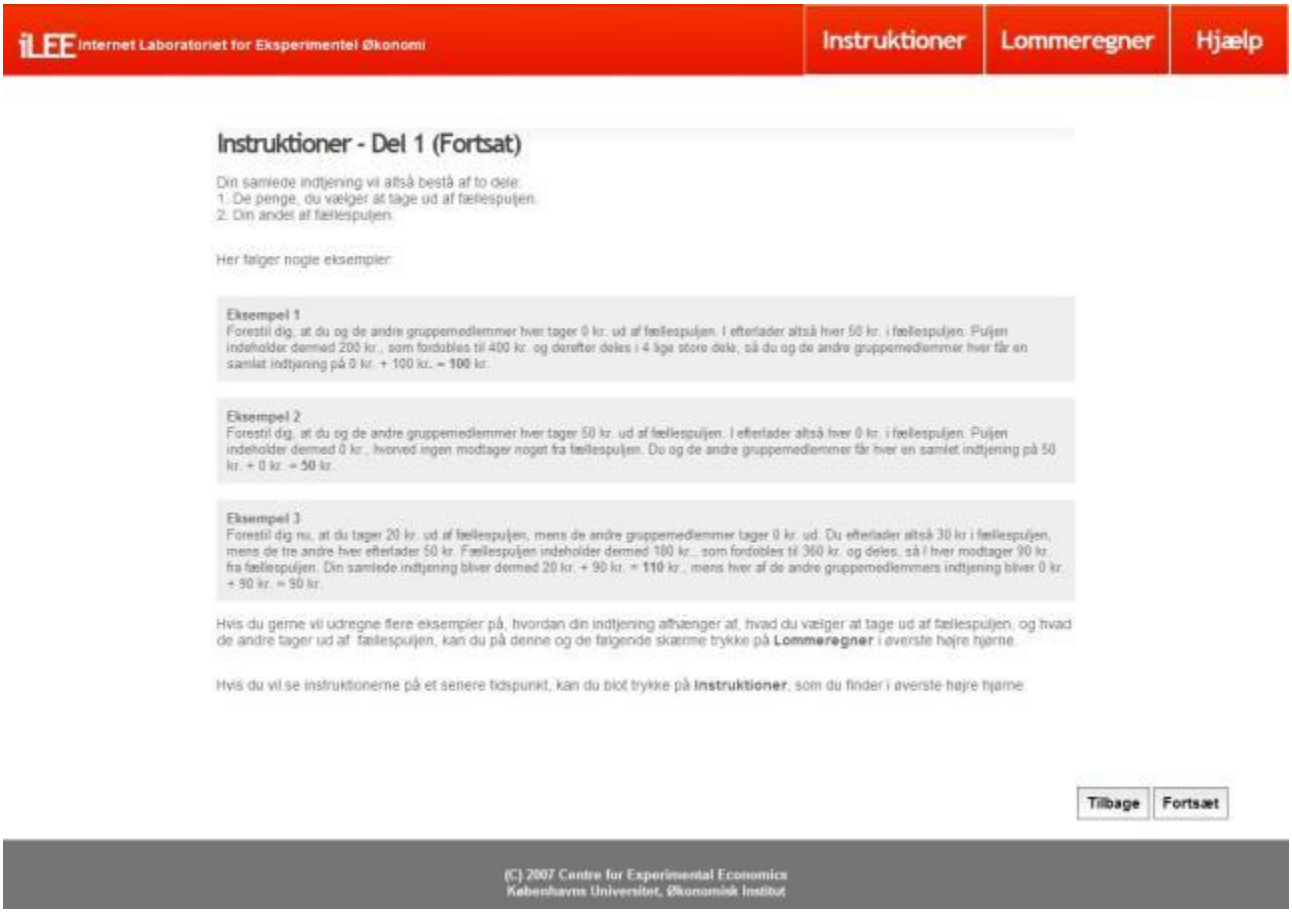
Imagine you gave Dkr. 30 to the common pool, while the other group members give Dkr. 50. This would mean that you would keep Dkr. 20, while the three others would each keep Dkr. 0. The common pool would thus contain Dkr. 180, which would be doubled to Dkr. 360 and split, so you would each receive Dkr. 90 from the common pool. Your accumulated earning would then be Dkr. 20 + Dkr. 90 = Dkr. 110, while each of the other group members' earnings would be Dkr. 0 + Dkr. 90 = Dkr. 90.

If you want to calculate more examples on how your earnings depend on what you choose to give to the common pool, and what the others choose to put in the common pool, just click on '**Calculator'** in the top right hand corner of this and the following screens.

If you at a later point in time wish to look at the instructions again, just click on '**Instructions'**, which you will find in the top right hand corner.

Back – Continue

4.11 Screenshots: Instructions standard game 2(Take treatment)



4.12 Translation: Instructions Standard Game 2 (Take treatment)

iLEE Internet Laboratory for experimental economics -Instructions –Calculator- Help

(Header now contains links to the first screens of the instructions and a profit calculator)

Instruction – Part 1 (continued)

Your accumulated earnings will thus consist of two parts:

1. The money you choose to take from the common pool.
2. Your share of the common pool.

Here are some examples:

Example 1:

Imagine you and the other group members each took 0 kr. from the common pool. This would mean that you would each leave 50 kr. in the common pool. The pool would thus contain 200 kr., which would be doubled to 400 kr. and split into 4 evenly big parts afterwards, so you and the other group members would each receive accumulated earnings of 0 kr. + 100 kr. = 100 kr.

Example 2:

Imagine you and the other group members each took 50 kr. from the common pool. This would mean that you would each leave 0 kr. in the common pool. The pool would thus contain 0 kr., and therefore nobody would receive anything from the common pool. You and the other group members would each receive accumulated earnings of 0 kr. + 50 kr. = 50 kr.

Example 3:

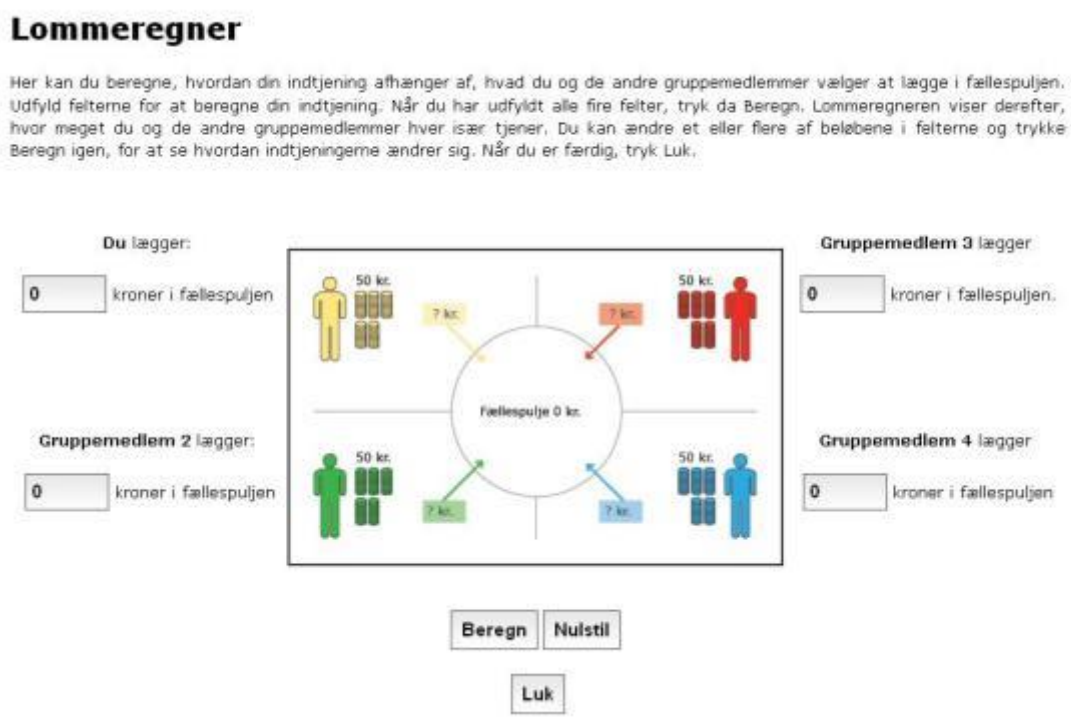
Imagine you took 20 kr. from the common pool, while the other group members took 0 kr. This would mean that you would leave 30 kr. in the common pool, while the three others would leave 50 kr. The common pool would thus contain 180 kr., which would be doubled to 360 kr. and split, so you would each receive 90 kr. from the common pool. Your accumulated earning would then be 20 kr. + 90 kr. = 110 kr., while each of the other group members' earnings would be 0 + 90 kr. = 90 kr.

If you want to calculate more examples on how your earnings depend on what you choose to take from the common pool, and what the others take from the common pool, just click on 'Calculator' in the top right hand corner of this and the following screens.

If you at a later point in time wish to look at the instructions again, just click on 'Instructions', which you will find in the top right hand corner.

Back – Continue

4.13 Pop-up screen: Profit calculator (accessible through a button on the top of the screen during the game) (Give treatment)



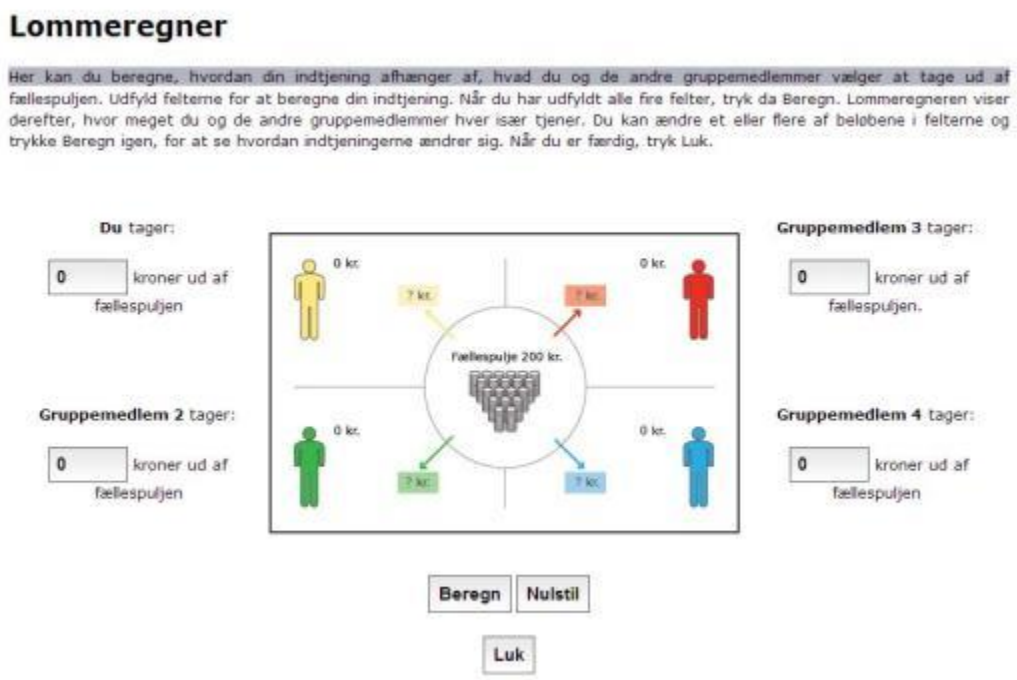
4.14 Translation: Profit calculator. (Give treatment)

Calculator

You can calculate here how your own earnings depend on what you and the other group members choose to give to the common pool. To do so, fill out all four fields and click “Calculate”. The calculator will then show how much you and the other group members each earn. You can change one or more of the fields and press “Calculate” again to see how your earnings change. When you are done, press “Close”.

You give: 0 kroner to the common pool		Group member 3 gives: 0 kroner to the common pool
Group member 2 gives: 0 kroner to the common pool		Group member 4 gives: 0 kroner to the common pool
	Calculate - Reset	
	Close	

4.15 Pop-up screen: Profit calculator (accessible through a button on the top of the screen during the game) (Take treatment)



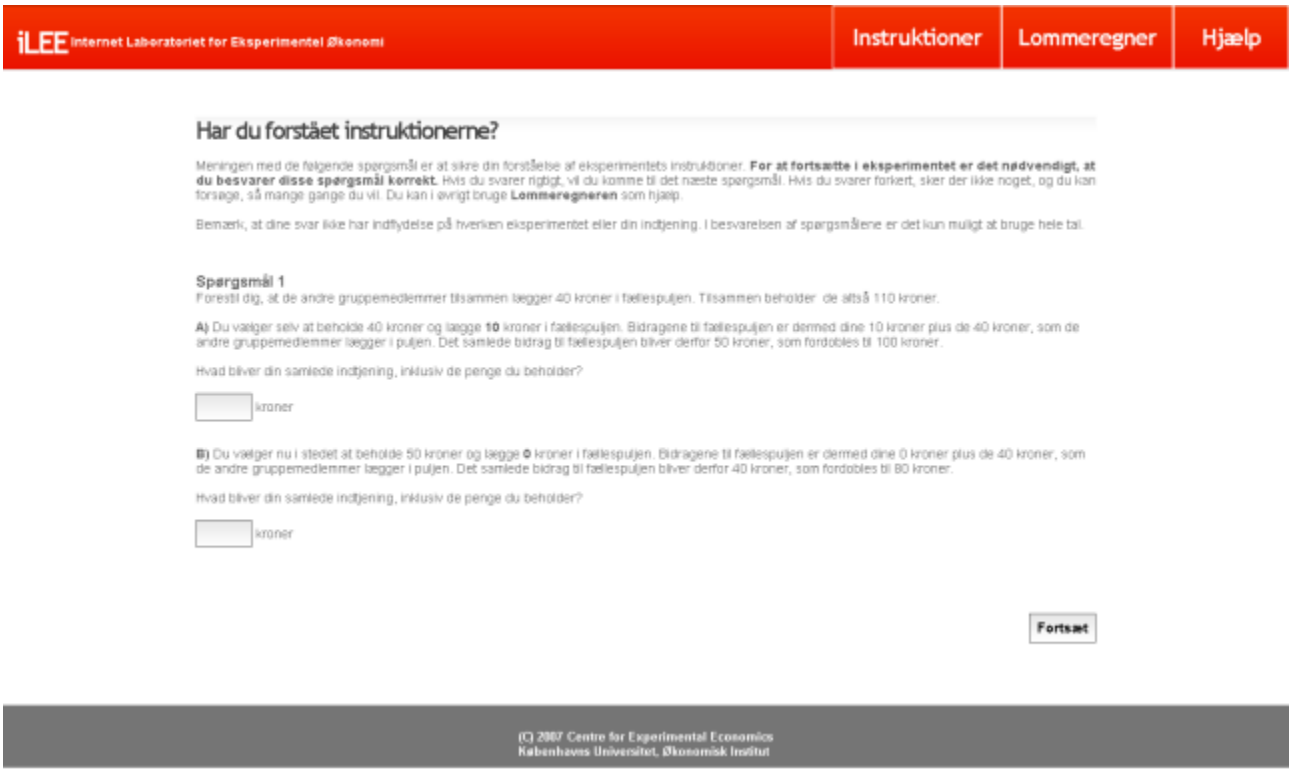
4.16 Translation: Profit calculator. (Take treatment)

Calculator:

In here, you can calculate how your own earnings are determined by what you and the other group members choose to take from the common pool. When you have filled out all the four fields, click "Calculate". The calculator will then show how much you and the other group members each earn. You can change one or more of the fields and press "Calculate" again to see how your earnings change. When you are done, press "Close".

You take: 0 kroner from the common pool		Group member 3 takes: 0 kroner from the common pool
Group member 2 takes: 0 kroner from the common pool		Group member 4 takes: 0 kroner from the common pool
	Calculate - Reset	
	Close	

4.17 Screenshot: Control question 1 (Give treatment)



4.18 Translation: Control question 1 (Give treatment)

Have you understood the instructions?

The point of the following questions is to check whether you have understood the instructions for the experiment. **To proceed to the experiment, you have to answer these questions correctly.** If your answer is correct, you will go on to the next question. If your answer is incorrect, nothing will happen but you will be allowed to try again as many times as you want. You can use the **Calculator** for help, by the way.

Note that your answers will not affect the experiment or your earnings. It is only possible to use whole numbers when answering the questions.

Question 1

Imagine that the other group members altogether gave 40 kroner to the common pool. This would mean that they would keep 110 kroner in total.

A) If you chose to keep 40 kroner for yourself and gave 10 kroner to the common pool, the contributions to the common pool would thus be your 10 kroner plus the 40 kroner the other group members gave to the common pool. The accumulated contribution to the common pool would therefore be 50 kroner, which would be doubled to 100 kroner.

What would your accumulated earnings be including the money you kept?

--- kroner

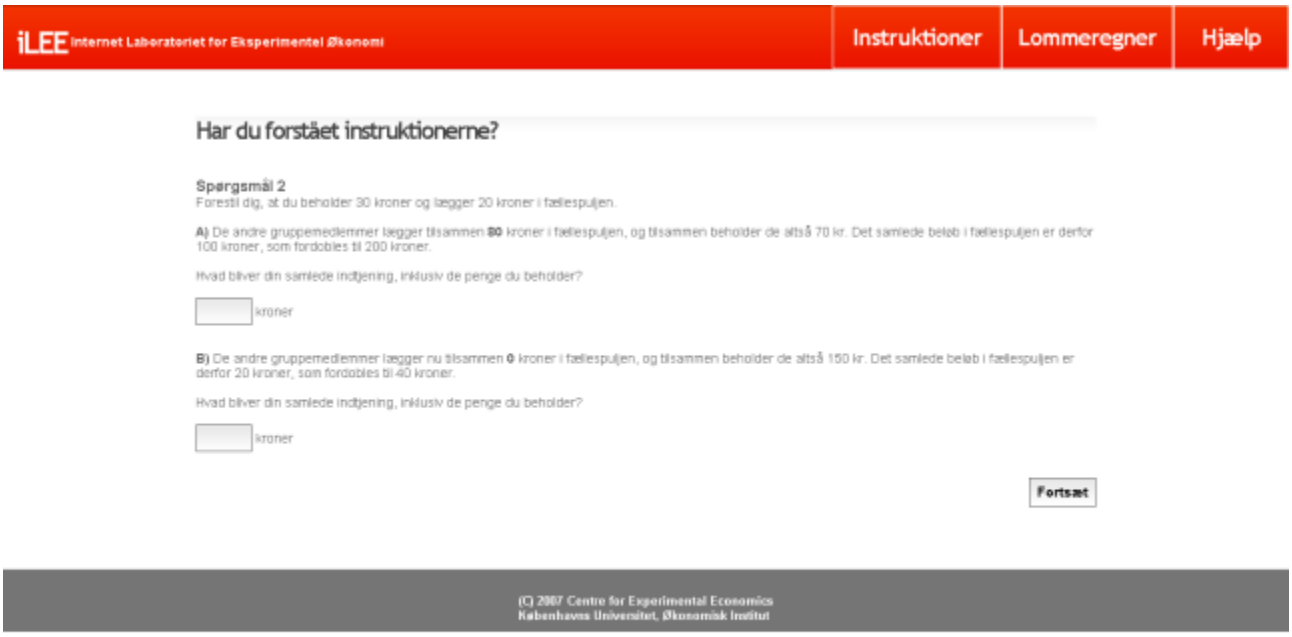
B) Now if you instead chose to keep 50 kroner and gave 0 kroner to the common pool, the contributions to the common pool would thus be your 0 kroner plus the 40 kroner the other group members gave to the common pool. The accumulated contribution to the common pool would therefore be 40 kroner, which would be doubled to 80 kroner.

What would your accumulated earnings be, including the money you kept?

--- kroner

Continue

4.19 Screenshot: Control question 2 (Give treatment)



4.20 Translation: Control question 2 (Give treatment)

Question 2

Imagine that you kept 30 kroner and gave 20 kroner to the common pool.

A) If the other group members altogether gave 80 kroner to the common pool, and thus kept 70 kroner in all, the accumulated amount in the common pool would be 100 kroner, which would be doubled to 200 kroner.

What would your accumulated earnings be including the money you kept?

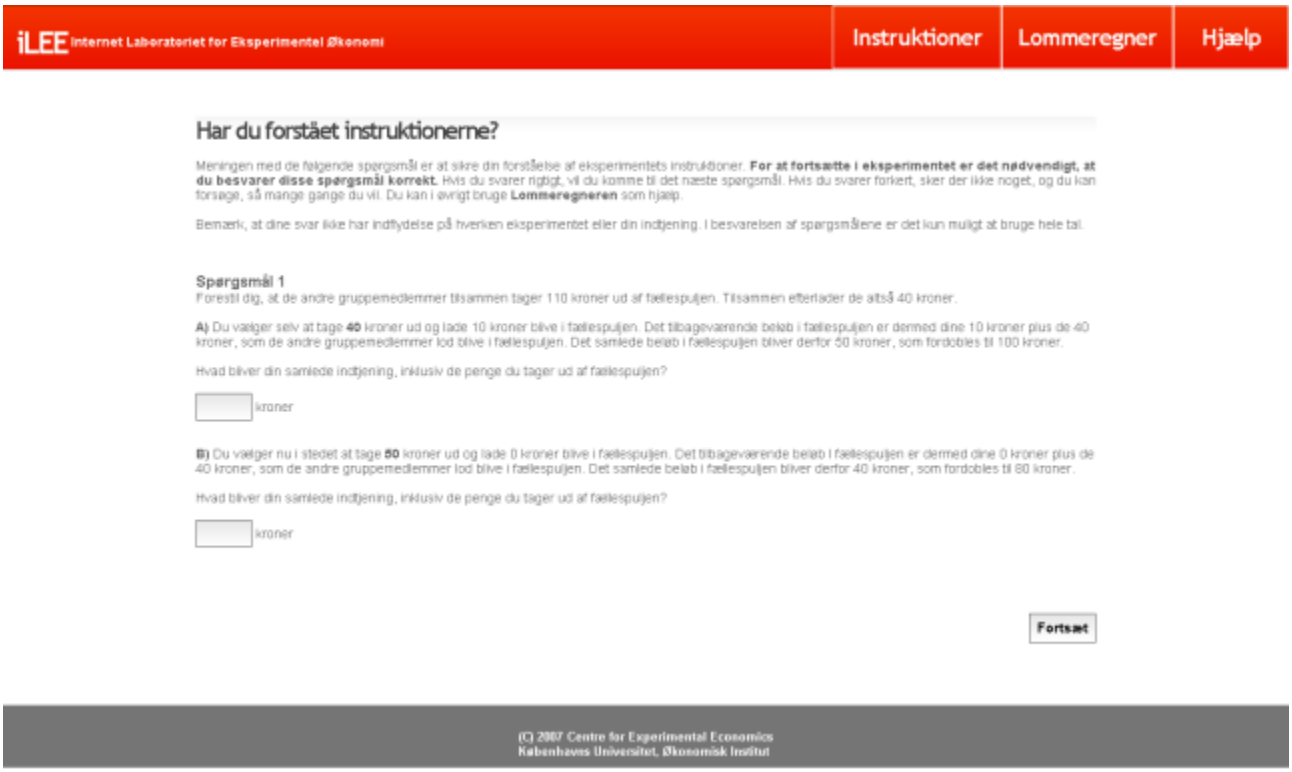
--- kroner

B) Now, if the other group members altogether gave 0 kroner to the common pool, and thus kept 150 kroner in all, the accumulated amount in the common pool would be 20 kroner, which would be doubled to 40 kroner.

What would your accumulated earnings be including the money you kept?

---kroner Continue

4.21 Screenshot: Control question 1 (Take treatment)



4.22 Translation: Control question 1 (Take treatment)

Have you understood the instructions?

The point of the following questions is to check whether you have understood the instructions for the experiment. **To proceed to the experiment, you have to answer these questions correctly.** If your answer is correct, you will go on to the next question. If your answer is incorrect, nothing will happen, but you will be allowed to try again as many times as you want. You can use the **Calculator** for help, by the way.

Note that your answers will not affect the experiment or your earnings. It is only possible to use whole numbers when answering the questions.

Question 1

Imagine that the others altogether took 110 kroner from the common pool. This would mean that they would leave 40 kroner in total.

A) If you chose to take 40 kroner yourself and left 10 kroner in the common pool, the remaining amount in the common pool would be your 10 kroner plus the 40 kroner the other group members left in the common pool. The accumulated amount in the common pool would therefore be 50 kroner, which would be doubled to 100 kroner.

What would your accumulated earnings be including the money you took from the common pool?

--- kroner

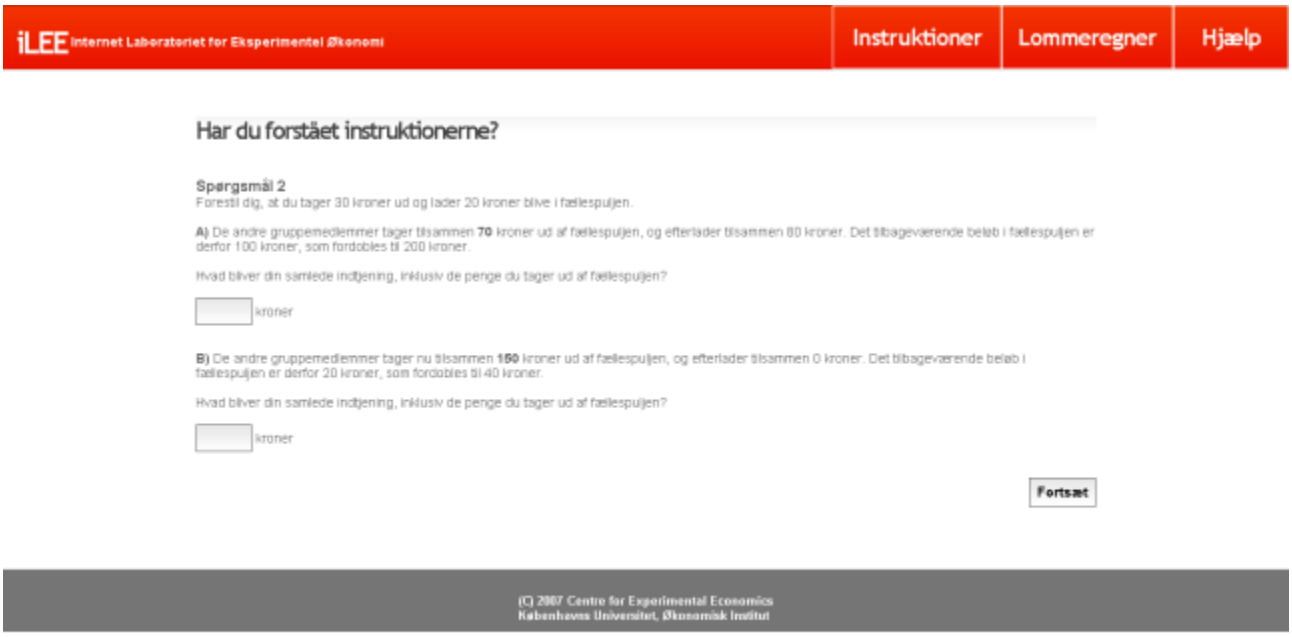
B) Now if you instead chose to take 50 kroner and left 0 kroner in the common pool, the remaining amount in the common pool would be your 0 kroner plus the 40 kroner the other group members left in the common pool. The accumulated amount in the common pool would therefore be 40 kroner, which would be doubled to 80 kroner.

What would your accumulated earnings be including the money you took from the common pool?

--- kroner

Continue

4.23 Screenshot: Control question 2 (Take treatment)



4.24 Translation: Control question 2 (Take treatment)

Question 2

Imagine that you took 30 kroner and left 20 kroner in the common pool

A) If the other group members altogether took 70 kroner from the common pool, and left 80 kroner in total, the remaining amount in the common pool would be 100 kroner, which would be doubled to 200 kroner.

What would your accumulated earnings be including the money you took from the common pool?

--- kroner

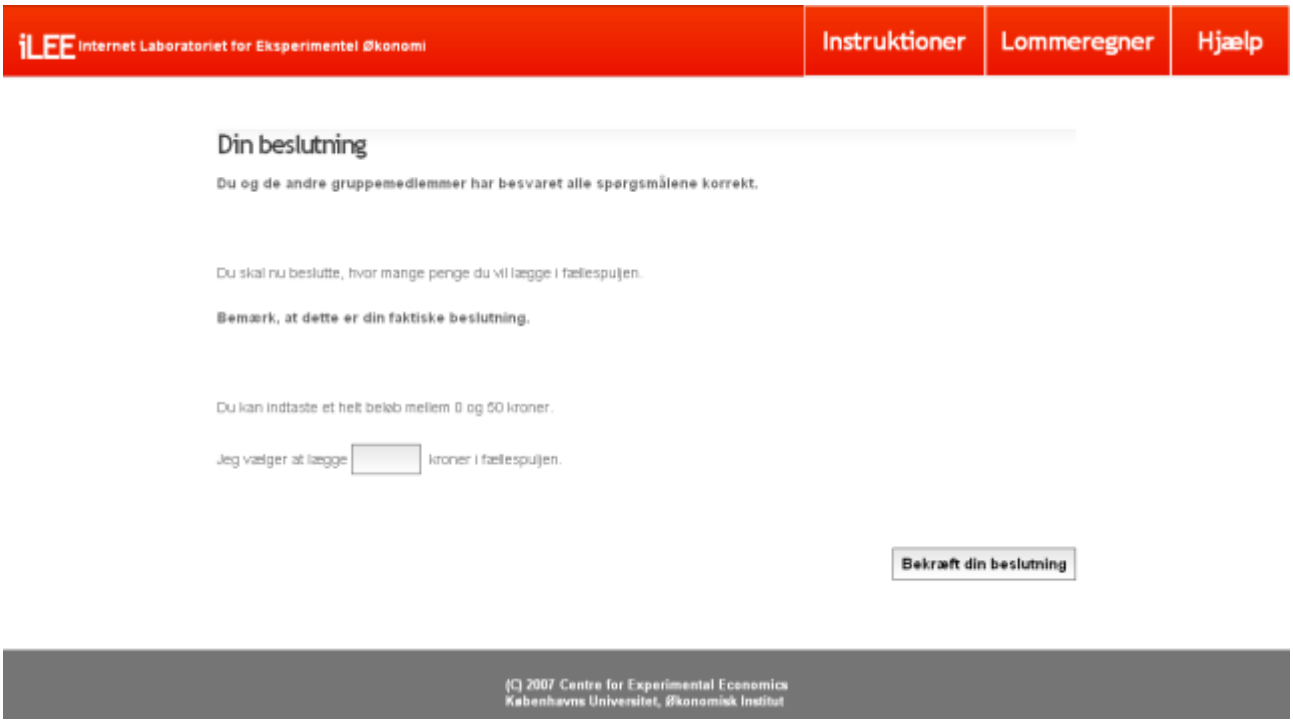
B) Now, if the other group members altogether took 150 kroner from the common pool, and left 0 kroner in total, the remaining amount in the common pool would be 20 kroner, which would be doubled to 40 kroner.

What would your accumulated earnings be including the money you took from the common pool?

--- kroner

Continue

4.25 Screenshot: Choice screen – Standard Game (Give treatment)



4.26 Translation: Choice screen – Standard game (Give treatment)

Your decision

You and the other group members have answered all the questions correctly.

You now have to decide how much money you want to give to the common pool.

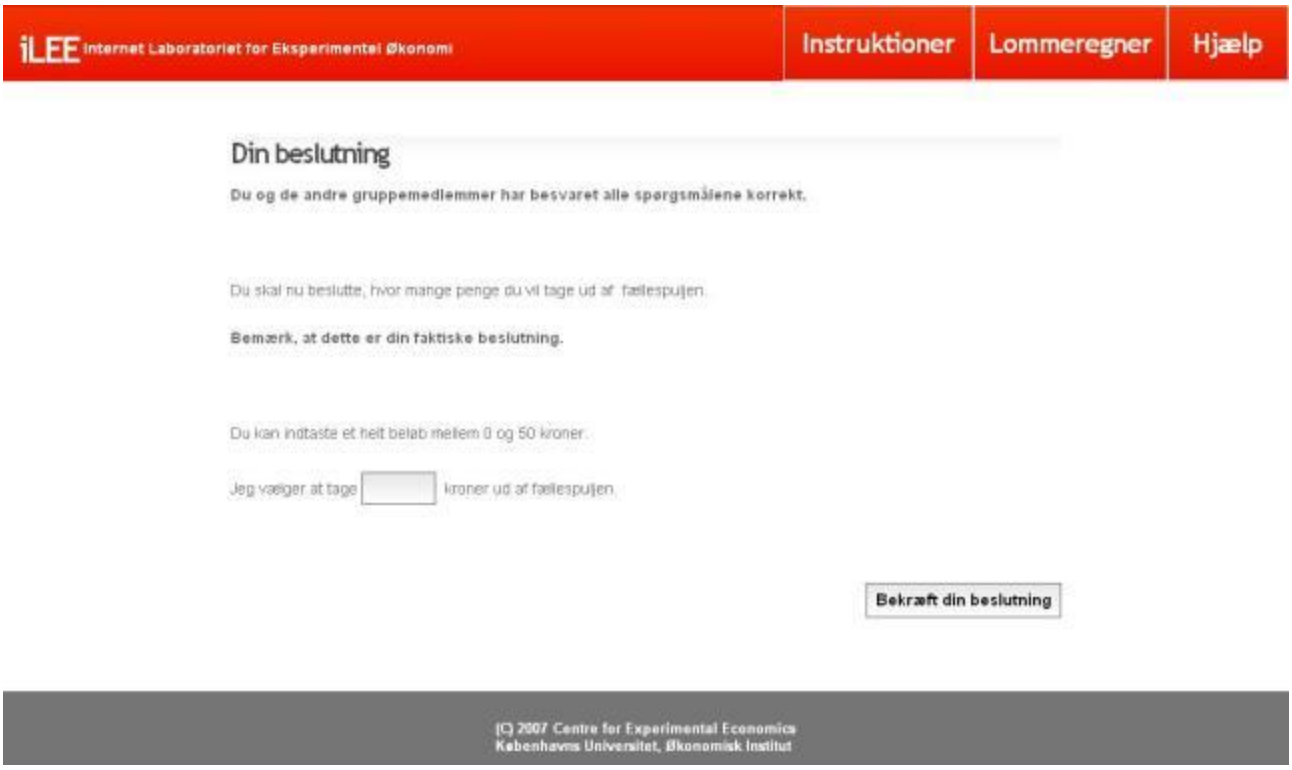
Note that this is your actual decision.

Choose an integer amount between 0 and 50 kroner

I choose to give _____ kroner to the common pool.

Confirm your decision

4.28 Screenshot: Choice screen – Standard Game (Take treatment)



4.29 Translation: Choice screen – Standard game (Take treatment)

Your decision

You and the other group members have answered all the questions correctly.

You now have to decide how much money you want to take from the common pool.

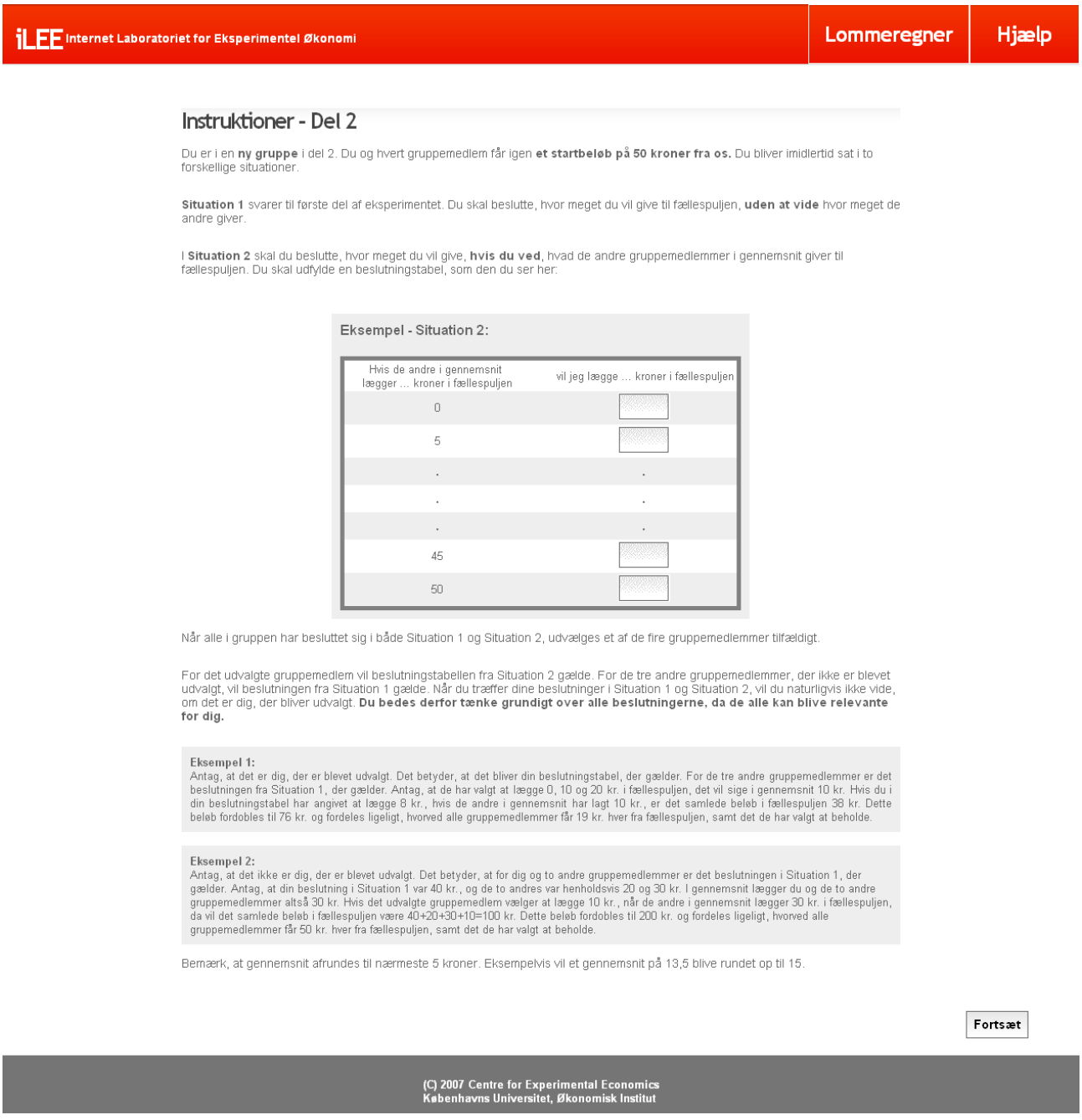
Note that this is your actual decision.

Choose an integer amount between 0 and 50 kroner

I choose to take _____ kroner from the common pool.

Confirm your decision

4.30 Screenshot: Instructions Strategy Game (Give treatment)



4.31 Translation: Instructions strategy game (Give treatment)

Instructions - part 2

You have been put into a **new group** in part 2. Again, you and each group member will begin with a **starting amount of 50 kroner from us.** However, you will be placed in two different situations.

Situation 1 corresponds to the first part of the experiment. You have to decide how much you want to put in the common pool **without knowing** how much the others put in.

In Situation 2, you have to decide how much to give to the common pool **having been told** the average amount that was given by the other group members to the common pool. You have to complete a decision table like the one you see here.

Example – Situation 2:

-If the average of what the others gave to the common pool is ... kroner

-then I will give … kroner to the common pool…

When everybody in the group has decided in both Situation 1 and Situation 2, one of the other four group members will be randomly selected.

The decision table will count for the selected group member. For the three other group members, the decision from Situation 1 will count. Naturally, when you are making your decisions in Situation 1 and Situation 2, you will not know if you will be selected. **Therefore please think carefully when making your decisions as they may all be relevant for you.**

Example 1:

Assume you have been selected. This means that it is your decision table which counts. For the three other group members, it is their decisions in situation 1 which count. Assume they chose to give Dkr. 0, 10, and 20 to the common pool, which is Dkr. 10 on average. If you in your decision table have stated that you want to give Dkr. 8 if the others give Dkr. 30 on average, then the accumulated amount in the common pool would be Dkr. 38. This amount would be doubled to Dkr. 76, and distributed evenly so that all group members would each get Dkr. 19 from the common pool in addition to the amount they chose to keep.

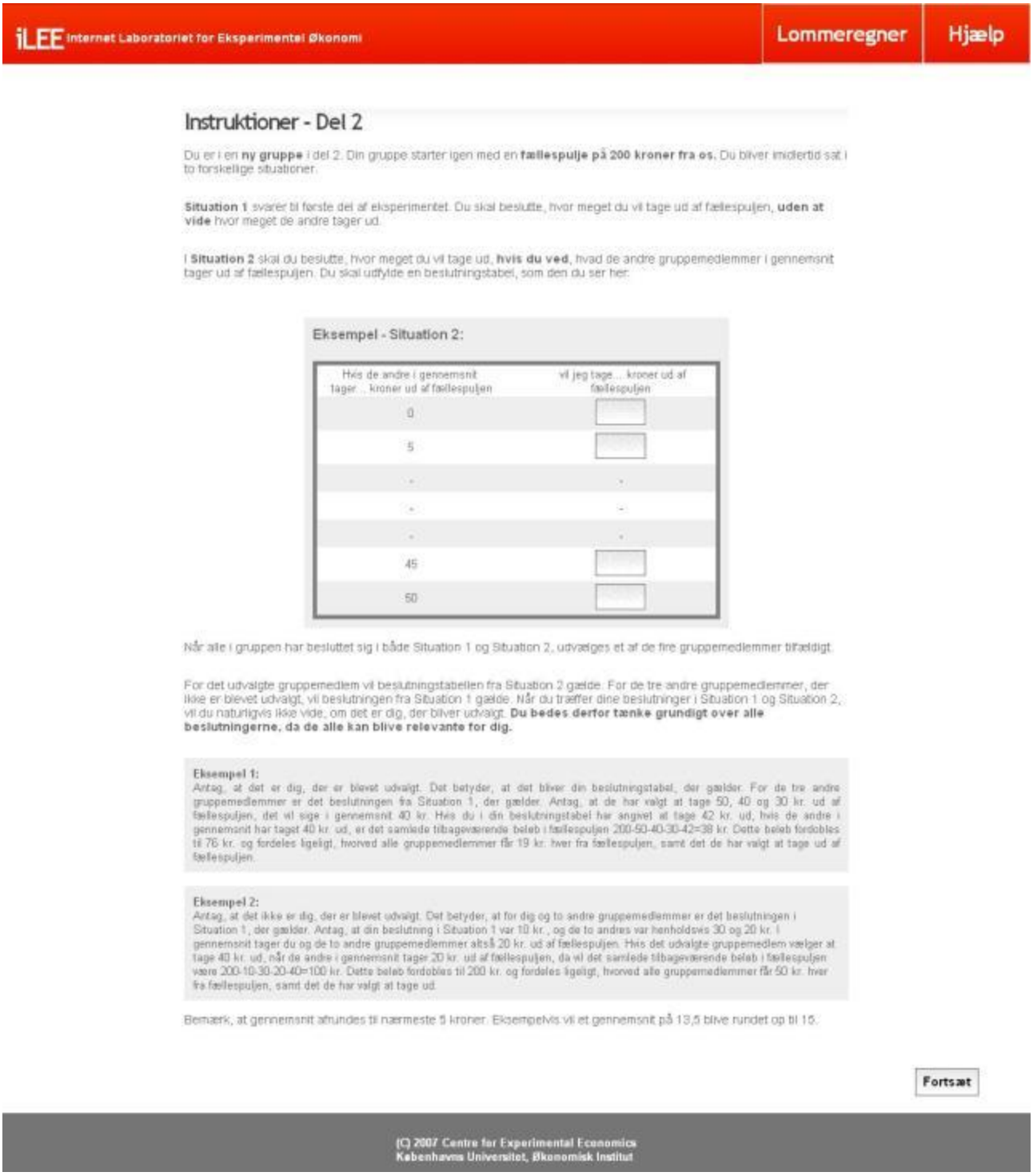
Example 2:

Assume that you have not been selected. This means that for you and two other group members your decisions in Situation 1 count. Assume that your decision in Situation 1 was Dkr. 40, and the decisions of the others were Dkr. 20 and Dkr. 30, respectively. This means that on average you and the two other group members gave Dkr. 30 to the common pool. If the selected group member decides to put in Dkr. 10 when the others on average gave Dkr. 30, then the sum of the accumulated amount in the common pool would be 40 + 20 + 30 + 10 = Dkr. 100. This amount would be doubled to Dkr. 200 and distributed evenly so that each group member would get Dkr. 50 kr. from the common pool in addition to the amount they chose to keep.

Note that the average is rounded to the nearest 5 kroner. For example, an average of Dkr. 13.5 would be rounded up to Dkr. 15 kr.

Continue

4.32 Screenshot: Instructions Strategy Game (Take treatment)



4.33 Translation: Instructions strategy game (Take treatment)

Instructions - part 2

You have been put into a **new group**. Again, your group will begin with a **common pool of 200 kroner from us.** However, you will be placed in two different situations.

Situation 1 corresponds to the first part of the experiment. You have to decide how much you want to take from the common pool, **without knowing** how much the others take.

In Situation 2, you have to decide how much to take from the common pool **having been told** the average amount that was taken by the other group members from the common pool.. You have to complete a decision table like the one you see here.

Example – Situation 2:

-If the average of what the others took from the common pool is ... kroner

-then I will take … kroner from the common pool

When everybody in the group has decided in both Situation 1 and Situation 2, one of the other four group members will be randomly selected.

The decision table will count for the selected group member. For the three other group members, the decision from Situation 1 will count. Naturally, when you are making your decisions in Situation 1 and Situation 2, you will not know if you will be selected. **Therefore please think carefully when making your decisions as they may all be relevant for you.**

Example 1:

Assume you have been selected. This means that it is your decision table which counts. For the three other group members, it is their decisions in situation 1 which count. Assume they chose to take 50, 40, and 30 kr. from the common pool, which is 40 kr. on average. If you in your decision table have stated that you want to take 42 kr. if the others on average take 40 kr., then the remaining amount in the common pool would be 200-50-40-30-42 = 38 kr. This amount would be doubled to 76 kr., and distributed evenly so that all group members would each get 19 kr. from the common pool in addition to the amount they chose to take from the common pool.

Example 2:

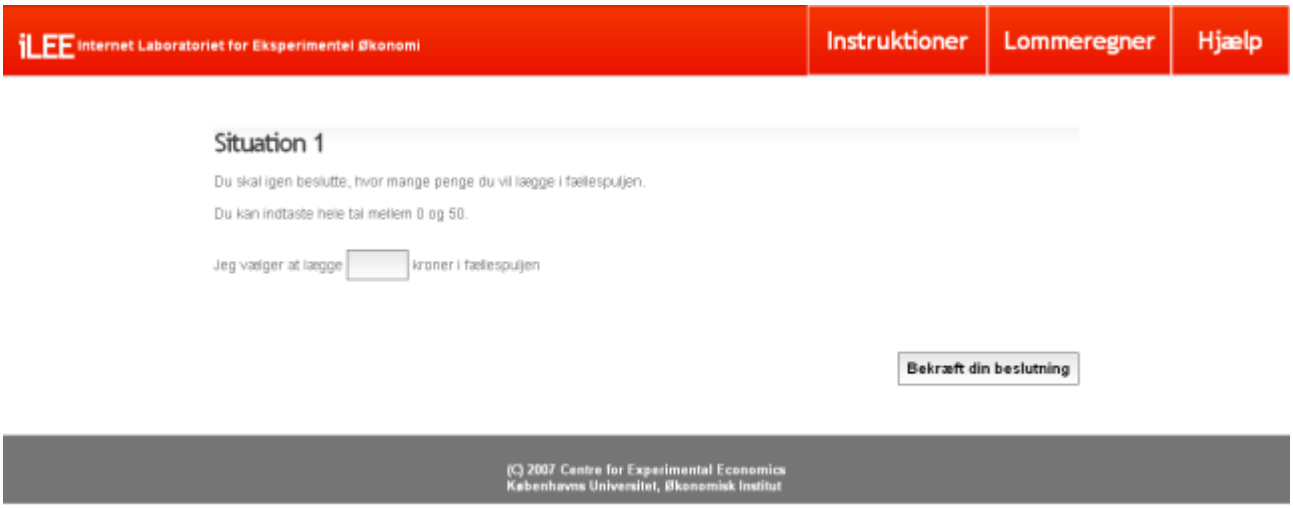
Assume that you have not been selected. This means that for you and two other group members, it is your decisions in Situation 1 which count. Assume that your decision in Situation 1 was 10 kr., and the others' decisions were 30 and 20 kr. respectively. This means that on average you and the two other group member take 20 kr. from the common pool. If the selected group member decides to take 40 kr.

when the others on average take 20, then the sum of the remaining amount in the common pool would be 200-10-30-20-40 = 100. This amount would be doubled to 200 kr. and distributed evenly so that all group members would get 50 kr. each from the common pool in addition to the amount they chose to take.

Note that the average is rounded to the nearest 5 kroner. For example, an average of 13.5 would be rounded up to 15 kr.

Continue

4.34 Screenshot: Unconditional contribution strategy game (Give treatment)



4.35 Translation: Unconditional contribution strategy game (Give treatment)

Situation 1

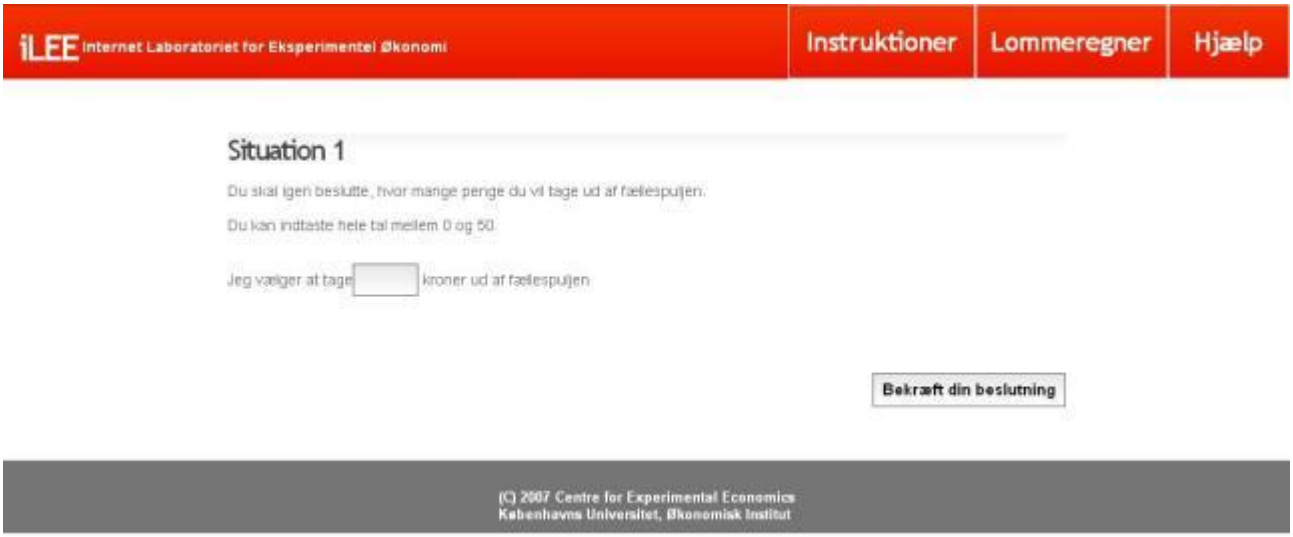
Again, you have to decide how much money you want to give to the common pool.

You have to enter an integer number between 0 and 50.

- I choose to give … kroner to the common pool.

Confirm your decision

4.36 Screenshot: Unconditional contribution strategy game (Take treatment)



4.37 Translation: Unconditional contribution strategy game (Take treatment)

Situation 1

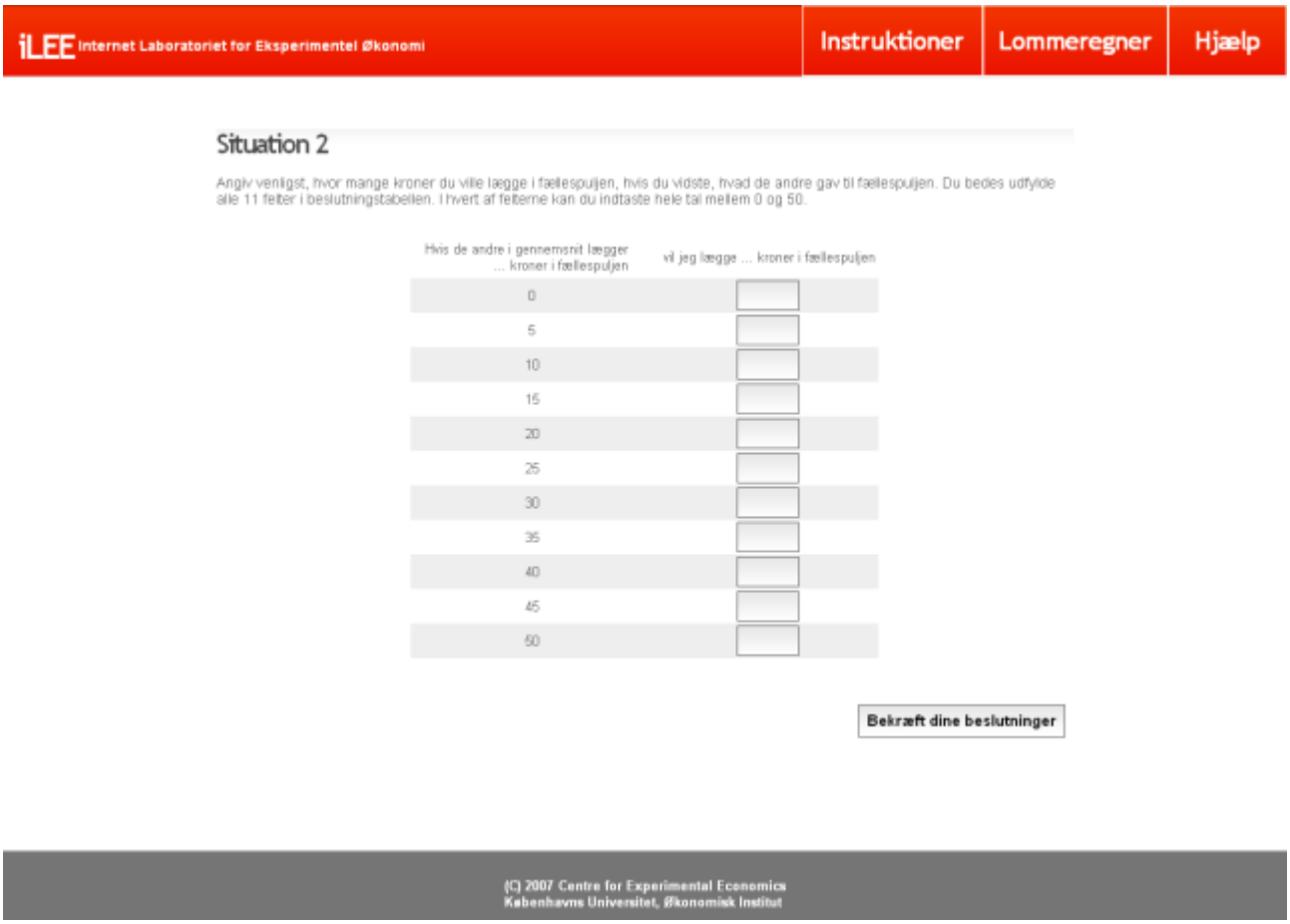
Again, you have to decide how much money you want to take from the common pool.

You have to enter an integer number between 0 and 50.

- I choose to take … kroner from the common pool.

Confirm your decision

4.38 Screenshot: Conditional contribution strategy game (Give treatment).



4.39 Translation: Conditional contribution strategy game (Give treatment)

Situation 2

Please state the amount in kroner you want to put in the common pool knowing how much the others gave to the common pool on average. Please complete all 11 fields in the decision table. Use integer numbers between Dkr. 0 and Dkr. 50.

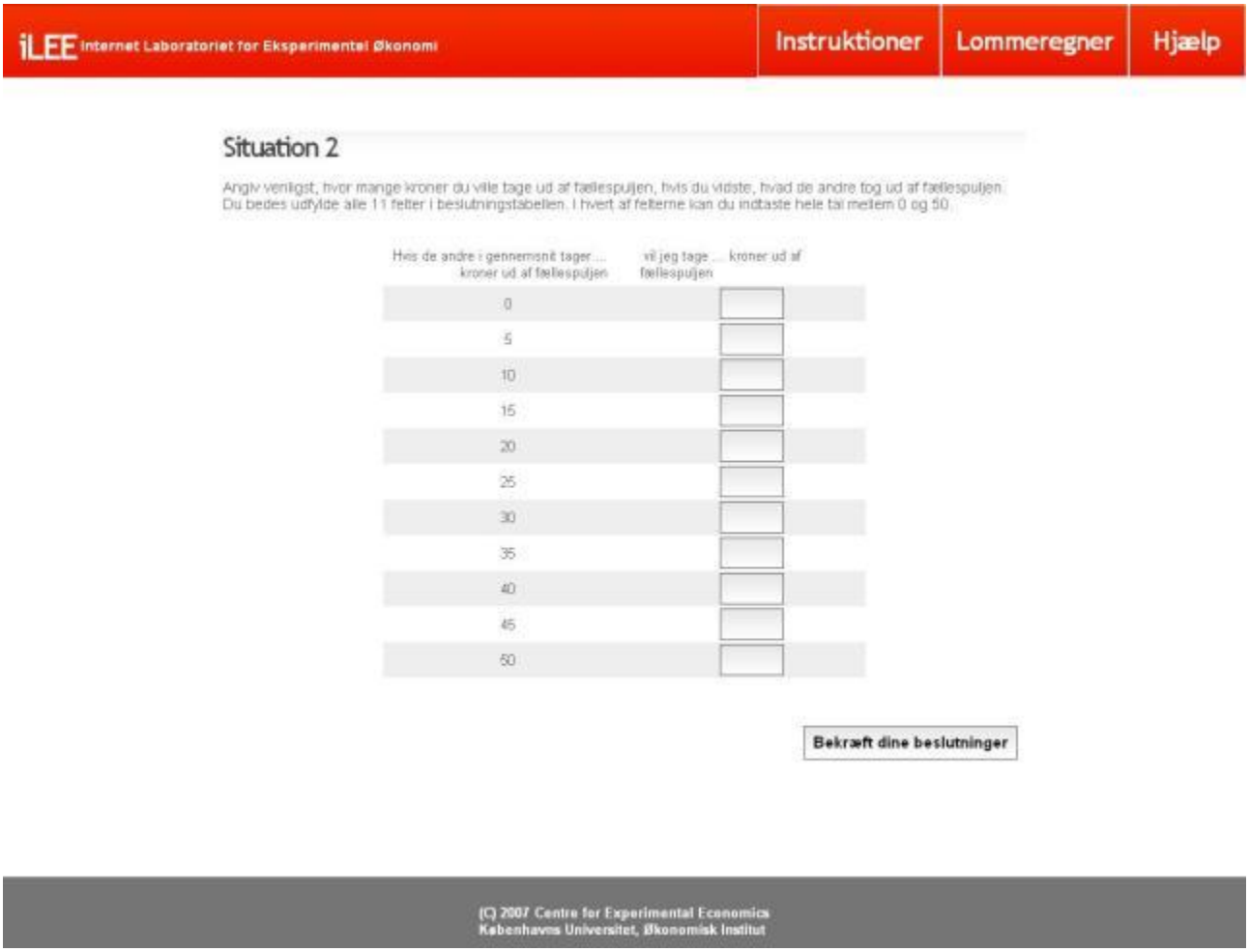
-If the others on average gave … kroner to the common pool

-I will give… kroner to the common pool.

…

Confirm your decision

4.40 Screenshot: Conditional contribution strategy game (Take treatment).



4.41 Translation: Conditional contribution strategy game (Take treatment)

Situation 2

Please state the amount of kroner you will take from the common pool, if you know what the others took from the common pool. Please complete all 11 fields in the decision table. You can type a whole number between 0 and 50 in each field.

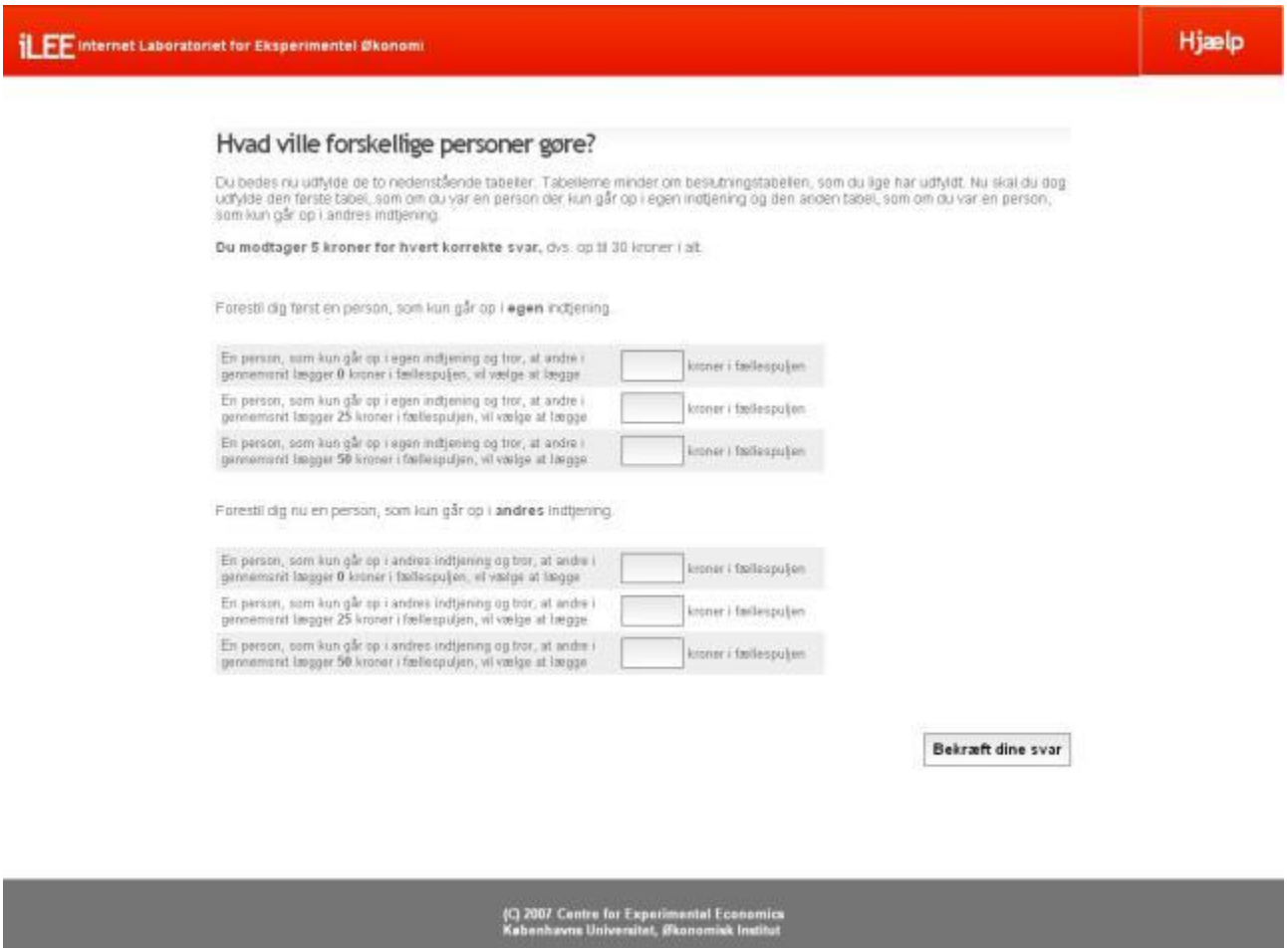
-If the others took … kroner from the common pool on the average

-I will take… kroner from the common pool.

…

Confirm your decision

4.42 Screenshot: Misperception test (Give treatment)



4.43 Translation: Misperception test (Give treatment)

What would different people do?

Please complete the tables given below. The tables are similar to the decision tables which you have just completed. However, now you should complete the first table as if you were a person, who only cared about your own earnings and the other table, as if you were a person, who only cared about others' earnings.

You will receive 5 kroner for each correct answer, i.e. up to 30 kroner in total.

First, imagine a person who only cares about their **own** earnings.

A person, who only cares about their own earnings and believes that the others gave **0** to the common pool on average, will choose to give … kroner to the common pool.

A person, who only cares about their own earnings and believes that the others give **25** to the common pool on the average, will choose to give … kroner to the common pool.

A person, who only cares about their own earnings and believes that the others gave **50** to the common pool on average, will choose to give … kroner to the common pool.

Now, imagine a person who only cares about **others'** earnings.

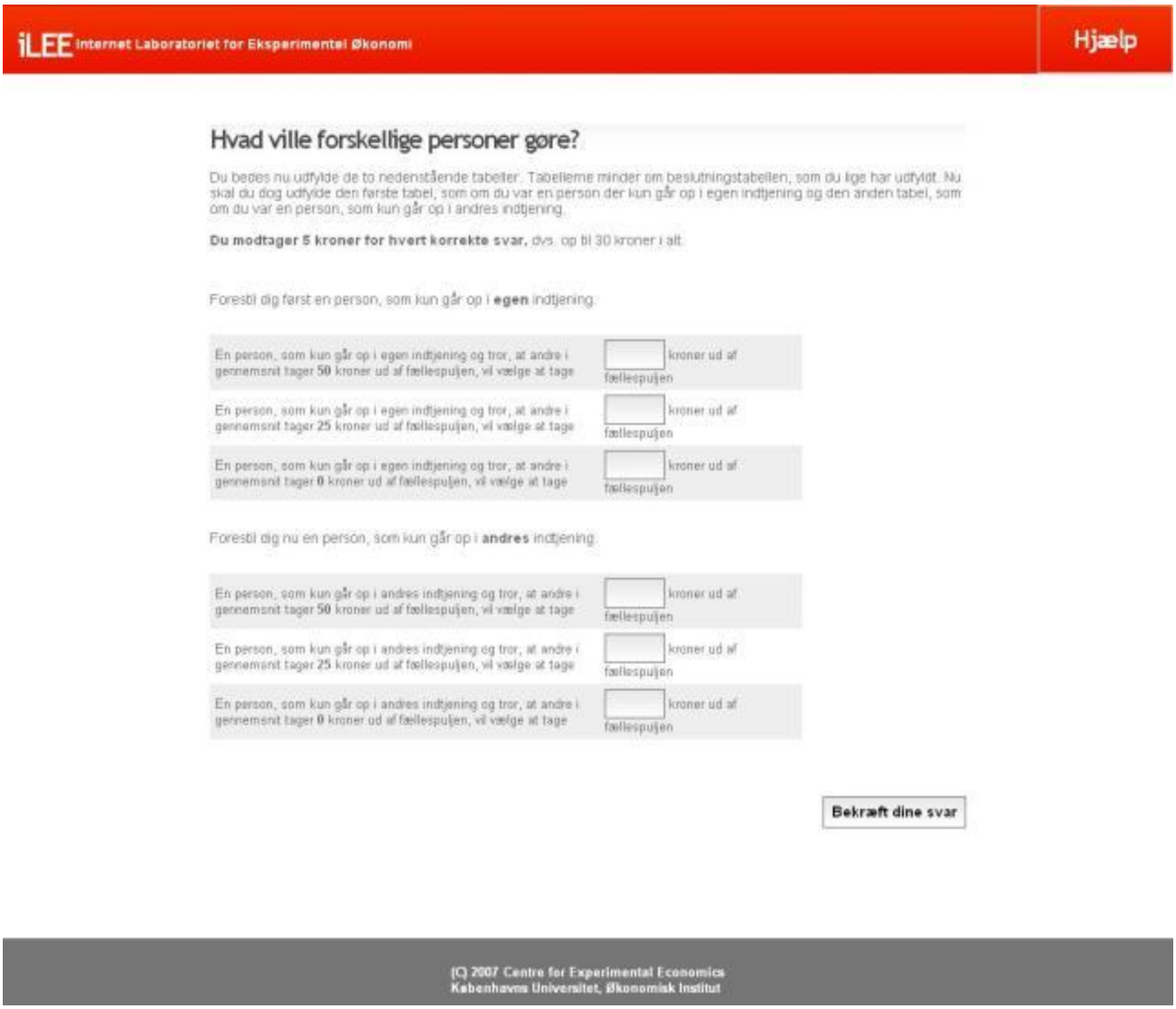
A person, who only cares about other's earnings and believes that the others give **0** to the common pool on the average, will choose to give… kroner to the common pool.

A person, who only cares about others' earnings and believes that the others gave **20** to the common pool on average, will choose to give… kroner to the common pool.

A person, who only cares about others' earnings and believes that the others gave **50** to the common pool on average, will choose to give… kroner to the common pool.

Confirm your answers

4.44 Screenshot: Misperception test (Take treatment)



4.45 Translation: Misperception test (Take treatment)

What would different people do?

Please complete the tables given below. The tables are similar to the decision tables which you have just completed. However, now you should complete the first table as if you were a person, who only cared about your own earnings and the other table, as if you were a person, who only cared about others' earnings.

You will receive 5 kroner for each correct answer, i.e. up to 30 kroner in total.

First, imagine a person who only cares about their **own** earnings.

A person, who only cares about their own earnings and believes that the others took **50** from the common pool on average, will choose to take … kroner from the common pool.

A person, who only cares about their own earnings and believes that the others took **25** from the common pool on average, will choose to take … kroner from the common pool.

A person, who only cares about their own earnings and believes that the others took **0** from the common pool on average, will choose to take … kroner from the common pool.

Now, imagine a person who only cares about **others'** earnings.

A person, who only cares about others' earnings and believes that the others took **50** from the common pool on average, will choose to take … kroner from the common pool.

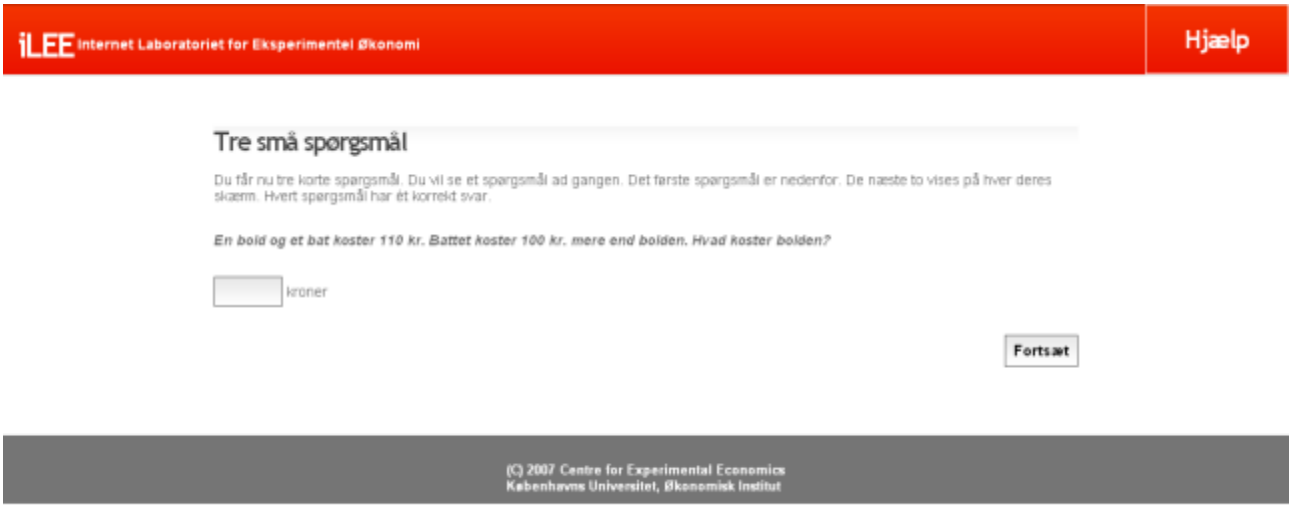
A person, who only cares about others' earnings and believes that the others took 2**5** from the common pool on average, will choose to take … kroner from the common pool.

A person, who only cares about others' earnings and believes that the others took **0** from the common pool on average, will choose to take … kroner from the common pool.

Confirm your answers

(From here, all tests are completely identical across treatments)

4.46 Screenshot: Cognitive reflection – screen 1



4.47 Translation: Cognitive reflection – screen 1

Three short questions

You will now be posed three short questions. You will see the questions one at a time. The first question is shown below. The following two will be shown on their own screens. Each question has only one correct answer.

A ball and a bat cost 110 kr. The bat costs 100 kr. more than the ball. How much does the ball cost?

____ kroner

Continue

4.48 Screenshot: Cognitive reflection – screen 2

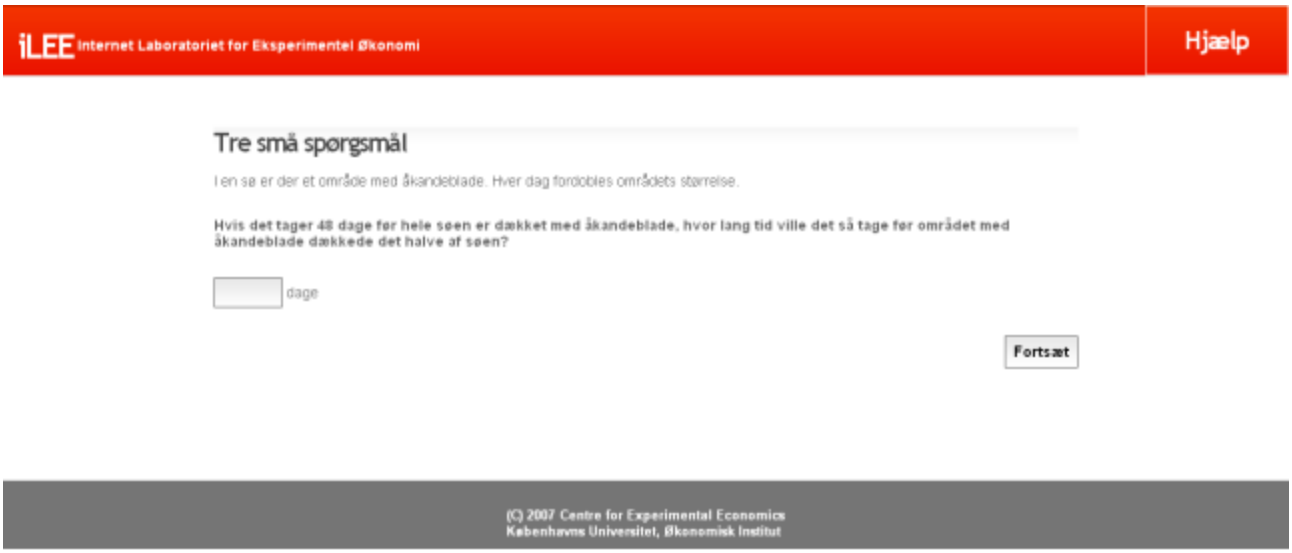
4.49 Translation: Cognitive reflection – screen 2

Three short questions

If it takes 5 machines, 5 minutes to make 5 thingies, how long would it take 100 machines to make 100 thingies?

_____ minutes

4.50 Screenshot: Cognitive reflection – screen 3



4.51 Translation: Cognitive reflection – screen 3

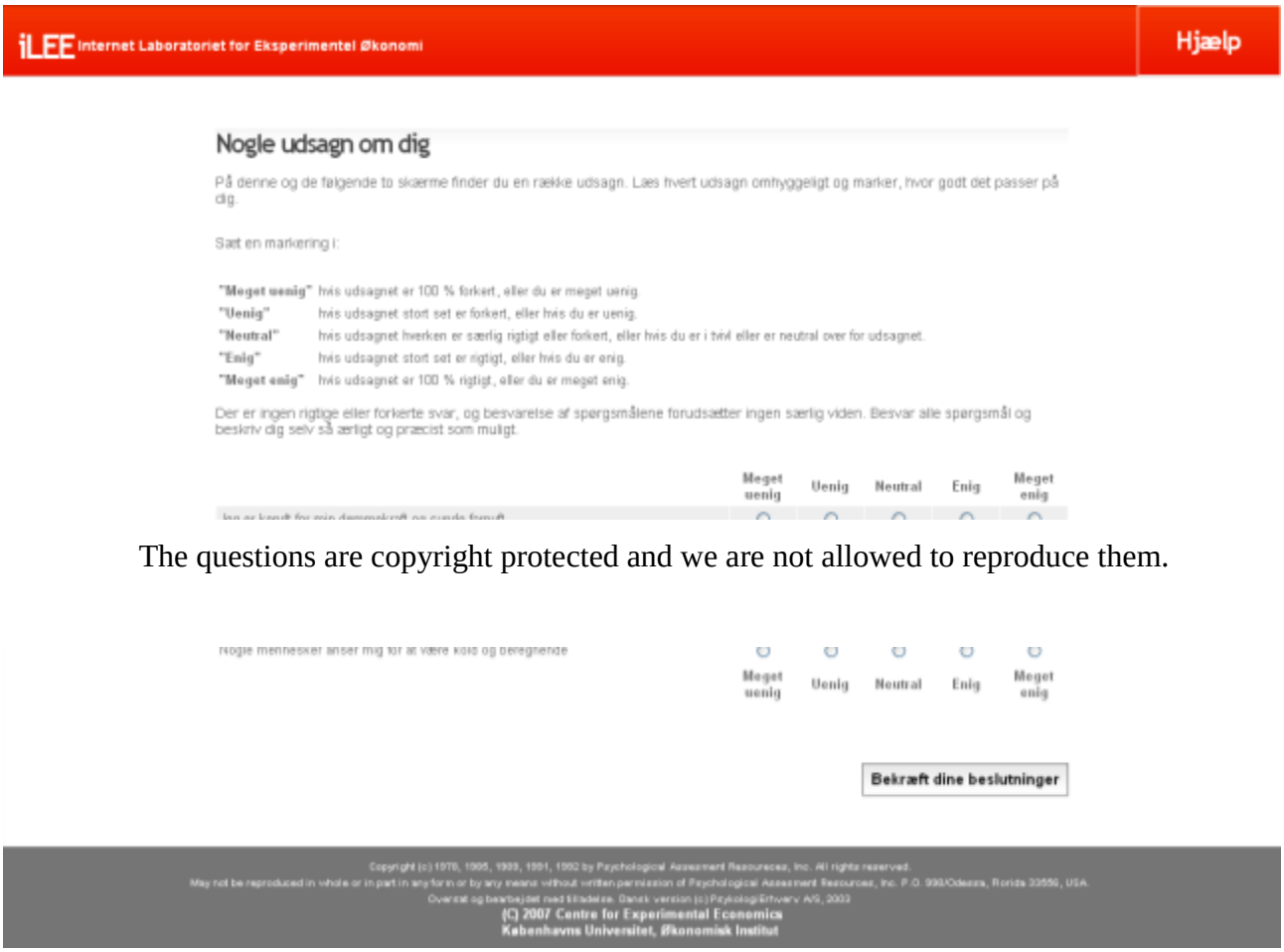
Three short questions

In a lake, there is an area with water lily leaves. Every day, the size of the area doubles.

If it takes 48 days for the lake to be completely covered with water lily leaves, how long would it take for half of the area to be covered?

_____ days

4.52 Screenshot: Personality traits



The questions are copyright protected and we are not allowed to reproduce them.

4.53 Translation: Personality traits

Some statements about you

In this and the following screens, you will find a number of statements. Please read each statement carefully and mark how well it fits you.

Mark either:

"Disagree a lot" if the statement is 100 % incorrect or you disagree a lot.

"Disagree" if the statement is wrong on the whole or if you disagree.

"Neutral" if the statement is neither wrong nor right, or if you are in doubt or neutral towards the question.

"Agree" if the statement is correct on the whole, or if you agree.

"Agree a lot" if the statement is 100 % correct, or if you agree a lot.

There are no right or wrong answers, and the completion of the questions does not presume any special knowledge. Answer all the questions and describe yourself as honestly and precisely as possible.

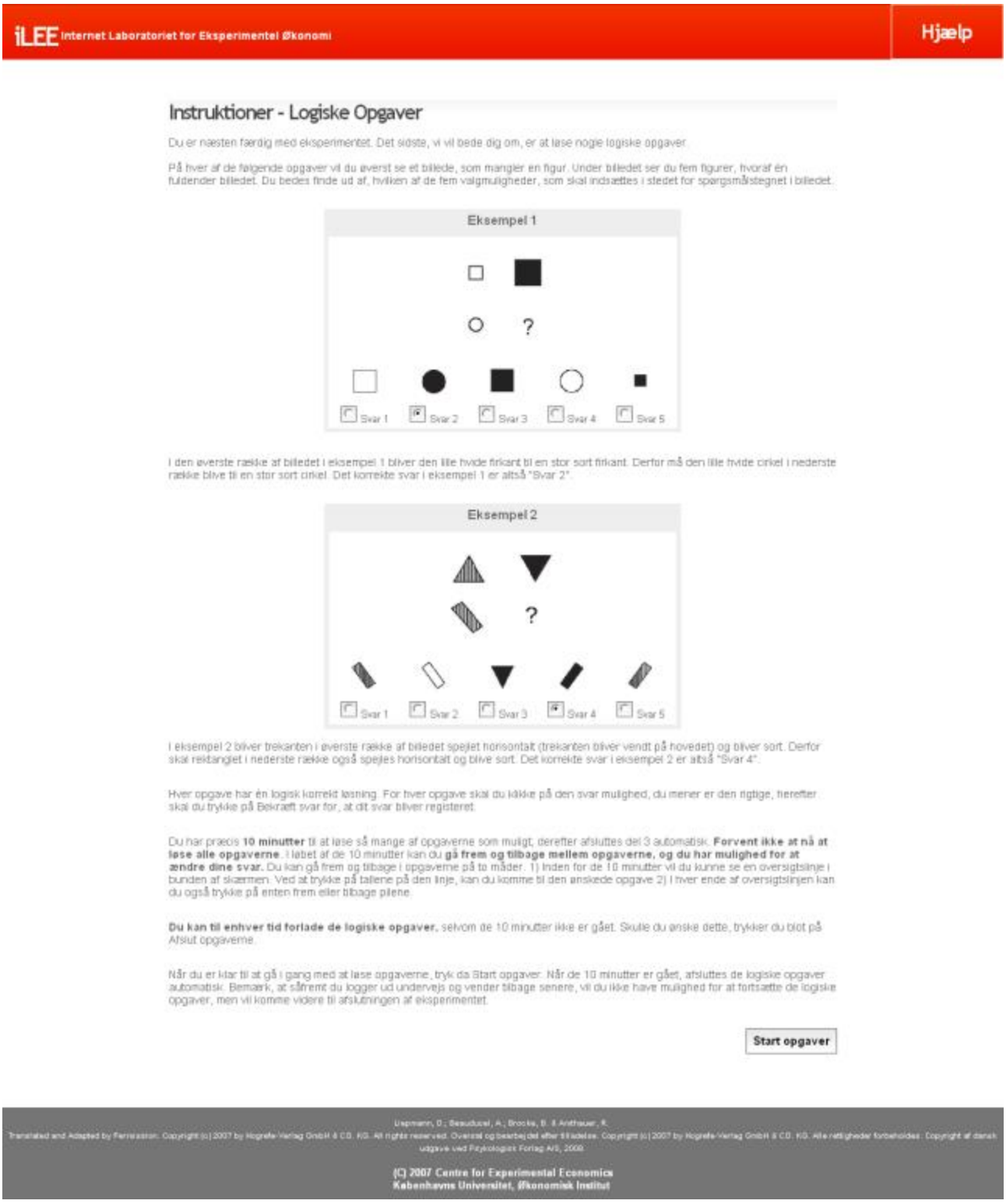
Disagree a lot Disagree Neutral Agree Agree a lot

…..

Disagree a lot Disagree Neutral Agree Agree a lot

Confirm your decisions

4.54 Screenshot: Raven progressive matrices – instruction



4.55 Translation: Raven progressive matrices – instructions

Instructions - Logical problems.

You are almost done with the experiment. The last thing we ask you to do, is to solve some logical problems.

At the top of each of the following problems, you will see a picture that misses a figure. Below the picture you will see five figures, one of which completes the picture. Please decide which of the five possible answers should be inserted instead of the question mark in the picture.

Example 1

In the top row of the picture in example number one, the small white square becomes a big, black square. Thus the small white circle in the bottom row should become a big, black circle. The correct solution in example 1 is therefore "Answer 2"

Example 2

In example 2, the triangle in the top row is mirrored horizontally (the triangle is turned upside down) and colored black. Thus, the rectangle in the bottom row should also be mirrored horizontally and colored black. The correct solution in example 2 is therefore "Answer 4"

Each problem has one logical solution. In each problem, you have to click on the answer you believe to be the correct one, and then press Confirm Solution for your answer to be registered.

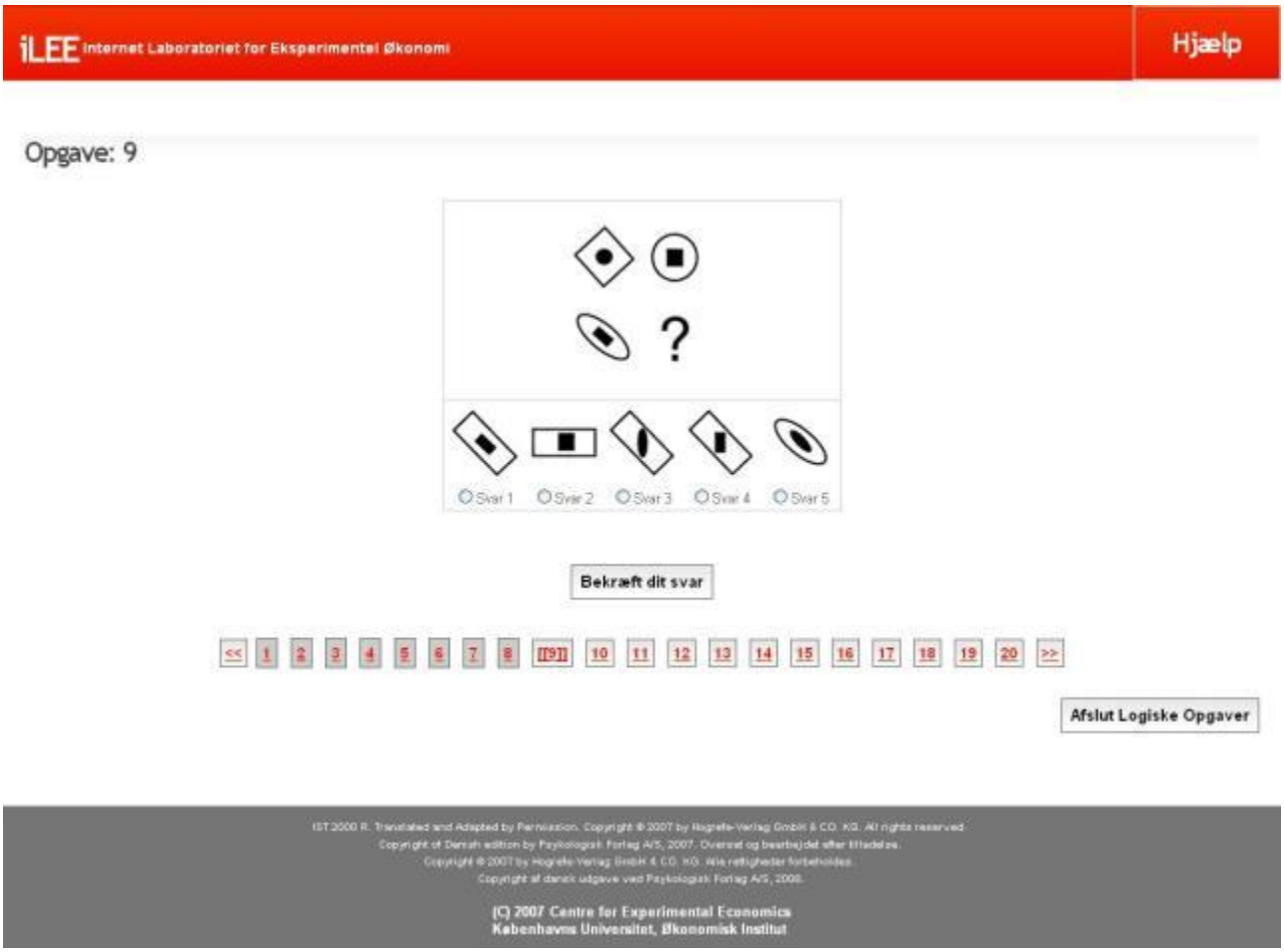
You have exactly **10 minutes** to solve as many of the problems as possible, and then part 3 will finish automatically. **Do not expect to solve all the problems**. During the 10 minutes, you **can skip back and forth between the problems and you can change your answers.** You can skip between the problems in two ways. 1) During the 10 minutes you will see an overview line at the bottom of the screen. By pressing the numbers on that line, you can jump to the desired problem. 2) At each end of the overview line, you can either press the forward or back arrows.

You can leave the logical problem anytime you wish, even though the 10 minutes have not passed. Should you wish to do so, just press Finish Problems.

When you are ready to start solving the problems, press Start problems. When the 10 minutes have passed, the problems will end automatically. Note that if you log out on the way and return later, you will not be able to continue the logical problems, but will be taken to the end of the experiment.

Start Problems

4.56 Screenshot: Raven progressive matrices – decision (Example of 1 out of 20)



4.57 Translation: Raven progressive matrices – decision (Example of 1 out of 20)

Confirm your answer

<< 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20 >>

Finish Logical Problems