# Bias in a Blink <br> In Search for the Lower Bound of Self-Serving Bias 

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#### Abstract

Self-serving bias is a phenomenon describing how people conflate what is fair with what benefits one self. It is a source to inefficiency through bargaining impasse. In this thesis we aim to present an experimental design that has a cleaner setup and is easier to replicate than the leading experiment conducted by Babcock and Loewenstein for the first time in 1993. We find that with our setup, the same self-serving bias can be induced in judgement of fair outcomes. The evidence is not however strong enough to statistically prove how this further causes impasse to negotiations. We contribute to the research field by showing the lower bound for the conditions under which self-serving bias occurs. A second contribution new to the field is that those who are most likely to be self-serving biased are the unprivileged parts in negotiations.


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## 1. INTRODUCTION

### 1.1. Background and previous research

Bargaining impasse is costly to the economy and a source to inefficiency in negotiations.
Examples range from pre-trial negotiations to situations in every-day life. Much research has been focusing on trying to explain the reason to such bargaining impasse. At first inefficient outcomes in bargaining was believed to originate from asymmetric information (de Finetti, B. (1964)). This view has later been revised when the phenomenon of self-serving bias was discovered. Even in situations where both parties share the exact same information, the information is likely to be interpreted in a biased way and thereby making the negotiating parties unable to agree. In other words, despite sharing the same information, they differ in their judgement of fair outcomes (from now on JFO) and therefore fail to settle.

Much psychological research has proven the existence of such self-serving biased judgements. When husbands and wives are asked to state what fraction of the various household tasks they are responsible for, the married couples estimations most often sum to more than 100 \% (Ross, M. \& Sicoly, F. (1979)).

There has also been a lot of research on this phenomenon in the economics field, such as by Babcock L., Loewenstein G. (1997), Babcock \& Loewenstein et al. (1995), Konow (2000), Roth \& Murnighan (1982) and Wang (2010). The early experiments by Roth and Murnighan showed that self-serving bias prevailed in a game where two parts were to split 100 lottery tickets between them. They were assigned one of two roles; A got $\$ 20$ if winning and $B$ got only $\$ 5$. It turned out that if both parts knew their role when they negotiated over the 100 tickets, the impasse rate rose from 12 to 22 percent - indicating a self-serving bias. However the setup of this experiment did not isolate how self-serving bias in JFOs causes impasse in negotiation.

In order to understand this causality, Babcock \& Loewenstein et al. (1995) and Babcock \& Loewenstein (1997) (the former from now on referred to as BL), did experiments where a court trial negotiation on compensation for an accident was to be decided. The subjects did some extensive reading-in on the case where they got to play the role of either plaintiff or defendant and were encouraged to settle on a fair compensation. If the parties did not reach an agreement the outcome would be decided by a third part and each side would have to pay costly fees for this. BL found that both sides became self-serving in their JFOs, causing impasse in the negotiations.

In this thesis we will further examine the nature of the self-serving bias found by BL. We will use their definition; "to conflate what is fair with what benefits oneself". This definition focuses on the word fair; a word which in itself comes with a notion of an outcome that would be suggested by a third party and also one that would be accepted by both conflicting parties.

Thus, both parties in a negotiation would see their view as the objective fairness that a just third party with the same information would agree on. If both parties are self-serving biased it would cause them to find each other unfair and selfish. The two parties' different opinions would conflict; if they were set to negotiate this could lead them not being able to settle to an agreement.

The BL-experiment was successful in capturing how self-serving bias cause impasse in negotiations. However, their experiment has shortcomings. As they mention in their paper: "in our study we broke with this tradition [of removing any context (the common practice in economics experiments)] and presented subjects with a detailed rich natural context". Their experiment in this way becomes very complex and hard to replicate in its extensive nature.

### 1.2. Main purposes

Our experiment has two main purposes. First, we want to carry out an experiment on selfserving bias that is easier to replicate than the BL-experiment. We want to conduct an experiment that neither requires a complicated lawsuit nor heavy loads of material for the participants to read.

Second, we want to find if self-serving JFOs and its effect on bargaining impasse can be induced also in a clean and less extensive experiment setting. BL mean that self-serving bias gets stronger the more information the parties in the negotiation get. They get more emotionally involved and can easier identify with the role they are assigned. In our experiment we have in contrast searched to minimize the information the participants had to read through and did not seek to affect them in any emotional way more than what the clean facts of the experiment and the rules of the negotiation did by it-self. We tried to construct the easiest set-up where self-serving JFO still could be detected. If this easy set-up induces self-serving JFOs and bargaining impasse it would contribute to previous research by showing how little needs to be done to induce the effect. If the experiment fails to induce self-serving behaviour, it is a starting point to where new research can add more of information and emotional involvement to the experiment in order to find the limit of how much is needed to induce it.

## 2. EXPERIMENTAL DESIGN

### 2.1. Overall procedure

The experiment was conducted at one point in time. The participants were students from Stockholm, mainly from the Stockholm School of Economics. All together 94 people participated in the experiment, 30 percent were women. ${ }^{1}$

```
BL Babcock & Loewenstein's paper from }199
JFO Judgment of Fair Outcome
A Privileged group
B Unprivileged group
C Control group
T Treatment group
JFO favouring A
JFO favouring B
```

The subjects were divided into two equally sized main groups, A and B, and were separated into two rooms. A- and B-subjects were numbered pair-wise and will here forth be called each other's counterparts. Subjects were randomly set to the different rooms and into pairs and they knew nothing about who were their counterpart or any of the arrangements except for which room they were set to.

### 2.2. View of fairness

Subjects in $A$ and $B$ were told to open their envelopes to read the first instructions, which were exactly the same for both A and B. From the instruction they got to know that they would share 100 kr with a counterpart in another room, one of them would get 70 kr (A) and the other $30 \mathrm{kr}(\mathrm{B})$, still unknown whom to get what amount. On the same instruction sheet they were told that they on top of that would get to share an additional 100kr with that same counterpart, divided between them according to a bargaining they would later conduct. The rules of the bargain were then described.

Subjects were then told to write down which division between $A$ and $B$ of these additional 100kr they found would be the most fair. It was stressed how this would not affect the actual division of the additional 100kr. From the setup we assumed that participants would choose one of the two following alternative JFOs:
a) 50 kr to A and 50 kr to B to make the amounts (when excluding the initial guaranteed amounts) for the two counterparts to equal the same
b) 30 kr to A and 70 kr to B to make the total amounts (when including the initial guaranteed amounts) for the two counterparts to equal the same

[^1]The intent was that the question of whether to include or exclude the initial guaranteed amounts would be unobvious enough to get variation in the responses. Also, the purpose with these two options was that the two alternatives clearly would favour one of the two different counter-parts; the $a$-option favouring A, the $b$-option favouring B .

### 2.3. Belief about other's JFOs

We did not want to cause confusion by asking both what is fair and what an objective third part would judge fair, as was done in the BL experiment. As stated earlier we believe that when answering to what is most fair one makes a judgment that one believes a third and objective part would agree on. To have an additional question about what an objective third part would judge would therefore be confusing and presumably induce the subjects to think of the questions differently and answer them in different ways. Despite this inducement, the BL-experiment did not show any significant differences between the two questions.

Instead we added another interesting part to the experiment, with the purpose of clarifying what subjects believed about their counterpart's self-serving bias. Once having answered to the first question about their own JFO, the subjects were told to write down what they thought was the average of what all subjects, in their and their counterpart's room (A and B), had answered to that first question. The subjects in our experiment were further told that if they had guessed the correct average (within a difference of $0,05 \mathrm{kr}$ ) they would be given an additional 100kr, this in order to give an incentive to thoroughly think through the question and guess accordingly.

### 2.4. Bargaining

When all subjects' answers to both the questions had been collected they were told to open a small envelope inside the bigger envelope. In this small envelope they could read which of the two roles, A or B, they had been given. Once they knew they got to write down what offer they wanted to give in the bargaining of which the rules earlier had been described. The offers were collected and money was handed out corresponding to the role they had been assigned and to the outcome of the bargaining with their counterpart. ${ }^{2}$ The bargaining was designed to be as clean as possible, not having the counter-parts to interact making negotiation-skills affect the outcome. In contrast to BL, our experiment has two clear options ( $a$ and $b$ ) for the subjects to choose between, why the parts are aware of the other's options so that they do not have to "feel in" their counterpart through multiple negotiations. One

[^2]offer is therefore enough, simplifying the experimental design without affecting the results in a negative way.

Further, the rules of the negotiation was set so there would be room for self-serving nonrewarding from the A-subjects, and costly punishing by strong self-serving beliefs from the Bsubjects. Subjects were told to give their counterpart an offer of how much that person could get of the 100 additional kr. If the two counterpart's offers summed to less than 100kr, both of them would get only an additional 30 kr . If they summed to 100 kr or more it would be the highest, most generous, offer that would be used to split the amount.

We assumed that all subjects would make offers in accordance with the two JFOs, $a$ or $b$, stated in section 2.2. Also we assumed that subjects realized that their counterpart would also judge according to one of the same two alternatives. From these assumptions we can draw a payoff matrix and find that the Nash-equilibrium, independent of what probabilities the participants set to their counterparts offer, is that both A and B play according to $a$. Thus the Nash-equilibrium outcome is that $A$ and $B$ get an additional 50 kr each to the initial amounts being guaranteed to them.

## Payoff-matrix and Payoff calculations for $A$ and $B$

| $B A$ | b | a |
| :---: | :---: | :---: |
| b | $\begin{aligned} & 30 \\ & 70 \end{aligned}$ | $30$ |
| a | $\begin{aligned} & 30 \\ & 70 \end{aligned}$ |  |

Figure 1: Matrix showing payoffs for $A$ and $B$ depending on their choices to offer according to $a$ and $b$, with the unique Nash-equilibrium of both offering according to $a$.

However, there is large evidence of that people take other things into consideration than their own expected payoff when determining their strategy. Views and importance of fairness is

$$
\begin{aligned}
& E B(a)=P(A=b) * 70+P(A=a) * 50 \\
& E B(b)=P(A=b) * 70+P(A=a) * 30 \\
& \quad \Rightarrow E B(a)-E B(b)=P(A=a) * 20
\end{aligned}
$$

$$
\begin{aligned}
& E A(a)=P(B=b) * 30+P(B=a) * 50 \\
& E A(b)=P(B=b) * 30+P(B=a) * 30 \\
& \quad \Rightarrow E A(b)-E A(a)=P(B=a) * 20
\end{aligned}
$$

Calculation 1: Showing the probability weighted expected payoffs for A and B depending on their choice of offer (according to $a$ or $b$ ). For both roles the expected payoff is higher when offering according to $a$, making this the unique Nashequilibrium.
something that can make people willing to punish or reward the other player, even at a personal cost (Roth \& Murnighan (1982), BL). In this way, people's utility functions gets more complex than only including their own expected payoff and extends to involve upholding fairness/the payoff of the other player.

The setup allows subjects in the A-groups to, if they want, be sure to divide the money according to $b$, the fair-outcome option least favourable to A and most favourable to B. If A offers 70 kr (as the $b$-option states), the offer would go through regardless of whether the Bcounterpart offer according to $a$ or $b$. If A on the other hand agrees to $a$ and offers 50 kr , it succeeds only if $B$ offers according to the same alternative $a$, and $A$ is left with 30 kr if $B$ offers in line with $b$. The conclusion of this discussion is that A can, at a cost of $\mathrm{P}(\mathrm{B}=a)^{*} 20$ in expected payoff (see calculations above), reward the counterpart and obtain the JFO $a$. By doing so A also assures that the most "socially optimal" result is obtained, meaning that the highest total amount gets shared ( 100 kr ). It is obvious that for A , agreeing to the $a$ alternative and offer accordingly is the most self-serving.

Similarly, subjects in the B-groups they can, if they want, be sure to make their Acounterpart get only the share of 30 according to the B-self-serving JFO $b$. By offering A 30 kr , A would get 30kr independently if A offers according to $b$ or $a$. B's incentive to offer according to $b$ would be a certain punishment to the A-counterpart in the case that that counterpart offers in the self-serving way, $a$. This punishment costs $\mathrm{BP}(\mathrm{A}=a)^{*} 20$ in expected payoff. One can also say that it costs $B$ a certain 20kr only in the case $B$ has to go through with the punishment, and nothing in case A has offered according to $b$. For B to choose $b$ it takes that $B^{\prime}$ s feeling for what is fair also is what is most favorable for $B$ him/herself (which is b). If this feeling is strong enough $B$ could even be willing to punish the $A$-counterpart at an own personal cost in order to ensure that $A$ does not get more than his/her fair share. From this the set-up makes those in the B-groups who are most self-serving in their view of fairness to offer according to the $b$-alternative.

The set-up is slightly asymmetric in the options facing the two counter-parts. A-subjects have the option to take on a personal cost to offer in a non-self-serving biased way, $a$, while B subjects have the option to take on a personal cost to offer in a self-serving biased way, $b$. If A-subjects are self-serving biased they will choose not to take on this personal cost, while Bsubjects who are self-serving biased enough will choose to take on this personal cost. As a result, B-subjects have slightly less incentives to offer in the self-serving biased way. This asymmetry exists only in the negotiation-part of the experiment and not in the part where subjects make their JFOs.

### 2.5. Treatment and Control groups

With this experimental set-up JFOs and offers can be valued as more or less self-serving. Therefore we can, in the next step, see if letting subjects know already from the beginning which group they belong to can induce a bias. Therefore the experiment was done to two different groups (at the same time), the Control group, C, and the Treatment group, T. Subjects in C were exposed to the treatment described above. Subjects in T were exposed to almost the exact same treatment, except for being told from the very beginning which of the two roles, A and B, that had been assigned to them. In this way the experiment gets the same type of difference between C and T as in the BL-experiment; C -subjects are put into a situation where they first get to consider the setup from an objective point of view, without knowing their own role, while T-subjects are set in a subjective position where they read the rules of the negotiation while knowing their own role. With this experimental design it can be tested, similarly to the BL-experiment, how JFOs are affected by interpreting information in a subjective or objective way. If it could, then subjects with the A-role would to a larger extent agree to $a$ in T than in C, and subjects with the B-role would to a larger extent agree to $b$ in $T$ than in C . It can also be tested if T -subjects believe that their counter-parts are selfserving biased in their JFOs to a larger extent than C-subjects. Last, it can be tested if JFOs affect offerings in a negotiation; whether reading a paragraph of the rules after rather than before one knows ones own part in that negotiation, could induce the same kind of selfserving bias.

## 3. HYPOTHESES

### 3.1. General approach

The hypotheses that we want to test are based mainly on the findings of the BL experiment. Even though there is less chance to detect self-serving bias in our experiment because of the less extensive nature of the experiment the fundamental mechanisms are the same. We believe to find self-serving bias in the JFOs and that subjects see this self-serving bias in others, as was found by the BL experiment. We also believe to find the self-serving bias effect in the bargaining offers.

In this text under section 3, all letter-references refer to 3.6. Hypotheses - tests, where the technical equivalents of the hypotheses are stated.

### 3.2. Main-hypothesis 1

There will be a self-serving bias in the JFOs

This hypothesis states that there will be no difference between what C-subjects judge as a fair outcome (a) but that T-subjects on the other hand judge the fair outcome in favour of themselves (b). This will also be seen in how T judge higher outcomes to their own party than does $C$ (c.i), c.ii)).

### 3.3. Main-hypothesis 2

Subjects believe that others are self-serving in their JFOs

Unaware of their roles, C-subjects have no reason to be influenced by it in their beliefs about others' JFOs (d). The T-subjects in contrast, have reason to believe in biased JFOs of their counterparts (e), f)). As discussed (see introduction), what the participants say is the fair outcome is the same as what they believe is objectively fair. If they believe that their counterparts' judgments differ from this in a direction favouring them-selves, they also believe that their counterparts are self-serving biased. This difference would be bigger in $T$ than in C, since subjects in $T$ have reason to believe that their counterparts are self-serving biased (g.i), g.ii)).

### 3.4. Main-hypothesis 3

Even though subjects can deviate from their JFOs when making offers in order to maximize their own payoff, there would be a self-serving bias in how much participants offer in the negotiation, related to the self-serving bias in JFOs

We believe that subjects will not always be willing to bare the loss in expected return when offering in the negotiation just to reach their JFO (h.i), h.ii)). Still, we believe that some people will be willing to take on this personal cost and that the JFOs will affect offers somewhat. To the extent it does, self-serving bias in earlier JFOs will induce self-serving bias in offers in the bargaining in this experiment. Even though participants in C and T have the same information and both know their roles at the time of the negotiation, subjects in C have been forced to make a JFO from an objective perspective. If subjects take into account their JFOs when making offers in the negotiation, C would offer less than T in accordance with the self-serving bias of JFOs (j.i), j.ii)). This would also be manifested in a higher rate of impasse in the negotiations within $T$ than within $C(k)$.

### 3.5. Glossary for abbreviations in regressions and tests

| A | Privileged subject who starts off with 70 kr |
| :--- | :--- |
| B | Unprivileged subject who starts off with only 30 kr |
| CA | subject in the control-group who got role A |
| CB | subject in the control-group who got role B |
| TA | subject in the treatment-group with role A |
| TB | subject in the treatment-group, whith role B |
| fairA | what the subject said would be the fair amount to give to A |
| fairB | what the subject said would be the fair amount to give to B |
| ofairA | what the subject believed others in the control/treatment-group to think would be the <br> fair amount to give to A |
| ofairB | what the subject believed others in the control/treatment-group to think would be the <br> fair amount to give to B |
| off | what the subject offered its counterpart in the negotiation <br> rimp <br> Rate of impasse, meaning number of pairs where offers did not sum to 100 divided by <br> total number of pairs <br> In our regressions we sometimes combine different shortings. For example TBofairA would <br> represent what a person in the treatment group, given the role B, believe that the others in the <br> treatment group would think is the fair amount to give A. |

### 3.6. Hypotheses - tests

|  | $\begin{aligned} & 3 \\ & \frac{3}{9} \cdot \\ & \hline 1 \end{aligned}$ | Regression/test | Motivation |
| :---: | :---: | :---: | :---: |
| a) | 1 | CAfairA - CBfairA $=0$ | Both parts have the exact same information, unaware of their respective roles |
| b) | 1 | TAfairA - TBfairA > 0 | Both parts have identified themselves with their role early and adjust their JFO in a self serving way |
| c.i) | 1 | CAfairA - TAfairA < 0 | A-subjects in T have identified themselves with their role early and adjust their JFOs in a self serving way (see b)), while A-subjects in C are unaware of their role and their JFO is equivalent to what an objective part would have done (see a)) |
| c.ii) | 1 | CBfairA - TBfairA > 0 | Same as above (c.i)) holds for B |
| d) | 2 | CAofairA - CBofairA $=0$ | Both parts have the exact same information, unaware of their role |
| e) | 2 | TBofairA - TAofairA > 0 | B-subjects in T will believe that A are self-serving in their JFOs by on average suggesting a high share to $A, a$, while A-subjects in T will believe $B$ to be bias in their JFO by suggesting a smaller amount to $A, b$. This will affect what they believe of the average of all others' JFOs |
| f) | 2 | (TBofairA - TAofairA) - (CBofairA - CAofairA) >0 | Holds true if d) and e) holds true |
| g.i) | 2 | (CAfairA - CAofairA) - (TAfairA - TaofairA) < 0 | A-subjects in T will believe that the average of others JFOs is less in favor of A than their own JFO (which we assume they find is the objective JFO), because they take into account that B-subjects are selfserving in their JFOs. However, this is not true for $C$ since they are unaware of who has which role. If there is a systematic estimating of others JFOs over/under the personal JFO, this is controlled for by using the same difference in C. If there is an effect of seeing others as self-serving biased, the average of the difference between the JFO in the A-group and what they believe of others JFO, would be greater in T than in C . |
| g.ii) | 2 | (CBfairA - CBofairA ) - (TBfairA - TbofairA) > 0 | For the B-groups the same holds as above (g.i) but in the opposite direction. B-subjects in T will believe that their counterparts are self-serving, causing the belief of the average of others JFOs to be more in favor of A than their own. The difference would then be smaller in the TB-group than in the CB-group. |
| h.i) | 3 | Aoff - AfairB < 0 | When making an offer in the negotiation we believe that people on average will deviate from their JFOs in order to maximize their expected payoff, both in C |


|  |  |  | and T. |
| :--- | :--- | :--- | :--- |
| h.ii) | 3 | Boff - BfairA $>0$ | Same holds true as above (h.i)) but for the B-groups |
| j.i) | 3 | CAoff-TAoff >0 | A-Subjects in C have not from the beginning been <br> affected by any self-serving bias (see a)) and would <br> early in the experiment have been forced to think of <br> the situation from both parties sides. When making <br> the offer they still have this consideration and JFO in <br> their mind. In T, on the other hand, they have <br> already made their JFOs in a self-serving way (b)) <br> and make their offer based on that. If it is true that <br> there is a self-serving bias in JFO and that this view <br> holds and affects the bargain, Cmwould give higher <br> offers than T. |
| j.ii) | 3 | CBoff- TBoff >0 | Same holds true as above (j.i)) but for the B-groups |
| k) | 3 | Trimp-Crimp $>0$ | In The rate of impasse in the negotiation would be <br> higher than in C due to the lower offers caused by <br> the earlier induced self-serving bias in JFOs |

## 4. STATISTICAL CONSIDERATIONS

As described in the section Experimental Design and Procedures the nature of our experiment encourages people to take on one of two different views on JFOs, resulting in the samples being often far from normally distributed. Therefore we use parametric regressions and t-tests as well as non-parametric bootstrapping and the Mann-Whitney Utest to make inference. In the results table we show both $p$-values obtained when regressing on bootstrap estimation samples, regular regressions and t-tests approximating normality via the Central Limit Theorem and the test-results from Mann-Whitney U-tests.

The bootstrap figures are theoretically more reliable, and therefore the ones to pay the most attention to, since bootstrapping approximate the distribution function of the population using the actual sample. For this to be fully correct it requires the distribution of the observations to be identical to the actual population, something we cannot be fully sure of. When using bootstrap we have done 5099 resamples in each regression of equal size to the original sample, in line with standard procedures.

The Mann-Whitney-U-statistics is reliable in the sense that it is also non-parametric. However, it is least accurate since it only ranks the results and does not fully use the values in the tests. We therefore have reported the Mann-Whitney results last in the result-table.

The three test-statistics are fundamentally in line with each other and can be seen as complements, even though most focus should be on the bootstrapping tests.

Since our hypotheses have been clearly based on the BL experiment and we have no reason to believe that our set-up would work in the opposite direction we have tested the hypotheses that have been stated in line with those of BL against a one sided alternative.

## 5. RESULTS

### 5.1. Overall findings

To confirm that there was two clear options of JFO, neither too obvious, we saw that 68,1 percent ( 64 subjects) made a JFO according to $30-70$ and 22,3 perscent ( 21 subjects) made a JFO according to 50-50. 9,6 percent ( 9 subjects) agreed to various other distributions. More general results can be found in APPENDIX B: Summary statistics.

In this text under section 5, all letter-references refer to 5.5. Results - tests, where the technical equivalents of the results including all statistics are stated.

### 5.2. Results to main-hypothesis 1

The results show a self-serving bias in JFOs in the B-group, but not in the A-group

As we could expect, there was no difference (a highly insignificant one in the opposite direction of self-serving bias) between the JFOs of $A$ and $B$ in $C$ (a)). In $T$, this difference was in the direction of a self-serving bias (b)) (significant at 5.95\% using bootstrap and 6.5\% assuming normality). However, the bias in the Treatment-group is not attributed to bias in the A group (c.i)) (highly insignificant) but rather to bias in the Treatment B-group (c.ii)) (significant at $5.05 \%$ using bootstrap and $5.38 \%$ assuming normality)

### 5.3. Results to main-hypothesis 2

The results show that subjects in the B-group believe that others will make JFOs more favourable to $A$ than the $B$-subjects own JFOs, clearly implying they believe that $A$ subjects are self-serving in their JFOs. The same is not true for the A-group

As we could expect, there was no difference (highly insignificant) between what $A$ and $B$ think of the average of other's JFOs in C (d)). The small difference in this aspect for T was in the opposite direction of believing others to be self-serving biased, though highly insignificant. To further investigate the difference between these two results above, therefore becomes unnecessary ( f )). However, the results from the regressions of the differences between subjects own JFOs and what they believed of others' JFOs pointed in a direction of subjects believing in others to be self-serving biased, true for both the A and the B-groups (g.i) and g.ii)). Since these results are inconsistent with what we saw in e) we made
further tests to examine the reason. From these it can be seen that there are no significant differences between subjects JFOs and beliefs of others' JFOs in neither of the Controlgroups (*g.iii), *g.iv)), which also we had no reason to believe. The slight negative difference in the Control A-group (*g.iii), however, caused the result in (g.i)) to be significant. Asubjects in T on average seem to believe that others' JFOs would be even more in favour of $A$ than the A-subject's own JFOs (*g.v)), in contrast to what we hypothesized, though this tendency is insignificant ( $25.57 \%$ assuming normality and 19.04\% using bootstrap). For Bsubjects in T there was a significant difference showing that these subjects believed that other's JFOs on average favoured A to a larger extent than the B-subjects' own JFOs (*g.vi)) (significant at $4.16 \%$ assuming normality and $6.05 \%$ using bootstrap). The conclusion is thus that only subjects in the B-group believed others to be self-serving in their JFOs. The reason for why test e) was pointing in a direction opposite to what we hypothesized is thus because the A-subjects in T were not affected by any such beliefs about their counterparts.

### 5.4. Results to main-hypothesis 3

> Even though subjects on average are more concerned about their own expected payoff than their JFO, the results point in the direction that forcing subjects to consider the set-up from an objective view and make a JFO makes them more generous than subjects who has made a JFO knowing their role from the beginning. This also manifests in a slightly higher rate of impasse in $T$.

As we hypothesized, there is a significant difference in what subjects offer and their JFOs, showing that many are willing to sacrifice a fair outcome in order to maximize their own expected payoff (significant at $0.000 \%$ both when assuming normality and when bootstrapping for both A and B, C and T taken together (h.i), h.ii)). Still, valid for both the Aand $B$-groups, subjects in $T$ on average offer less than subjects in $C$, suggesting that the objective JFOs of C-subjects have an effect even when they know their role and make their offer (j.i), j.ii)). The differences are however not significant (for A: 31.35\% using bootstrap, $34 \%$ assuming normality. For B: $37.05 \%$ using bootstrap and $37.75 \%$ assuming normality).

The effect of self-serving bias in offers can further be seen in a higher rate of impasse for $T$ (k). The impasse rate rose from $10 \%$ when subjects had read the information not knowing their role, C , to $20 \%$ when both parts knew their role from the beginning, T . (The increase significant at $18.45 \%$ using bootstrap and $16.46 \%$ assuming normality.)

### 5.5. Results - tests

(If the hypothesis is stated as a one-tailed test, the p-value is given for a one-tailed test)

|  |  | Regression/test | Difference | Using bootstrap | P-value using normality assumption of population | Mann-Whitney |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| a) | 1 | CAfairA - CBfairA $=0$ | - 0.4761905 | 0.863 | 0.8672 | 1.000 |
| b) | 1 | TAfairA- TBfairA > 0 | 3.269231 | 0.059 | 0.0650 | 0.116 |
| c.i) | 1 | CAfairA - TAfairA < 0 | 0.03663 | 0.989* | 0.989* | 0.9198* |
| c.ii) | 1 | CBfairA - TBfairA >0 | 3.782051 | 0.0600 | 0.0538 | 0.1258 |
| d) | 2 | CAofairA - CBofairA $=0$ | 4.582381 | 0.156 | 0.161 | 0.1177 |
| e) | 2 | TBofairA - TAofairA > 0 | -2.297308 | 0.3230* | 0.336* | 0.1947* |
| f) | 2 | $\begin{aligned} & \text { (TBofairA - TAofairA) - } \\ & \text { (CBofairA - CAofairA) > } 0 \end{aligned}$ | Not interesting since e) is in the wrong direction |  |  |  |
| g.i) | 2 | $\begin{aligned} & \text { (CAfairA - CAofairA) - } \\ & \text { (TAfairA - TAofairA) < } 0 \end{aligned}$ | -1.749488 | 0.3185 | 0.314 | 0.20095 |
| g.ii) | 2 | $\begin{aligned} & \text { (CBfairA - CBofairA) - } \\ & (\text { TBfairA }- \text { TBofairA) }>0 \end{aligned}$ | 4.281996 | 0.0395 | 0.048 | 0.1619 |
| * g.iii) | 2 | CAfairA - CAofairA $=0$ | -4.00619 | 0.235 | 0.2242 | 0.0897 |
| *g.iv) | 2 | CBfairA - CBofairA $=0$ | 1.052381 | 0.679 | 0.5455 | 0.6950 |
| * g.v) | 2 | TAfairA - TAofairA > 0 | -2.257692 | 19.04* | 0.2558* | 0.341 |
| * g.vi) | 2 | TBfairA - TBofairA < 0 | -3.229615 | 0.0605 | 0.0416 | 0.0347 |
| h.i) | 3 | Aoff - AfairB < 0 | -6.978723 | 0.0000 | 0.0000 | 0.0001 |
| h.ii) | 3 | Boff - BfairA > 0 | 15.26596 | 0.0000 | 0.0000 | 0.0000 |
| j.i) | 3 | CAoff - TAoff >0 | 1.043956 | 0.3395 | 0.34 | 0.20925 |
| j.ii) | 3 | CBoff - TBoff $>0$ | 0.7188645 | 0.3725 | 0.3775 | 0.4568 |
| k) | 3 | Trimp - Crimp > 0 | 0.0952381 | 0.1845 | 0.1646 | 0.12635 |

*Results point in opposite direction of what was hypothesized whereby double-sided pvalues are given

## 6. DISCUSSION

### 6.1. Analysis of results and economical implications

In line with previous research (BL, Konow (2000) etc.) our results show a self-serving bias in JFOs. It is worth noting that even if self-serving bias is said to increase with a rich context and emotional involvement, as stated by BL, we created this bias in a very clean environment and did not require the subjects to be very emotional involved. Thus, self-serving bias occur already at very low levels of involvement. This is something that is very important when trying to understand why people do not reach agreements. Furthermore the results imply that people who enter negotiations from an unprivileged position are the ones who are affected by self-serving bias. Meanwhile, they are also the ones believing that it is the privileged who are self-serving biased, which we find no support for. Put in a unprivileged position people thus seem to get self-serving and hostile (paranoid) demanding more than an objective part would say that they should.

When looking at how the self-serving bias in JFOs affects people's behaviours in a negotiation the evidence is not strong enough to statistically prove that either part are affected by reading the material subjectively. This can be explained by how in this experimental set-up subjects had to sacrifice quite a lot of expected payoff in order to enforce fair outcomes. We also found strong support for how this big sacrifice affected them not to offer in line with their JFOs. Still, our results imply that people who are not forced to consider a situation from an objective point of view have a slight tendency to be more selfserving when negotiating than those who have. This tendency prevails no matter which bargaining position you are in.

The evidence of only the unprivileged being self-serving biased in JFOs does not fully cohere with the implication of both unprivileged and privileged being self-serving biased in their offers. This would imply that perhaps impasse in negotiations does not have such a tight causal relation with self-serving JFOs after all. A more plausible explanation would be the asymmetry between the choices to offer in a self-serving biased way that face $A$ and $B$, as discussed in Experimental Design. B has less incentive than A to offer according to what is self-serving biased. This would lead relatively more offers in the B-group being non-selfserving biased, even when JFOs are self-serving biased, than for the A-group, which could explain the somewhat incoherent finding.
With this experimental setup it is difficult to avoid that asymmetry. It can be argued that if one finds equal rates of self-serving biased offers for the A- and B-group, the B-group is really even more strong in their self-serving bias, even accepting a personal cost to enforce
their counter-part not getting more than according to the B-subject's JFO. This would be the case in our findings.

From the discussion by BL and previous researchers a factor that increases the risk of selfserving bias is emotional involvement. A possible explanation to why we only see subjects who have been set in an unprivileged role to be self-serving in their JFOs could be that they get more emotionally involved. It can easily be argued that a feeling of having been treated unjust in a negative way induces more emotional involvement than a feeling of being unjustly treated in a positive way. Another explanation to why the unprivileged group is more concerned about the outcome and become more biased in their JFOs could be diminishing marginal utility. For the privileged group it is not a big matter if they succeed to gain more - in our experiment they have already gotten a big share of what is the total outcome in this little economy. For the other group, a little bit more means relatively a lot and they become eager to claim their right.

Either way, our results point in the direction that bias in JFOs can be laid upon one of the two opposing parties when conducting the experiment in our setup. Previous experiments have not had clear privileged and unprivileged roles and therefore not allowing for this to be seen. A new finding to the field from our experiment is thus; being negatively treated generates irrational hostility, while being positively treated does not seem to generate any irrational greed.

This has got important real-life implications, since it is not unusual that two negotiating counterparts emanate from unequal beginnings. One can easily imagine a number of negotiations in real life where one of the counterparts starts from a position clearly disadvantaged. If transferred to these real-life situations our results could be interpreted as follows: it is the unprivileged, poor or ill-treated part that causes impasse and inefficiency in negotiations due to their bias in what is a fair outcome.

One implication could be that simply forcing people to fully think through a situation from an objective point of view, meaning that they could be either role, could reduce the number of inefficient impasses in negotiations. And it seems even more important to make people who are in an unprivileged position to think about the situation from the other party's side. Doing so could make JFOs between two parts in a negotiation to better consort, causing fewer impasses in negotiations.

On the other hand, one could also argue that the self-serving bias of unprivileged groups has a good reason and should not be fought. If the unprivileged have a strong feeling of having
been treated unjustly this may work as a force to persuade their counterparts to move their direction. It could be seen as a commitment strategy, which the privileged recognize. This would not lead to more impasses but rather a shift in the outcomes in favour of the unprivileged, resulting in resources being more equally allocated. Such out-comes could potentially have positive effects, beyond the scope of this thesis, perhaps motivating the existence of self-serving bias of the unprivileged.

### 6.2. Validity of the results, experiment refinement and future research

There are some concerns to the validity of the results and to how future research could be designed to increase the knowledge in the field.

A first clear improvement to be done to the experimental design is in the second question to the subjects; about their belief of the average of all subjects JFOs. To only capture the belief of the counter-parts' self-serving bias the best would be to ask what they thought of the average of the counterpart's JFOs.

A second consideration about the experimental set-up is the different incentives facing the A- and B-role to offer according to self-serving biased JFOs. In our experimental setup, Bsubjects even face a loss in expected payoff when offering according to a self-serving view. If this loss could be less/eliminated, perhaps more self-serving bias could be induced also in offers. One alternative would be to set the initial certain amounts to 60 kr to A and 40 kr to B and also setting the certain lower amount in the bargaining to 40 kr , resulting in the cost of punishing for $B$ being reduced to 10 kr . Another alternative would be to let both parts get what they are offered in case of bargaining impasse. The cost for $B$ to punish in a self-serving way would then be zero and her decision of whether to do so would simply base on her willingness to punish the counter-part in case he/she would not offer according to $b$. B's position in the negotiation would in this set-up be more similar to A's, and reducing the cost to be self-served. The loss with this set-up would be how it does not in the same way replicate real-life situations in the way that an impasse would not cost a certain amount to each pair.

Conducting the experiment with a bigger sample would be an important next step. Almost every result point in the right direction supporting the hypotheses, but are not significant. A larger sample could increase the degrees of freedom, decrease the variance and possibly result in significant results. Also, it could be easier to detect possible outliers, perhaps distorting the results at this point.

As our experiment partly aimed to find the lower bound for conditions under which selfserving bias is induced we believe that it is important to through further research refine this lower bound. We showed that self-serving bias in JFOs prevail under the simple and clean conditions of our experiment, but failed to proof prevalence of self-serving bias in offers in a negotiation. If the same experiment even with a larger sample still would not prove selfserving biased offers the lower bound for when self-serving bias can cause impasse in bargaining must continue to be searched for. Adding more of what increases the risk of selfserving bias would do this. As described in the introduction, high emotional involvement increases the risk of self-serving bias. A way to increase the emotional involvement and still keep the clean setup could be to describe the setup even more thoroughly with more examples etc., give the subjects more time to read through the instructions and have them answering more questions about their JFO. For example one could ask them to describe why they make the JFO they do. This would possibly make the subjects more emotionally involved and committed to their JFOs.

## 7. CONCLUSION

In this thesis we have further examined the nature of self-serving bias as a phenomenon causing bargaining impasse, as found by BL. We have conducted an experiment that is cleaner and easier to replicate than theirs. The results have shown that self-serving bias in JFOs can be induced even with such a clean set-up, not focusing to involve emotions. The effect of the self-serving bias in the negotiation has also pointed in the direction of selfserving bias, though not significantly. A major new finding to the field is, except for that selfserving bias can be induced this easily, that those who are most likely to be self-serving biased are the unprivileged parts in negotiations. The experiment should be slightly refined and conducted using a larger sample to validate the results further. These results would contribute to better understand bargaining impasse and find ways to avoid the inefficiencies they cause.

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## APPENDIX A

APPENDIX A.1: Instructions for supervisors of the experiment
Hej och välkomna!
Framför er har ni ett kuvert innehållande alla instruktioner. Ni ska börja med att ta fram de två lösa lapparna i kuvertet, ett som heter 'Instruktioner" och ett som heter "Svarsformulär". Det ligger också ett mindre kuvert i era kuvert, detta ska ni INTE ta fram och INTE öppna förrän jag säger till. Läs instruktionerna noga, även exemplen. Om ni har frågor så räck upp handen så kommer jag och besvarar dem. Ställ inga frågor utan att räcka upp handen först.

Det är också viktigt att ni inte pratar med varandra medan experimentet pågår.
På svarsformuläret ska ni göra två bedömningar. När ni har fyllt i allt vill jag att ni vänder på svarslappen och lägger den framför er på bordet så samlar jag in dem när alla är klara.

Ni har ungefär 10 minuter på er att läsa instruktionerna och svara på frågorna! Varsågoda att börja.

1. Räkna antalet deltagare $i$ rummet och se till att de är lika många som $i$ motpartens rum. Sprid ut deltagarna så mycket som möjligt.
2. Dela ut kuverten i den nummerordning de ligger
3. Stäng dörren, nu är det för sent för eventuella eftersläntrare.
4. Läs de muntliga instruktionerna ovan.
5. Vänta tills alla vänt på svarsblanketten och lagt den framför sig. Läs instruktionerna nedan.

Nu vill jag att ni skriver den siffra ni angav att ni trodde genomsnittet för vad andra tyckte var rättvist att du (för C-gruper: A) skulle få också på ditt instruktionspapper, längst ner på sidan under texten. Du kan kika på vad du angivit på svarsblanketten som du vänt på, om du har glömt bort. Det här ska ni göra för att ni som har gissat närmare än 5 öre ifrån rätt värde ska få era pengar. Det kommer att mejlas ut inom vilket spann man ska ha svarat och ni som har gissat nära nog kommer kunna hämta era pengar mot uppvisande av instruktionslappen där vi verifierar att er angivelse stämmer med det specifika nummer ni har tilldelats.
6. Vänta tills alla är klara. Samla sedan in svarsblanketterna, låt instruktionsblanketterna ligga kvar på borden!
Nu ska ni ta fram det lilla kuvertet som finns i era kuvert. I den finns ett blad märkt
Erbjudandeblankett. (Endast för C-grupper: på blanketten finns besked om vilken roll ni
lottats till.) Ni ska nu genomföra den förhandlingen som står beskriven i instruktionsblanketten som ni har läst och fortfarande har framför er. Erbjudandet ska ni skriva på Erbjudandeblanketten i kuvertet. Lägg sedan erbjudandeblanketten upp och ner, framför er på bordet. Ta fram det lilla kuvertet och skriv samma siffra, alltså ditt erbjudande, på dess framsida (adressida). Lägg sedan även det upp och ner, så man inte ser vad du har skrivit, framför dig på bordet, brevvid erbjudandeblanketten. Ni har knappt fyra minuter på er att skriva ner ert erbjudande på blanketten och på kuvertet.
7. När alla är klara samlar du in erbjudandeblanketterna i nummerordning, låt kuverten ligga kvar på borden.
8. Säg att de ska vänta tysta på sina platser medan du hämtar motpartens erbjudanden. Gå därefter till rum $\qquad$ med erbjudandeblanketterna och byt ut mot "motpartsblanketterna" där.
9. Gå tillbaks till klassrummet och läs följande instruktion:

Nu vill jag att ni tar upp pennan och skriver ert kön på baksidan av det lilla kuvertet, den sidan som nu ska ligga uppåt.
10. När alla är klara delar ber du deltagarna att inte vända på blanketterna förrän du säger till. Dela sedan ut de blanketter du hämtat i rätt ordning upp och ner (numret på baksidan av blanketten ska matchas med numret i högra hörnet av kuvertet). KONTROLLERA samtidigt att de SKRIVIT SITT KÖN på det lilla kuvertet. Läs sedan instruktionerna nedan:

Nu ska ni få era pengar tilldelade. Jag kommer gå runt till er var och en i nummerordning. Ni får inte skriva något ytterligare på blanketten eller kuvertet. För att underlätta ska ni nu vända på blanketten och det lilla kuvertet och lägga dem brevvid varandra på bordet framför er, så era erbjudanden syns. Sitt sedan stilla vid era platser och vänta på er tur. När ni har fått era pengar tilldelade kan ni försiktigt lämna salen. Det är viktigt att ni tar med er instruktionsbladet hem eftersom det fungerar som kvitto för att ni ska få er vinst senare.
11. Gå fram till var och en i nummerordning med pengarna.
a) Kontrollera att siffran på kuvertet och blanketten summerar till 100 eller mer, annars ge deltagaren 30 kr , samla in kuvert och blankett, och fortsätt till nästa deltagare.
b) Jämför siffran på kuvertet med den på blanketten.

- Om siffran på blanketten är störst: Ge deltagaren vad som står angivet på blanketten, samla in kuvert och blankett och fortsätt till nästa.
- Om siffran på kuvertet är störs: ge deltagaren differensen mellan denna och 100. Samla in kuvert och blankett och fortsätt till nästa.

APPENDIX A.2: Experimental instruction for Control-groups

## (1) Instruktion

Du är hopparad med en experimentdeltagare som har placerats i ett annat rum, din motpart. Din motpart får nu samma instruktion som du får här. Du och din motpart kommer av lotten bli tilldelade varsina av två roller, A och B. A kommer att få 70 kr och B kommer att få 30 kr , detta som ersättning för att ni deltar i experimentet. Dessa pengar garanteras er oberoende av hur ni svarar på frågorna i experimentet.

Du och din motpart får nu möjlighet att dela på ytterligare 100kr, utöver de pengar som garanteras er enligt ovan. Du och din motpart ska senare förhandla om dessa ytterligare 100 kr.

I förhandlingen kommer du att ange hur mycket av de 100 kronorna som du vill erbjuda din motpart, ditt erbjudande. Din motpart blir ombedd att göra på samma sätt. Om ditt och din motparts erbjudanden är tillräckligt generösa för att summera till 100kr eller mer följs det av era två erbjudanden som är mest generöst. Den som har angett det högsta erbjudandet får då alltså vad som återstår av de 100 kronorna efter att motparten har fått vad erbjudandet anger. Är era erbjudanden däremot inte tillräckligt generösa, och summerar till mindre än 100 kr får ni endast 30 kr ytterligare var. Notera att ni behåller de 30 respektive 70 kronorna som redan är fördelade mellan er. 3 exempel följer:

1) Om du erbjuder 90 kr och din motpart erbjuder 60 kr betyder det att eftersom era erbjudanden är generösa nog att summera till mer än 100kr går det högsta erbjudandet igenom, ditt. Din motpart får ytterligare 90 kr , du får ytterligare 10kr.
2) Erbjuder du 40 kr och din motpart erbjuder 60kr summerar era erbjudanden till 100 kr och det högsta av era erbjudanden, din motparts, går igenom. Din motpart får ytterligare 40 kr (100-60) och du får enligt erbjudandet ytterligare 60 kr .
3) Erbjuder du 40 kr och din motpart erbjuder 50 kr summerar era erbjudanden endast till 90 kr vilket innebär att inget av era erbjudanden går igenom. Ni får istället ytterligare 30 kr var.

APPENDIX A.3: Experimental forms for the Control A-group

## (1) Svarsblankett

Innan du får din roll A eller B tilldelad, och innan du lämnar ditt erbjudande, vill vi att du nedan anger vad du tycker vore den mest rättvisa fördelningen av de ytterligare 100 kronorna. Observera att vad du här anger inte påverkar den faktiska fördelningen av de ytterligare 100 kronorna. Inte heller vem av er som kommer tilldelas roll A och B.

Jag tycker att det mest rättvisa vore att:
A får $\qquad$ kr och B får $\qquad$ kr av de ytterligare 100 kronorna (summera till 100kr)

Vi kommer att beräkna genomsnittet av vad alla experimentdeltagarna, i detta rum och i din motparts rum, svarar på föregående fråga. Vi ber dig nu gissa vad detta medelvärde är, alltså hur mycket gissar du att alla deltagarna i experimentet i genomsnitt kommer tycka är rättvist att A får? Om din gissning är mindre än 5 öre från det faktiska genomsnittet vinner du ytterligare 100 kr .

Jag tror att genomsnittet för vad alla experimentdeltagare ser som den mest rättvisa fördelningen är att:

A får $\qquad$ kr och B får $\qquad$ kr av de ytterligare 100 kronorna (summera till 100kr)

## (1.A) Erbjudandeblankett

Du har blivit lottad till roll A och är nu alltså garanterad 70kr. Din motpart blev lottad till roll B och är garanterad 30kr. Du och din motpart ska nu förhandla om de ytterligare 100 kronorna, som ni delar på utöver de summor ni just blivit garanterade.

Nu ber vi dig lämna ditt erbjudande:

Jag erbjuder min motpart $\qquad$ kr

APPENDIX A.4: Experimental forms for the Control B-group

## (1) Svarsblankett

Innan du får din roll A eller B tilldelad, och innan du lämnar ditt erbjudande, vill vi att du nedan anger vad du tycker vore den mest rättvisa fördelningen av de ytterligare 100 kronorna.
Observera att vad du här anger inte påverkar den faktiska fördelningen av de ytterligare 100 kronorna. Inte heller vem av er som kommer tilldelas roll A och B.

Jag tycker att det mest rättvisa vore att:
A får $\qquad$ kr och B får $\qquad$ kr av de ytterligare 100 kronorna (summera till 100kr)

Vi kommer att beräkna genomsnittet av vad alla experimentdeltagarna, i detta rum och i din motparts rum, svarar på föregående fråga. Vi ber dig nu gissa vad detta medelvärde är, alltså hur mycket gissar du att alla deltagarna i experimentet i genomsnitt kommer tycka är rättvist att A får? Om din gissning är mindre än 5 öre från det faktiska genomsnittet vinner du ytterligare 100 kr .

Jag tror att genomsnittet för vad alla experimentdeltagare ser som den mest rättvisa fördelningen är att:

A får $\qquad$ kr och B får $\qquad$ kr av de ytterligare 100 kronorna (summera till l00kr)

## (1.B) Erbjudandeblankett

Du har blivit lottad till roll B och är nu alltså garanterad 30kr. Din motpart blev lottad till roll A och är garanterad 30kr. Du och din motpart ska nu förhandla om de ytterligare 100 kronorna, som ni delar på utöver de summor ni just blivit garanterade.

Nu ber vi dig lämna ditt erbjudande:

Jag erbjuder min motpart $\qquad$ kr

## APPENDIX A.5: Experimental instruction for the Treatment A-group

## (2.A) Instruktion

Du är hopparad med en experimentdeltagare som har placerats i ett annat rum, din motpart. Din motpart får nu motsvarande instruktion som du får här. Lotten har avgjort att du tilldelas 70kr och din motpart tilldelas 30kr, detta som ersättning för att ni deltar i experimentet. Dessa pengar garanteras er oberoende av hur ni svarar på frågorna i experimentet.

Du och din motpart får nu möjlighet att dela på ytterligare 100kr, utöver de pengar som garanteras er enligt ovan. Du och din motpart ska senare förhandla om dessa ytterligare 100 kr.

I förhandlingen kommer du ange hur mycket av de 100 kronorna som du vill erbjuda din motpart, ditt erbjudande. Din motpart blir ombedd att göra på samma sätt. Om ditt och din motparts erbjudanden är tillräckligt generösa för att summera till 100kr eller mer följs det av era två erbjudanden som är störst (mest generöst gentemot motparten). Den som har angett det högsta erbjudandet får då alltså vad som återstår av de 100 kronorna efter att motparten har fått vad erbjudandet anger. Är era erbjudanden däremot inte tillräckligt generösa, och summerar till mindre än 100 kr får ni endast 30 kr ytterligare var. Notera att ni behåller de 30 respektive 70 kronorna som redan är fördelade mellan er. 3 exempel följer:

1) Om du erbjuder 90 kr och din motpart erbjuder 60 kr betyder det att eftersom era erbjudanden är generösa nog att summera till mer än 100kr går det högsta erbjudandet igenom, ditt. Din motpart får ytterligare 90 kr , du får ytterligare 10kr.
2) Erbjuder du 40 kr och din motpart erbjuder 60 kr summerar era erbjudanden till 100 kr och det högsta av era erbjudanden, din motparts, går igenom. Din motpart får ytterligare 40 kr (100-60) och du får enligt erbjudandet ytterligare 60 kr .
3) Erbjuder du 40kr och din motpart erbjuder 50kr summerar era erbjudanden endast till 90 kr vilket innebär att inget av era erbjudanden går igenom. Ni får istället ytterligare 30kr var.

## APPENDIX A.6: Experimental instruction for the Treatment A-group

## (2.B) Instruktion

Du är hopparad med en experimentdeltagare som har placerats i ett annat rum, din motpart. Din motpart får nu motsvarande instruktion som du får här. Lotten har avgjort att du tilldelas 30 kr och din motpart tilldelas 70kr, detta som ersättning för att ni deltar i experimentet. Dessa pengar garanteras er oberoende av hur ni svarar på frågorna i experimentet.

Du och din motpart får nu möjlighet att dela på ytterligare 100 kr , utöver de pengar som garanteras er enligt ovan. Du och din motpart ska senare förhandla om dessa ytterligare 100 kr.

I förhandlingen kommer du ange hur mycket av de 100 kronorna som du vill erbjuda din motpart, ditt erbjudande. Din motpart blir ombedd att göra på samma sätt. Om ditt och din motparts erbjudanden är tillräckligt generösa för att summera till 100kr eller mer följs det av era två erbjudanden som är störst (mest generöst gentemot motparten). Den som har angett det högsta erbjudandet får då alltså vad som återstår av de 100 kronorna efter att motparten har fått vad erbjudandet anger. Är era erbjudanden däremot inte tillräckligt generösa, och summerar till mindre än 100kr får ni endast 30kr ytterligare var. Notera att ni behåller de 30 respektive 70 kronorna som redan är fördelade mellan er. 3 exempel följer:

1) Om du erbjuder 90 kr och din motpart erbjuder 60kr betyder det att eftersom era erbjudanden är generösa nog att summera till mer än 100 kr går det högsta erbjudandet igenom, ditt. Din motpart får ytterligare 90 kr , du får ytterligare 10 kr .
2) Erbjuder du 40 kr och din motpart erbjuder 60kr summerar era erbjudanden till 100 kr och det högsta av era erbjudanden, din motparts, går igenom. Din motpart får ytterligare 40kr (100-60) och du får enligt erbjudandet ytterligare 60kr.
3) Erbjuder du 40kr och din motpart erbjuder 50kr summerar era erbjudanden endast till 90kr vilket innebär att inget av era erbjudanden går igenom. Ni får istället ytterligare 30kr var.

APPENDIX A.7: Experimental forms for the Treatment A-group

## (2.A) Svarsblankett

Innan du lämnar ditt erbjudande, vill vi att du nedan anger vad du tycker vore den mest rättvisa fördelningen av de ytterligare 100 kronorna. Observera att vad du här anger inte påverkar den faktiska fördelningen av de ytterligare 100 kronorna. Inte heller de 70 respektive 30 kronorna som redan garanterats er.

Jag tycker att det mest rättvisa vore att:
Jag får $\qquad$ kr och min motpart får $\qquad$ kr av de ytterligare 100 kronorna (summera till 100kr)

Vi kommer att beräkna genomsnittet av vad alla experimentdeltagarna, i detta rum och i din motparts rum, svarar på föregående fråga. Vi ber dig nu gissa vad detta medelvärde är, alltså hur mycket gissar du att alla deltagarna i experimentet i genomsnitt kommer tycka är rättvist att du får? Om din gissning är mindre än 5 öre från det faktiska genomsnittet vinner du ytterligare 100 kr .

Jag tror att genomsnittet för vad alla experimentdeltagare ser som den mest rättvisa fördelningen är att:

Jag (den som ursprungligen får 70kr) får $\qquad$ kr och min motpart (den som ursprungligen får 30 kr ) får $\qquad$ kr av de ytterligare 100 kronorna (summera till 100kr)

## (2.A) Erbjudandeblankett

Du och din motpart ska nu förhandla om de ytterligare 100 kronorna, som ni delar på utöver de summor ni blivit garanterade.

Nu ber vi dig lämna ditt erbjudande:

Jag erbjuder min motpart $\qquad$

APPENDIX A.8: Experimental forms for the Treatment B-group

## (2.B) Svarsblankett

Innan du lämnar ditt erbjudande, vill vi att du nedan anger vad du tycker vore den mest rättvisa fördelningen av de ytterligare 100 kronorna. Observera att vad du här anger inte påverkar den faktiska fördelningen av de ytterligare 100 kronorna. Inte heller de 30 respektive 70 kronorna som redan garanterats er.

Jag tycker att det mest rättvisa vore att:
Jag får $\qquad$ kr och min motpart får $\qquad$ kr av de ytterligare 100 kronorna (summera till 100kr)

Vi kommer att beräkna genomsnittet av vad alla experimentdeltagarna, i detta rum och i din motparts rum, svarar på föregående fråga. Vi ber dig nu gissa vad detta medelvärde är, alltså hur mycket gissar du att alla deltagarna i experimentet i genomsnitt kommer tycka är rättvist att du får? Om din gissning är mindre än 5 öre från det faktiska genomsnittet vinner du ytterligare 100 kr .

Jag tror att genomsnittet för vad alla experimentdeltagare ser som den mest rättvisa fördelningen är att:

Jag (den som ursprungligen får 30kr) får $\qquad$ kr och min motpart (den som ursprungligen får 70kr) får $\qquad$ kr av de ytterligare 100 kronorna (summera till l00kr)

## (2.B) Erbjudandeblankett

Du och din motpart ska nu förhandla om de ytterligare 100 kronorna, som ni delar på utöver de summor ni blivit garanterade.

Nu ber vi dig lämna ditt erbjudande:

Jag erbjuder min motpart $\qquad$ kr

## APPENDIX B: Summary of statistics

| Variable | Observations | Mean | Standard deviation | Skewness | Kurtosis |
| :---: | :---: | :---: | :---: | :---: | :---: |
| fairA | 94 | 35.37234 | 8.367865 | 1.044197 | 2.2575 |
| fairB | 94 | 64.62766 | 8.367865 | (-)1.044197 | 2.2575 |
| ofairA | 94 | 37.55 | 9.41931 | 2.299089 | 11.8783 |
| ofairB | 94 | 62.45 | 9.41931 | (-)2.299089 | 11.8783 |
| off | 94 | 53.34574 | 8.809827 | (-)0.241608 | 3.929967 |
| CfairA | 42 | 36.42857 | 9.058463 | 0.7625034 | 1.683517 |
| CfairB | 42 | 63.57143 | 9.058463 | (-)0.7625034 | 1.683517 |
| TfairA | 52 | 34.51923 | 7.749738 | 1.310133 | 2.975566 |
| TfairB | 42 | 63.57143 | 9.058463 | (-)0.7625034 | 1.683517 |
| CAfairA | 21 | 36.19048 | 8.646497 | 0.8123515 | 1.893241 |
| CBfairA | 21 | 36.66667 | 9.660918 | 0.7071068 | 1.5 |
| TAfairA | 26 | 36.15385 | 8.978607 | 0.8303523 | 1.805781 |
| TBfairA | 26 | 32.88462 | 6.028777 | 1.980303 | 5.690861 |
| CofairA | 42 | 37.90548 | 10.52834 | 3.008115 | 15.29138 |
| CofairB | 42 | 62.09452 | 10.52834 | (-)3.008115 | 15.29138 |
| TofairA | 52 | 37.26288 | 8.514114 | 1.086339 | 3.481172 |
| TofairB | 52 | 62.73712 | 8.514114 | (-)1.086339 | 3.481172 |
| CAofairA | 21 | 40.19667 | 13.07843 | 2.735841 | 11.17768 |
| CBofairA | 21 | 35.61429 | 6.720475 | . 9201961 | 2.797117 |
| TAofairA | 26 | 38.41154 | 8.249816 | . 6160489 | 2.25392 |
| TBofairA | 26 | 36.11423 | 8.779298 | 1.577083 | 5.016984 |
| Afair | 47 | 63.82979 | 8.73603 | (-)0.8231464 | 1.843978 |
| Bfair | 47 | 34.57447 | 7.996588 | 1.300315 | 2.862996 |
| Aoff | 47 | 56.85106 | 8.492909 | -0.1831697 | 3.518853 |
| Boff | 47 | 49.84043 | 7.724964 | -0.7722172 | 4.598404 |
| CAoff | 21 | 57.42857 | 9.426407 | -. 9173741 | 4.55191 |
| CBoff | 21 | 50.2381 | 6.417981 | -1.252714 | 6.389798 |
| TAoff | 26 | 56.38462 | 7.818322 | . 7638771 | 2.06462 |
| TBoff | 26 | 49.51923 | 8.752692 | -. 5398549 | 3.740045 |
| Crimp | 21 | 0.0952381 | 0.3007926 | 2.757764 | 8.605263 |
| Trimp | 26 | 0.1923077 | 0.4019185 | 1.56144 | 3.438095 |


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[^1]:    ${ }^{1}$ All instructions given to subjects in different groups and to the supervisors of the experiment can be found in appendix A.1-A. 8

[^2]:    ${ }^{2}$ After the offers had been given the subjects were asked to write their sex on the backside of the paper. This procedure was done last in order to not affecting the answers of the subjects. The information of the sex of the participants was collected for use to another research, and not to this thesis.

