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# Anyone Up for Helping the Fisherman's Wife? More Solidarity with Accidental Misery than with Man-Made Misery*

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## Abstract

We experimentally examine the willingness to donate depending on whether "misery" has been randomly generated or self-inflicted by too high demands in bilateral negotiations. We find that randomness has a positive influence on the total amount of the donation. In the case of self-inflicted "misery", we observe that the subject who may be perceived to have caused the unfavourable situation receives significantly less than the supposedly innocent subject.

## Zusammenfassung

Mit dieser experimentellen Studie prüfen wir, ob die Hilfs- bzw. Spendenbereitschaft davon abhängt, ob eine Notlage selbstverschuldet ist. Es zeigt sich, dass mehr abgegeben wird, wenn die unglückliche Lage durch ein Zufallsereignis verursacht wurde. Wurde sie durch das Scheitern einer bilateralen Verhandlung selbst verschuldet, so wird demjenigen deutlich weniger abgegeben, den man plausiblerweise für das Entstehen dieser Situation verantwortlich machen kann.

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## 1. Introduction

People are willing to help others, in real life as well as in the laboratory. But would they also help if others' misery were self-inflicted? We perform an ex-

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periment in which people give up more of their resources in order to help others if the latter's misery is random rather than self-inflicted. This result translates well into real-world circumstances, where people's willingness to contribute to fund-raising is higher for catastrophes which cannot be regarded as the outcome of individual interaction (e.g. East Asia Tsunami victims) than for perceivably self-inflicted miseries (e.g. victims of alcoholism). Likewise, many readers of the Brothers Grimm fairy tales do not pity the fisherman's wife strongly: She could have had a life of a queen, but, due to excessive demands, she lost everything. Nevertheless, some people might help even her. Our paper presents clean evidence on such cases of altruism.

The fact that people are prepared to make sacrifices and to thus improve the well-being of others is a well-known property in various kinds of experiments, the simplest case being the dictator game or variants thereof (e.g., Forsythe, et al., 1994; see Camerer, 2003, 57–58, for a condensed overview). Altruistic giving depends not only on the donor's willingness to give but also on who the receiver is. Eckel/Grossman (1996) found that allocators in the dictator game gave 2 to 3 times as much to the Red Cross as they did to some anonymous fellow participant. While in that case it is the receiver's reputation that is decisive, we aim to investigate the impact of the receivers' actual, current behaviour.

Third party punishment games are motivated in a fairly similar way. In the simplest punishment games, the behaviour of an allocator in a dictator game is observed by a third party, who can then, if (he or) she so wishes, sacrifice (his or) her own resources to punish for the perceived norm violation (e.g., Fehr/Fischbacher, 2004; Ottone, 2005; Marlowe et al., 2008). However, what is observed by the third party in these experiments is always a constant-sum game. A non-constant-sum game, which better reflects a situation where misery is due to real loss of resources, has been used recently by Sutter, Lindner/Platsch (2009). While these authors focus on the effect that a third party's presence has on subjects playing the prisoners' dilemma game, we use a different non-constant-sum game to investigate the determinants of the third party's decision.

We ask subjects to make their donation decisions in light of a breakdown in a bargaining game that has previously been carried out by two other players. The breakdown in the bargaining game can either be random or have been caused by disagreement. Does the cause for disagreement – own fault or fate – have any significant influence on the third party's donation decision? Intuitively, one might suspect that the willingness to donate is greater if the inability to reach an agreement is not self-inflicted. Since the third party observes the results of a one-shot game and is asked to decide about donations once, no dynamic effects (e.g. reputation) can be expected to play a role.

A second question is whether a third party, when allocating money to the players, differentiates between the players according to their perceived degree of modesty, i.e., their contribution to negotiation breakdown. That is, does the

third party behave more generously towards the party with the relatively low demand than to the one with the relatively high demand?

The remainder of the paper is organised as follows: We describe our experimental design and procedure as well as the hypotheses in the next section. The results of our experiment are given in section 3. This is followed by tentative conclusions and an outlook on further research perspectives.

## 2. Design and Hypotheses

### 2.1 Design

Two players are asked to reach an agreement over the allocation of a fixed sum of money between them. Each player simultaneously states the share of the money she demands. If the sum of the demands exceeds the total amount of money available, both players receive a zero pay-off, otherwise they receive their respective shares. In the case of disagreement between the players, the third player has an opportunity to allocate a fraction of her initial endowment between the bargainers.

Assume that you are taking part in this experiment as the third party, or "player *A*". In the first stage of the experiment, you are only observing $B_1$ and $B_2$ playing a Nash demand game. They are bargaining about the distribution of € 10.00. $B_1$ and $B_2$ simultaneously place demands $b_1$ and $b_2$, respectively, where $b_1, b_2 \in \{€\ 2.50, €\ 3.75, €\ 5.00, €\ 6.25, €\ 7.50\}$. If bargaining is successful with $b_1 + b_2 \leq 10$, their payoff equals their demands: $\pi_{B1} = b_1$ and $\pi_{B2} = b_2$. If $b_1 + b_2 > 10$, bargaining has failed and the players' payoffs equal zero for the time being.

Only in the latter case would you, as player *A*, have an active role. If players $B_1$ and $B_2$ were able to reach an agreement, you (*A*) would simply keep your initial endowment of € 20.00. However, in case of a disagreement between $B_1$ and $B_2$, player *A* may opt to help out by donating amounts $\alpha_{B1}$ and $\alpha_{B2}$ to player $B_1$ and $B_2$, respectively, thereby reducing her own payoff to $\pi_A = 20 - \alpha_{B1} - \alpha_{B2}$. This implies that the payoffs of players $B_1$ and $B_2$ become $\pi_{B1} = \alpha_{B1}$ and $\pi_{B2} = \alpha_{B2}$. If you were player *A*, would you donate? Would your donation depend on the demands of $B_1$ and $B_2$ in their previous bargaining?

In order to obtain insight into player *A*'s behaviour, we apply two treatment variables, thus conducting four variants of the bargaining game between player $B_1$ and $B_2$ described above. In the treatments called *random*, the players have no control over the "bargaining" outcomes.[1] In the treatments denoted *bargain-*

[1] The different demands were randomly drawn from a deck of cards with the same probability. Hence the ex ante likelihood of a bargaining breakdown including the possibility of 50% demands was 2/5.

*ing,* the players have the opportunity to simultaneously choose which share of the stake they want to claim. For the two variants *random* and *bargaining*, we determine two mutually exclusive sets of claims that are permissible. In the first set, *50 included*, players can demand a 50% share of the stake, while in the second set, *rule out 50*, the players are restricted to not claim a 50% share. In other words, they have to choose either less or more than exactly half of the stake. Table 1 summarises our four treatments following from the 2×2 factorial design.

*Table 1*

**Treatment variables**

| | 50 included | 50 ruled out |
|---|---|---|
| bargaining | bargaining breakdowns are self-inflicted, but could have been easy to avoid | bargaining breakdowns are self-inflicted, but understandable to a certain degree |
| random | Players have no control over the "bargaining" outcome | Players have no control over the "bargaining" outcome |

Player $A$ has to specify donations $\alpha_{B1}$ and $\alpha_{B2}$ for each of the four or six[2] hypothetical disagreement outcomes of the game (i.e., we employ the strategy method introduced by Selten, 1967).

Player $A$ knows whether the initial payoffs of $B_1$ and $B_2$ are the result of their bargaining, i.e., whether they are self-inflicted or whether they are randomly determined by a lottery. Hence this treatment variable allows us to investigate whether intentions, in addition to payoffs, motivate donors. At first sight, this bears some similarity to research by Blount (1995), who finds that responders' behaviour in the ultimatum game depends on whether offers are randomly generated or actually decided on by the proposers. However, like in a number of further studies that identify the importance of intentions[3], intentions here turn out to make a difference for those directly involved in the bargaining process. We study the preferences of people who are outsiders to the bargaining process and who are able to change the payoffs after the other two players' game is completely played.

Constraining the set of choices for $B$-players leads to a more difficult decision-making process for the $B$-players since the "focal" option of claiming 50% of the pot is ruled out when choices are restricted to $b_1, b_2 \in \{€\ 2.50, €\ 3.75, €\ 6.25, €\ 7.50\}$. This scenario is compared to one in which the full

[2] The number of disagreement outcomes depends on the treatment (*50 included* has more possible disagreement constellations than *50 ruled out*).

[3] For example, Nelson (2002), McCabe/Rigdon/Smith (2003), Charness/Levine (2007), Sutter (2007), Falk/Fehr/Fischbacher (2008).

range of options is available. We introduce this variant to foster disagreement and observe variance in player $A$'s decision-making.

Finally, to reduce unexplained variance due to unobserved altruism, we conduct a dictator game yielding an additional explanatory variable: a proxy for general level of altruism. In a separate, unrelated experiment, player $A$ is endowed with € 20 of which she may donate any amount $\alpha_D \in \{0, \ldots 20\}$ to a randomly selected player resulting in a payoff for player $A$ given by $\pi_A = 20 - \alpha_D$.

### 2.2 Procedure

Our subjects were mainly economics freshmen at the University of Kassel who did not have any knowledge of experimental or theoretical economics.[4] The experiment took place in fall 2008 in large classrooms; participation was voluntary. The sample includes only those participants who had correctly answered a test question, intended to ensure that everyone understood the rules. In eight experimental sessions, two for each treatment, the sequence of the anonymous games was as follows:

1. All participants read the instructions[5] and were asked to solve one simple exercise to ascertain that all understood the rules of the experiment.
2. All participants chose an alias and an identity number used for making the monetary payoff after the experiment was over.
3. Every participant was asked to play a dictator game and indicate whether she would like to donate to an anonymous person any of her € 20 units of endowment, and if so, how much she would be willing to donate. One of these dictator decisions in each session was to be determined randomly yielding a real payoff.
4. In each session, two players were randomly (but not publicly) assigned to the role of player $B_1$, two further players to the role of player $B_2$.
5. All other subjects were put in the role of player $A$. The decision player $A$ had to make was whether to donate any of the initial endowment in the case of $B_1$ and $B_2$ disagreeing, and if so, how much. As the disagreement between $B_1$ and $B_2$ could be due to different constellations (e.g., both or only one of them demanding 75%), player $A$ could differentiate her donation accordingly. Those subjects assigned to the role of player $A$ were briefed that

[4] The freshmen groups took part in an orientation week and were accompanied by more advanced students, who account for five percent of the sample. Excluding the more advanced students from the sample does not markedly change the results.

[5] Sample instructions are available from the authors or at http://cms.unikassel.de/unicms/fileadmin/groups/w_030516/A-inst.pdf and http://cms.unikassel.de/unicms/fileadmin/groups/w_030516/B-inst.pdf.

only two of them would receive real payoffs at the end of each session. However, they had to make their decisions before these two participants were randomly drawn.

6. The game between two pairs of players representing $B_1$ and $B_2$ was conducted.
7. Each pair of players $B_1$ and $B_2$ was randomly matched with one from the player $A$ group. In the case of agreement between $B_1$ and $B_2$, the latter were paid according to their demands, while $A$ kept € 20. In the case of disagreement in the bargaining game, $B_1$ and $B_2$ were paid according to the donation decisions that player $A$ had previously made. If $A$ donated, she kept the remainder of the initial endowment of € 20.
8. Subjects had to choose between being paid by the experimenters after the other subjects had left or being paid later by a secretary in a separate room.

The duration of the experiment was 20 minutes per session. As indicated above, two participants in the role of player $A$ were actually paid in each of the eight sessions. Furthermore, in each session, one dictator and one recipient together earned 20 € in the separate dictator game. In total, the sample includes 114 participants in the role of player $A$[6], their average payoff summing up to about 10 €/h.[7]

Furthermore, there were 32 participants in the role of player $B$, four in each session. In future research, it might be interesting to investigate the impact of prospective donations on the likelihood of placing excessive demands that lead to the allocation failing to take place. Our design does not yield a sufficiently large number of observations for these players, however. The following hypotheses and results will therefore focus on the donors' decisions.

### 2.3 Hypotheses

Our statistical assessment is based on the following main hypotheses:

First, we expect that player $A$'s willingness to donate, as well as the extent of donations, is influenced by whether the disagreement is random or self-inflicted. No doubt many readers of Grimm's fairy tale feel a sense of satisfaction when the greedy wife of the fisherman loses everything, as she did have other options (comparable to lower demands in our experiment). Had the misery she

[6] 33 in the *50% possible&self-inflicted bargaining breakdowns* treatment, 34 in the *50% ruled out&self-inflicted bargaining breakdowns* treatment, 25 in the *50% possible&random bargaining breakdowns* treatment and 22 in the *50% ruled out&random bargaining breakdowns* treatment.

[7] 8 pairs of players (dictator and receiver) were paid € 20 each, and 16 players were paid € 20 minus their donation (if applicable); players $B$ earned slightly more, about 13 €/h, as every one of them was actually paid.

ends up in been the result of bad luck, the same readers would probably have felt pity. This leads to our first hypothesis:

*H1: A donates more if bargaining breakdown is randomly caused rather than self-inflicted.*

Moreover, in the bargaining case, does player *A* punish excessive demands? That is, does she donate less to the person with the relatively higher demand? We expect that she punishes the player who perceivably has caused the unfavourable situation by donating a higher amount to the innocent player, in other words:

*H1: If $B_1$ and $B_2$ disagree, the player with the higher demand receives less from player A than her counterpart.*

## 3. Results

To test the first hypothesis, i.e., whether player *A* is more generous in the stochastic situation, we create the variable *meandonation* as the average (over all combinations of $b_1$ and $b_2$) of all amounts donated to $B_1$ and $B_2$.

Table 2 shows that the average donation is, indeed, significantly higher when the demands of players $B_1$ and $B_2$ are randomly determined by a lottery, i.e. when bargaining breakdowns are not their own fault. This is also reflected in the lower share of positive donations when misery is self-inflicted. As shown in table 2, this should not be due to the groups' composition with respect to gender or behaviour in the dictator game.

*Table 2*

**Donors' behaviour**

| | self-inflicted | random | *p*-value |
|---|---|---|---|
| Mean donation | € 4.72 | € 6.41 | 0.037[a] |
| *n* | 67 | 47 | |
| Donation = 0 € | 28 | 8 | 0.007[b] |
| Females | 28 | 23 | 0.566[b] |
| Altruism proxy from DG | € 7.83 | € 8.75 | 0.368 |

[a]: For the Mann-Whitney-*U*-Test; [b]: For Fisher's exact probability test.

The results shown in table 2 remain intact for a multivariate analysis (table 3). We regress *meandonation* on the dummy variable *selfinflicted*, which takes the value 1 if harm is self-inflicted and 0 otherwise, on the treatment dummy *incl50*, which is 1 if the 50% option was available to negotiators, on the gender

dummy "female" as well as on our proxy-variable for altruism recorded in the initial dictator game (DG) experiment. As *meandonation* is left-censored (36 of 114 observations take the value 0), tobit analysis is used. Table 3 shows the results.

*Table 3*

**Determinants of willingness to donate**

| Tobit regression of left-censored dependent variable *meandonation* | | | | |
|---|---|---|---|---|
| | coeff. | s.e. | coeff. | s.e. |
| *constant* | –3.111 | (1.999) | 4.572 | (1.390) |
| *selfinflicted* | –1.966* | (1.113) | –2.691** | (1.256) |
| *female* | 1.351 | (1.129) | 1.709 | (1.275) |
| *altruism* | 0.907*** | (0.177) | | |
| *incl50* | 0.680 | (1.126) | 0.798 | (1.270) |

Number of observations = 114, Pseudo $R^2$ = 0.057 and 0.012, respectively (not to be interpreted as the $R^2$ in OLS regressions); standard errors in parentheses.

*** = 1% level of significance, ** = 5% level of significance, * = 10% level of significance.

Again, we see that less is given if harm is self-inflicted (on average, € 4.72 in the latter case versus € 6.41 for random disagreements). The amount given to those whose negotiations failed is larger for donors who gave more in the dictator game. In one regression, we include *altruism*, i.e., the amount given in the DG, though endogeneity might be an issue. If a subject is willing to give one more Euro in the dictator game, she would donate about 0.91 Euro more of her own money to players $B_1$ and $B_2$. Women give slightly more, but the gender dummy is not significant in the statistical sense. Neither is *incl50* significant; it does not seem to matter whether the negotiator had the 50:50 option or not for the *total* amount given (adding an interaction term *selfinflicted*incl50* did not improve the results). But it matters for the distribution of the total amount given, as we will show next.

Hypothesis 2 presumed that player *A* (the donor) discriminates against the player *B* who caused the breakdown of the bargaining. Simple tests lend support to this hypothesis in some constellations. We conducted two tests: The Wilcoxon Matched-Pairs Signed Ranks Test is used in order to account for the considerable share of zero donations. However, as strictly speaking this test does not refer to the difference in means (but in medians), we complement it with a paired *t*-test, also reported in table 4. The upper three rows of tables 4 and 5 show what happens if one player demands more than 50%, while 50% would have been possible *and* the other player demanded no more than 50%. In this case, the greedy player is held accountable, and the modest player re-

ceives a markedly higher donation. The difference is not significant, however, if both demand more than 50%. This is obviously to be expected if both place the same demand (62.5% or 75%). These cases are left out in table 4. But even if one player demands less than the other, being relatively modest at a high absolute level of greediness, i.e. claiming more than half of the stake (62.5% in this case), both receive approximately the same donation (row 4 of table 4). There is no significant impact of the "extent of greediness", so to speak, on donations.

The two bottom rows of table 4 show donations for the case that a 50% demand was not possible. For the combination of one 37.5% and one 75% demand, the sign of the difference between donations is unexpected, but the difference is significant in neither case, hence we refrain from interpreting the sign in differences. We rather note that donors obviously realised that finding an agreement under our rules was evidently much more difficult if 50% of the cake cannot be demanded, as a result of which, on average they do not markedly punish the "greedy" negotiator.

One might hypothesize that more is given if 50% demands are not possible, as decisions are more difficult to make and disagreements seem more likely in this case. However, comparing the donations between the *50% possible* and the *50% ruled out* (non-random) treatments, we do not find a significant difference – neither for the actually modest, nor for the actually greedy negotiators, and neither for the case of 37.5%/75%, nor for that of 62.5%/75%.

*Table 4*

**Donations to negotiators after self-inflicted negotiation breakdown**

| | 50% possible | | |
|---|---|---|---|
| Demands by modest/greedy negotiator | Given to actually modest negotiator | Given to actually greedy negotiator | *p*-value Wilcoxon Matched-Pairs Signed Ranks Test [paired *t*-test] |
| 37.5%/75% | 2.97 | 2.20* | 0.0914 [0.2677] |
| 50%/62.5% | 2.97 | 2.11*** | 0.0095 [0.0228] |
| 50%/75% | 3.26 | 1.79*** | 0.0031 [0.0033] |
| 62.5%/75% | 2.17 | 2.06 | 0.1692 [0.5328] |
| | 50% not possible | | |
| 37.5%/75% | 2.49 | 2.81 | 0.9000 [0.5291] |
| 62.5%/75% | 2.68 | 2.40 | 0.5494 [0.2575] |

$n = 58$ (50% possible), $n = 56$ (50% not possible).

*: difference to amount given to modest negotiator significant at 10% level, ***: difference to amount given to modest negotiator significant at 1% level, Wilcoxon Matched-Pairs Signed Ranks Test.

Likewise, we can compare the amount given to the "accidentally high demander" in the random demand treatment to the amount given to the actually greedy negotiator. We restrict this analysis to the case where 50% demands were possible. It is convenient to rearrange table 4 for this purpose (see table 5). Comparing the donations to the actually greedy versus the accidentally greedy negotiator (the upper part of table 5), they are significantly lower if bargaining breakdowns are self-inflicted. When it comes to the modest negotiators, the donations are quite similar in both cases. In most cases, people who have *decided* to make the lower of the two demands receive a donation that is not significantly different from the case where the same demand has been randomly generated for them. However, this no longer holds if the lower of the two demands exceeds 50% (last row of table 5). This is plausible; there is no reason for rewarding a demand that would have led to a bargaining breakdown if the other player had made the same decision. This even holds when this "too high demand" is the lower of the two demands.

*Table 5*

**Donations after self-inflicted versus random bargaining breakdown**

| Demands by modest/ greedy negotiator | Given to actually greedy negotiator | Given to accidentally greedy negotiator |
|---|---|---|
| 37.5%/75% | 2.20***[a] | 3.96 |
| 50%/62.5% | 2.11**[b] | 3.38 |
| 50%/75% | 1.79***[c] | 3.52 |
| 62.5%/75% | 2.06**[d] | 3.62 |
| | Given to actually modest negotiator | Given to accidentally modest negotiator |
| 37.5%/75% | 2.97 | 2.59 |
| 50%/62.5% | 2.97 | 3.05 |
| 50%/75% | 3.26 | 3.06 |
| 62.5%/75% | 2.17^* | 3.41 |

***: difference to amount given to accidentally greedy negotiator significant at 1% level according to the Mann-Whitney-U-test (**: 5% level).
[a]: *p*-value Mann-Whitney-*U*-test: 0.0058; *p*-value *t*-test: 0.0308.
[b]: *p*-value Mann-Whitney-*U*-test: 0.0409; *p*-value *t*-test: 0.0524.
[c]: *p*-value Mann-Whitney-*U*-test: 0.0067; *p*-value *t*-test: 0.0052.
[d]: *p*-value Mann-Whitney-*U*-test: 0.0123; *p*-value *t*-test: 0.0196.
^: difference to amount given to accidentally modest negotiator significant at 10% level according to the Mann-Whitney-*U*-test with *p*-value 0.0753; *p*-value *t*-test: 0.0506.

$n = 25$ (accidentally greedy or modest), $n = 33$ (actually greedy or modest); 50% demands possible.

## 4. Conclusion

The experiment we conducted clearly shows that people are, on average, prepared to sacrifice more of their resources in order to help others if the failure to allocate the common resource is the result of a random event. While breakdown in the bargaining game resulting from disparity of demands also leads to donations, these are, on average, much lower with the difference being statistically highly significant.

One reason for such differentiated behaviour might be the perception that relatively high demands in the bargaining game represent a form of greed. This is in line with popular proposals like capping the salaries of managers of failing banks. One common emotion is that the financial distress is self-inflicted, grounded in greed and speculation on the part of bank managers, who placed risky bets to increase their bonus payments.

Our result that the player who is mainly responsible for the bargaining breakdown receives a smaller donation than her counterpart is intuitively appealing. However, the fact that the former player receives anything at all seems to be surprising. Two particularities of our experiments might have caused generosity towards the "greedy" negotiator. First, we used a framing developed by Mehta / Starmer / Sudgen (1992) that sometimes assigns one player a seemingly (i.e., game-theoretically irrelevant) higher value: From a deck of eight cards, including four aces, both are dealt four cards with a minimum of one and a maximum of three aces. All four aces together "create" the € 10 stake, and although holding three aces does not create a privileged outside option, the potential asymmetry provokes a higher number of large demands than one would otherwise expect. The distribution of aces was not revealed to those who observed the bargaining game (player A group), but the complication may have given rise to some understanding for high demands. Second, almost all participants were freshmen; the experiment took part on the third day of their orientation week. This may have established some social ties.

Anyway, we were not mainly interested in the level of altruism, but rather in the circumstances that contribute to increasing or decreasing it. Organisations campaigning for donations might make use of our findings by emphasizing, whenever this is reasonably possible, that prospective recipients suffered from bad luck and are not to be held accountable for their situation.

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