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Deeds rather than Omissions -
How Intended Consequences Provoke Negative Reciprocity*

Manuel Schubert✉

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Abstract

Intention-based models of reciprocity argue that people assess kindness by measuring the *intended consequences* of actual behavior (deeds) against *foregone payoffs* resulting from unchosen alternatives (omissions). While the effects of omissions have been intensively studied in recent years, less has been done with respect to the impact of deeds on reciprocation. I employ a novel game that alters the intended consequences behind actual behavior at constant levels of unchosen alternatives and realized payoffs. Aggregate results suggest that intended consequences only weakly matter for negative reciprocity. I find men to abstain from retaliation when others intend to mildly harm them. Women, however, seem to be largely invariant to intended consequences of actual behavior.

Keywords: Intentions, reciprocity, kindness, gender

JEL-classification: D63, C78, C91

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1. Introduction

Imagine yourself reading the newspaper on a park bench when suddenly a stone shoots by almost hitting your forehead. Considering the size of the stone, you are lucky to survive the attack. You turn around and espy the culprit behind a nearby tree. You roll up your sleeves, ready to give him something to think about. But why exactly are you upset? After all, you have not been injured. What stimulates your desire for revenge?

Intention-based models of reciprocity provide an answer to this question. In his pioneering work, Rabin (1993) incorporates preferences for reciprocity into a model of social utility.[1] Such preferences guide us to reward acts of kindness (positive reciprocity) and punish those who treat us unkindly (negative reciprocity). The core trigger of reciprocation is perceived kindness. If someone wants to be nice to us, e.g. decides to send us flowers, he is kind to us. In that case, we may be willing to reciprocate his gift. On the other hand, if someone wants to harm us, e.g. throws stones at us, he is unkind and we may seek for revenge. In more general terms, reciprocal preferences presume a player's utility to increase by responding to another player's kindness in an equal manner. But how to determine whether an action is kind or unkind? What are the drivers of kindness?

Reciprocity models suggest that perceived kindness is derived by measuring the *intended consequences* of actual behavior (deed) against the *foregone payoffs* in the unchosen alternative (omission). The archetypical reciprocity model refers to an active player as being kind, whenever the intended consequences of his action leave the inactive player better off than the consequences of the unchosen alternative. On the other hand, if the intended consequences of his actual choice leave the inactive player worse off than the unchosen alternative, the active player is unkind.

Previous experimental studies have largely been devoted to the impact of foregone payoffs (e.g. Brandts and Solà 2001; Falk et al. 2003; Bolton and Ockenfels 2005; or Sutter 2007). Findings broadly reveal that unchosen alternatives matter for kindness evaluations. We seem to consider the situational framework, e.g. if someone was forced into harming us or if we were harmed deliberately (Falk et al. 2003; Schubert and Lambsdorff 2012).

However, omissions are just one element of kindness perception and therefore sometimes fail to explain our desire for reciprocation. In the introductory story, for instance, both the foregone consequences and the realized consequences are identical - we are not harmed. In this case, the omitted action cannot explain our negative sentiment. It is rather the intended

[1] Important extensions and improvements later came from Dufwenberg and Kirchsteiger (2004), Falk and Fischbacher (2006), Cox et al. (2007), Stanca et al. (2009), or Seebald (2010). I refer to this class of approaches as (intention-based) models of reciprocity.

consequence behind actual behavior that nurtures our thirst for revenge. This study tests this conjecture in a laboratory experiment. It investigates the effect of intended consequences on negative reciprocity.

Addressing the drivers of kindness is not only important for testing prevailing models of reciprocity. Researchers frequently observe ambiguous gender differences in ultimatum and trust games (e.g. Eckel and Grossman 2001; Solnick 2001; Cox 2002). Some authors argue these inconsistencies can be explained by assuming genders to have different preferences for reciprocity (e.g. Cox 2002; Lambsdorff and Frank 2011). Analyzing how intended consequences trigger punishment may also shed empirical light on this debate.

I employ a novel game that focuses on the impact of deeds rather than omissions while controlling for a subject's gender. The design compasses three treatments of a modified mini ultimatum game. In each treatment a first mover can either offer an equal split or flip a coin to determine the actual payoff allocation. In the first treatment, flipping the coin is mildly unkind in terms of intended payoff allocations. In the second treatment, it is moderately unkind, whereas in the third treatment flipping the coin is strongly unkind toward the responder. Comparing responses at constant levels of realized payoffs and unchosen alternatives, the results provide mixed evidence for the idea that kindness evaluations incorporate intended consequences. Male subjects appear to react to variations in intended consequences while female players seem to be rather invariant.

The remainder of this paper is organized as follows: section 2 briefly explains a formal notion of kindness. Section 3 summarizes previous experimental evidence. The experimental design and procedures are presented in sections 4 and 5. The results are illustrated in section 6. The study ends with a discussion and some concluding remarks in sections 7 and 8.

2. A simple model of kindness perception

This paper is not about a horse race between the prominent models of reciprocity (Rabin 1993, Dufwenberg and Kirchsteiger 2004, Falk and Fischbacher 2006, Cox et al. 2007). Therefore, this section briefly presents an archetypical model of kindness and does not discuss the foundations of each model in detail.

In order to demonstrate the general idea behind kindness evaluations, first consider a two-stage game in which a first mover, player i, can decide between two payoff allocations - allocation A with $\left(\pi_i^A, \pi_j^A\right)$ and allocation B with $\left(\pi_i^B, \pi_j^B\right)$. The second mover, player j, can either increase or decrease the first mover's payoffs. For the sake of simplicity, let us assume that these adjustments are free of costs to player j.

Social utility for player j is then derived by realized payoffs, π_j, and by reciprocating to the other player's kindness in an equal manner:

$$U_j = \pi_j + K_i \times K_j \tag{1}$$

Sign and absolute value of incoming kindness, K_i, determine the type and extent of outgoing kindness, K_j. The higher the absolute values of incoming kindness the stronger the reciprocal response. By equation (1) it also becomes clear that incoming kindness is positively reciprocated, whereas incoming unkindness is negatively reciprocated.

Player j determines incoming kindness by measuring the payoffs player i has given to him (player j) against player j's alternative payoffs. More generally, archetypical kindness can be defined as:

$$K_i = \pi_j^{\text{deed}} - \pi_j^{\text{omission}} \tag{2}$$

The first element, π_j^{deed}, captures the impact of intended consequences on player i's kindness. It is the payoff that player i intends to give to player j in his actual choice.[2] The second term, π_j^{omission}, represents player j's benchmark for fair behavior. This is the payoff that j could have got if player i had chosen the alternative allocation. Kindness is measured by the difference between the intended and the foregone payoffs. If player i selects an allocation that gives more to j than the alternative, he is kind to player j ($K_i > 0$). On the other hand, if the actual allocation yields less than the alternative allocation, player j is unkind ($K_i < 0$).[3]

As a result, the actual level of (un-)kindness can be increased by either 1) increasing (reducing) the intended consequences behind actual behavior, π_j^{deed}, or 2) reducing (increasing) the payoff in the omitted alternative, π_j^{omission}.

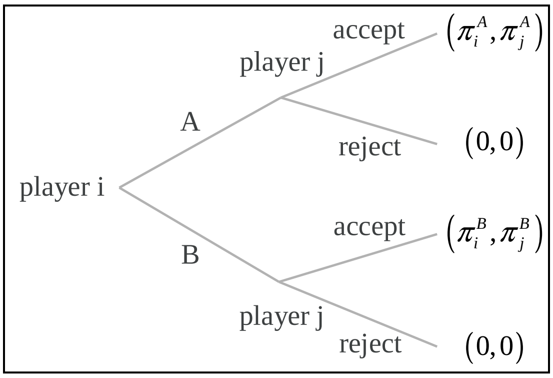
[2] In models based on psychological game theory the intended consequences actually depend on j's beliefs about i's expectations (Rabin 1993; Dufwenberg and Kirchsteiger 2004; Falk and Fischbacher 2006). In this paper, I prefer a more tractable notion of intended consequences. I follow Cox et al. (2007: 22) and refer to π_j^{deed} as the expected "maximum payoff the second mover can guarantee himself given the first mover's choice".

[3] Definitely, interpersonal comparisons may also matter for perceived kindness (see e.g. Falk and Fischbacher 2006; Schubert and Lambsdorff 2012). However, accounting for one's costs and other's benefits does not alter the key assumptions underlying reciprocity theory that kindness is a function of the intended consequences of actual behavior and unchosen alternatives. Therefore, interpersonal comparisons are neglected in this study.

3. Previous experimental evidence

A series of experimental studies has been devoted to investigate the impact of unchosen alternatives on reciprocation. Particular attention has been given to behavior in mini ultimatum games. As depicted in figure 1, after player i has decided on the allocation, player j can agree or disagree to the allocation. If he accepts the allocation, payoffs are disbursed accordingly. If player i rejects, both players get zero payoffs.

Figure 1: mini ultimatum game



In order to assess the impact of unchosen alternatives, many authors compare rejection rates to constant allocations $\left(\pi_i^A, \pi_j^A\right)$ across different pairs of alternative payoffs $\left(\pi_i^B, \pi_j^B\right)$. For example, in Brandts and Solà (2001) the allocation A $\left(\pi_i^A, \pi_j^A\right)$ is fixed at (320,80). Thus, whenever player i selects allocation A, he intends to give player j 80 currency units (π_j^{deed} =80). In one treatment, the alternative allocation B$\left(\pi_i^B, \pi_j^B\right)$ yields a (350,50) split. Accordingly, if player i proposes allocation A the foregone payoff for player j is π_j^{omission} =50. The difference of $K_i = \pi_j^{\text{deed}} - \pi_j^{\text{omission}}$ =80-50=30 suggests that player i acts kindly when proposing allocation A. In a different treatment, the alternative allocation B yields a (200,200) split. Hence, the share of player i in the unchosen allocation now increases to π_j^{omission} =200. Proposing the (320,80) split becomes unkind (K_i =200-80=-120). In line with this assertion, the authors observe substantial differences in rejection rates across treatments. While in the first treatment only 3 percent of all (320,80) splits are rejected, rejection rates increase to 13 percent in the second treatment.

Table 1 summarizes further findings of various studies that have assessed the role of omissions. Each study is represented by two treatments covering both kind and unkind behavior.

Table 1: responses in “omission” experiments

study	kindness category	π_j^{deed}	$\pi_j^{omission}$	K_i	rejection rates
Brandts and Solà (2001)	kind	80	50	30	0.03
	unkind	80	200	-120	0.13
Falk et al. (2003)	kind	20	0	20	0.09
	unkind	20	50	-30	0.44
Bolton and Ockenfels (2005)	kind	0.6	0.4	0.2	0.05
	unkind	0.6	2	-1.4	0.45
Sutter (2007)	kind	20	0	20	0.28
	unkind	20	50	-30	0.50

Although there is some dispersion, reciprocation clearly varies with kindness categories. Kind allocations are less often rejected than unkind ones. Also note that these differences within studies are solely induced by variations in the unchosen alternatives. Omissions, however, are just one element of kindness perception.

Although we still lack an explicit test on the intended consequences on reciprocation, some studies managed to alter both drivers of kindness simultaneously. For example, Blount (1995) compares rejection rates in regular ultimatum games against rejection rates to identical proposals which were determined by a random mechanism. She finds punishment rates to decline when random devices act as first movers. However, given that the first mover has no decisive power in the second treatment, his deeds and omissions are uncontrolled and the other player can neither infer intended consequences nor foregone payoffs.

More recent studies focus on disconnecting intended and realized outcomes by lotteries. In these games, player i has only partial control over actual payoffs. He can choose between strategies assigning specific probability profiles over a set of realized outcomes. The expected payoffs linked to i’s action then serve as proxies for the intended consequences.

Charness and Levine (2007), for example, study a modified gift exchange game in which firms (player i) can either choose to pay a high wage of 8 currency units ($\pi_j^{deed}=8$) or a low wage ($\pi_j^{deed}=4$) to a worker (player j). After the firm’s move a coin flip determines the wage condition which is either good (transferring 2 currency units more from the firm to the worker) or bad (transferring 2 currency units less from the firm to the worker). In the last stage, the worker can either reward or punish the firm. The design nicely controls for confounds with realized wages. High wages under bad wage conditions and low wages under good wage conditions are identical in size ($\pi_j=6$). According to the kindness function in equation (2), paying high wages while disregarding paying low wages is kind ($K_i=8-4=4$) and paying low wages while neglecting high wages is unkind (K_i =4-8=-4). Once again, response rates are well in line with kindness categories. As can be seen in table 2, firms are more often punished for unkind wages (19 percent) than for kind ones (3 percent).

Table 2: responses in “lottery” experiments

study	kindness category	π_j	π_j^{deed}	$\pi_j^{omission}$	K_i	response measure
Charness and Levine (2007)	kind	6	8	4	4	0.03
	unkind	6	4	8	-4	0.19
Cushman et al. (2009)	kind	0	7.5	2.5	5	-1
	unkind	0	2.5	7.5	-5	-3
Schächtele et al. (2011)	kind	10	15	12.5	2.5	-3
	unkind	10	12.5	15	-2.5	-9

Note: For Charness and Levine (2007) the response measure is punishment rates.
For the next studies it is the mean adjustment made to player i’s payoffs.

Cushman et al. (2009) allowed player i to roll either a “selfish”, a “fair”, or a “generous” die to determine the proposed allocation. The corresponding expected payoffs are (7.5,2.5) when rolling the selfish die, (5,5) when rolling the fair die, and (2.5,7.5) when rolling the generous die. After nature has moved and determined the realized payoff allocation, player j can increase or decrease i’s payoffs. Disregarding the fair die for illustrative reasons, rolling the selfish die is unkind (K_i =2.5-7.5=-5) while rolling the generous die is kind toward player j (K_i =7.5-2.5=5). The results again match with predictions from kindness categories. When disadvantageous allocations are realized, punishment after rolling the selfish die (mean adjustment of -3) is higher than punishment after rolling the generous die (mean adjustment of -1).

Schächtele et al. (2011) have replicated Cushman et al. (2009)’s design with some minor changes. Their findings corroborate Cushman et al.’s earlier results. Rolling the unkind selfish die generates mean adjustments in i’s payoffs of -9 compared to lower mean adjustments of -3 when rolling the fair die.

The lottery studies largely confirm the relevance of kindness perception for general behavior. However, they alter the intended and unchosen payoffs simultaneously. Every time player i decides to roll the selfish die, he also abstains from rolling other dice. Hence, if selfish proposals are rejected, we still do not know whether this is due to the selecting the selfish die or not selecting the generous die. We can not distinguish whether differences in responses are motivated by the intended consequences behind actual behavior or by the foregone payoffs in an unchosen alternative.

Intended rather than foregone payoffs may not only be important with respect to testing a key element of reciprocity models. There also exists some evidence that kindness may trigger different reciprocal responses depending on a subject's gender. As Camerer (2003: 64) argues women are generally seen to subordinate themselves to higher goals like harmony, while men appear to be more aggressive in their behavior. The studies of Eckel and Grossman (1996; 2001) are supportive to this conjecture. The authors observe that women are more likely to punish unkind behavior toward third parties than men (Eckel and Grossman 1996). In a later study, they find that female subjects are less likely to reject ultimatum offers than male subjects (Eckel and Grossman 2001). However, results of Solnick (2001) cast doubt on a hasty generalization. She finds both genders to demand more from women, but female responders to reject more often than men. Andreoni and Vesterlund (2001) study gender differences in a modified dictator game. Women tend to equalize payoffs while male subjects are more price-elastic in their sending decision. In line with that, Cox (2002) and, more recently, Lambsdorff and Frank (2011) speculate that differences in punishment behavior may be explained by gender-specific preferences for reciprocity. Women may have a greater sense for equality, whereas men may be motivated by reciprocity. This study may shed more light on this irregularity. If men and women differ with respect to the perception of intended consequences, we should observe gender-specific differences in the data.

4. Experimental Design

The experiment shall elicit how intended consequences provoke negative reciprocity. The design compasses three treatments. Each treatment is a modified variant of the mini ultimatum game with an additional stage for a nature's move. Consider the first treatment in figure 2a.

Figure 2a: treatment 1 - mildly unkind

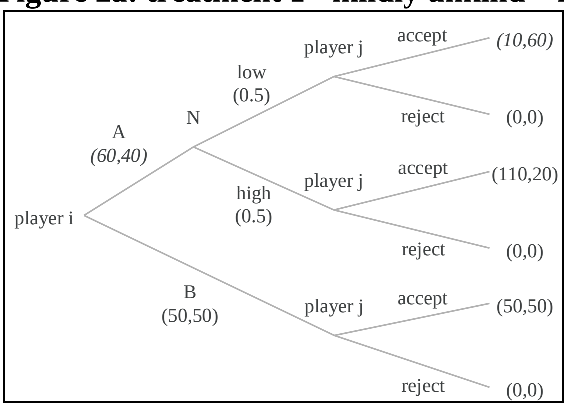


Figure 2b: treatment 2 - moderately unkind

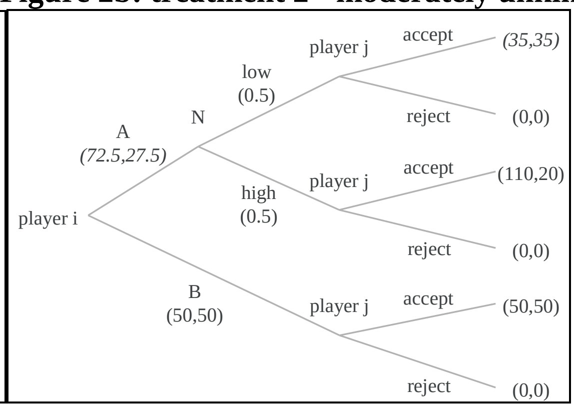
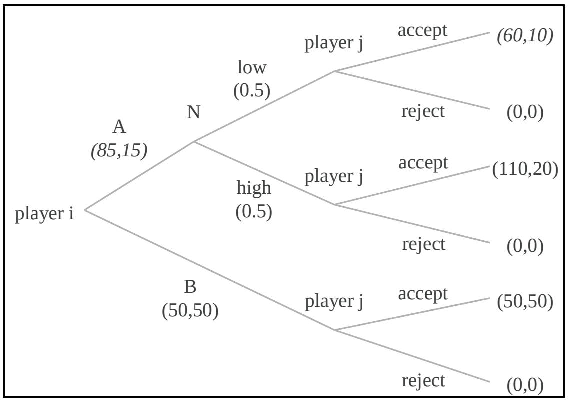


Figure 2c: treatment 3 - strongly unkind



Player i, the proposer, can decide between two allocations, A and B, each splitting up a sum of 100 currency units. Allocation A yields a (60,40) split and allocation B an equal split (50,50). The lower branch of the game tree is just like any other mini ultimatum game: if player i proposes allocation B, player j, the responder, can either accept or reject. If he accepts the 100 currency units will be split up equally among both players. If he rejects, both get zero payoffs.

If player i proposes allocation A, players move to the upper branch of the game tree. In that case, nature moves next and determines whether the (60,40) split will be transformed into a "high" stake or "low" stake allocation – each with 50 percent probability. In the "low" stake condition the sum of payoffs shrinks to 70 currency units. In the "high" stake condition total payoffs increase up to 130. As it is common for lottery experiments, nature also reshuffles the distribution of payoffs. In the "low" stake condition, allocation A assigns 10 currency units to the proposer and 60 to the responder. In contrast, in the "high" stake condition the proposer is supposed to get 110 and the responder 20 currency units.

In many aspects, the second and the third treatment are identical to treatment 1 (see figures 2b and 2c). Allocation B always divides the 100 currency units equally among both players in all treatments. Likewise, the "high" stake allocation yields a (110,20) split. However, treatments differ with respect to the "low" stake allocation (highlighted in italics). While it yields a (10,60) split in treatment 1, the "low" stake allocations are (35,35) and (60,10) in the second and third treatment respectively.

The "low" stake allocation feeds back on the intended consequences behind offering allocation A. In the first treatment, the proposer reveals his intention to offer 0.5×(10+110)=60 currency units to himself and π_j^{deed}=0.5×(60+20)=40 to the responder. As the payoff originating from the unchosen alternative is π_j^{omission}=50, actual unkindness is set to K_i =40-50=-10. In most ultimatum games, this mildly unkind proposal would be accepted (see e.g. Camerer 2003: 49-55). In the second treatment, the intended consequences for the responder amount to

π_j^{deed} =0.5×(35+20)=27.5 currency units. This time, offering allocation A is moderately unkind toward the responder (K_i =27.5-50=-22.5). In the third treatment, allocation A results in intended consequences for the responder of π_j^{deed} =0.5×(10+20)=15. Proposing allocation A now is strongly unkind (K_i =15-50=-35). In regular ultimatum games, one would expect only very few responders to accept such proposals (see e.g. Camerer 2003: 49-55).

The isolated effect of intended consequences on reciprocation can be determined by comparing rejection rates to "high" stake allocations (110,20) across treatments. First, fixing this decision node sets the realized payoff for the responder at π_j =20 across all treatments (see table 3). This prevents the realized payoffs to exert any influence on rejection behavior. Second, foregone payoffs are constant at π_j^{omission} =50. Hence, the variation in unkindness across treatments is solely induced by changes in the intended consequences of the proposed allocation.

Table 3: treatment statistics for "high" stake allocations

Study	π_j	π_j^{deed}	π_j^{omission}	K_i
treatment 1 (figure 2a)	20	40	50	-10
treatment 2 (figure 2b)	20	27.5	50	-22.5
treatment 3 (figure 2c)	20	15	50	-35

If the intended consequences behind actual behavior matter for perceived unkindness (and if unkindness provokes negative reciprocity), we should find that

THE LOWER THE INTENDED CONSEQUENCES FOR THE RESPONDER THE HIGHER THE REJECTION RATE

After presenting the experimental design, it seems worthwhile to briefly address the nature move in more detail. One might plausibly argue that the nature move is uncommonly powerful in the current design. In allocation A, nature resizes the total stake and redistributes payoffs among both players within and between treatments. This may come at some costs for the overall understanding of the game. However, the nature move helps to overcome a set of methodological problems:

1. Confounds with realized payoffs: in regular ultimatum games, intended and realized consequences of actual behavior match each other. By redistributing payoffs within

each treatment the nature move disconnects these outcomes and allows isolating the impact of intended consequences.

2. Confounds with efficiency: the nature move redistributes the “low” stake allocation between treatments. The total sum of “low” stake payoffs, however, remains constant at 70 currency units. As a result, the total stake size amounts to expected values of 100 currency units in both the lower and in the upper branch of all treatments. Alternatively, one could vary the total sum of the “low” stake allocation and keep the payoff ratio at constant levels across treatments. While such a design may be easier to understand, it would also vary the (expected) stake sizes across treatments. As a consequence, one could not distinguish whether differentials in responses are due to the intended consequences or due to concerns for welfare.
3. Confounds with signals: imagine that nature would have to decide between a (40,60) and an (80,20) split. Allocation A would then be equivalent to offering a (60,40) split. Now consider an alternative scenario in which responses to an intended split of (80,20) shall be observed. In this situation, nature would have to decide between an (80,20) and an (80,20) split. Nature would have no choice, its move would be redundant. This may affect the perception of the actual choice beyond the scope of intended consequences. In the first example, a responder may think that the signal about the intended consequences arrived rather distorted. Own payoffs could range from 20 to 60 currency units. In the latter example, however, there is no doubt about the severity of actual behavior. The proposer wants the responder to get 20 currency units. Without transforming allocation A into a “low” and a “high” stake allocation, treatments would be largely imbalanced with respect to payoff variance. One would not be able to differentiate whether differences in rejection rates are induced by the intended consequences or by changes in payoff variances.

The current design fully accounts for the first two confounds. The potential impact of signals, however, has only been reduced by transforming allocation A. Payoff variances still change with treatments. Note that this is a natural disadvantage of using any kind of stochastic device (see e.g. the designs of Cushman et al. 2009, Schächtele et al. 2011). If we want to keep unchosen alternatives constant and at the same time disconnect intended and realized payoffs we have to accept that actual behavior may also be slightly affected by changes in payoff variances.

5. Experimental Procedures

The three treatments were embedded in a series of laboratory experiments at the University of Passau in December 2010. The game was preceded by a dictator game and another two ultimatum games. Subjects played in absolute stranger protocols, e.g. they were never matched with another subjects more than once. In order to minimize spill-over effects from previous games, there was no feedback provided on other player's behavior and payoffs until the very end of the experiment.[4]

Subjects were recruited by standard methods such as email invitations, advertising in bulletins, blogs, lectures and so forth. Upon arrival, participants were instructed on laboratory rules, the expected duration of the experiment, payment and blindness procedures. Participants were randomly split into two groups and guided to separated laboratories. The sessions were run computer-based and with neutral framing. Treatments were programmed and conducted with the software z-Tree (Fischbacher 2007). Responders participated in only one treatment and were asked to state complete strategies compassing responses for each decision node (strategy method).[5] As to maintain full single-blindness, players only interacted with counterparts from the other computer lab.

Each subject received a show-up fee of 2 Euros. The exchange rate was 1 currency unit = 2 Eurocent. At the very end of a session, payoffs were summed up across all games and displayed as a whole in order to ensure experimenters could not infer actual play.

6. Results

In total, ten sessions were run with 264 subjects participating. Each treatment was played by 80 to 96 subjects. The average student was 22 years old with a minimum (maximum) age of 19 (35). The mean semester was 4.2. 35 percent (91 subjects) were male. This proportion is in line with gender representation at advanced undergraduate levels at the University of Passau. Each session lasted around 23 minutes. Average payoffs were 5.13 Euros for that time with a minimum (maximum) of 2 (8.40) Euros. For comparison, a student assistant at the University of Passau earns 7 Euros per hour.

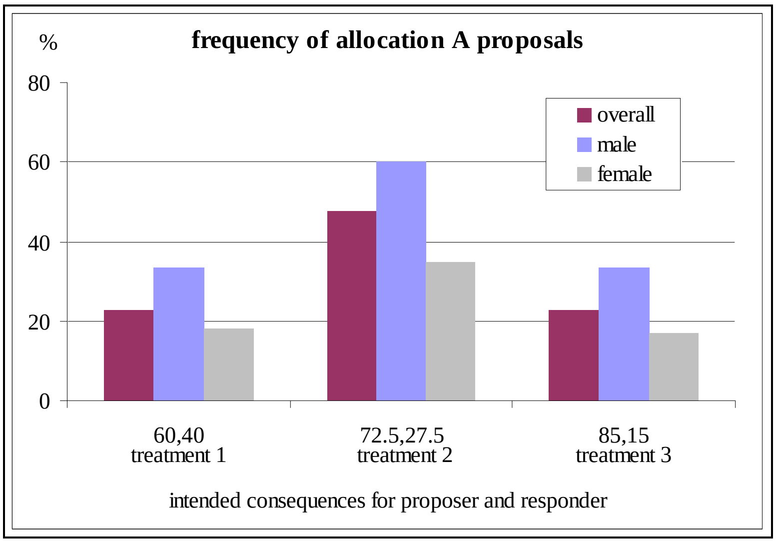
[4] Although such designs are extremely powerful for estimating utility functions and decrease the costs of experiments, many economic researchers are still reluctant to employ within-subject designs. Their main concern is that exposure to similar treatments may generate uncontrolled spill-over effects. While this concern may be particularly valid in repeated interaction, the results of regression analyses in this study do not show that previous games exert significant influence on behavior in the current game. In contrast, I believe that the previous games even helped to better understand the nature of the game.

[5] See Charness and Levine (2007: 1055), Cox et al. (2007), or Schächtele et al. (2011: 1) for recent discussions on strategy and game method in experiments focusing on reciprocity. I could not think of any reason why treatments should interact with contingent responses.

Descriptive Analysis

Figure 3 depicts how often proposer have chosen allocation A across treatments. The majority of proposers choose equal splits (allocation B) regardless of which treatment they are playing. Frequencies of proposing allocation A in treatments 1 and 3 remain generally low at levels around 23 percent whereas allocation A is chosen almost half the time when nature allows for an equal split of 35:35 in the "low" stake condition.

Figure 3: proposer behavior across treatments



The spike in treatment 2 raises the question why proposers choose allocation A more often in this treatment. One possible explanation is provided by Güth et al. (2001). The authors argue that responders may perceive even small deviations from equal splits as relatively unkind. If proposers in treatment 2 anticipate this, they may assume the equal split in the "low" stake condition to serve as an alternative focal point to the equal split in allocation B signaling their preference for equality. They may try hiding behind it hoping that unfavorable outcomes are attributed to nature's rather than their own move.

Nevertheless, proposing allocation A is not the best response to actual responder behavior. Ex-post proposer earnings from offering allocation A are 39.9 currency units in treatment 1, 45.1 currency units in treatment 2, and 47.7 currency units in treatment 3 – quite below ex-post earnings of almost 50 currency units originating from offering allocation B.[6] Female subjects propose A significantly less often than male proposers (t=1.88, p=0.06, two-sided). They either accurately guess that allocation B is payoff-maximizing or they may have a stronger propensity to care for equality.

[6] Actual rejection rates to allocation B are 2.1/0/0 percent in treatments 1/2/3.

The next figures show rejection rates across treatments to allocation A in the "low" stake condition (figure 4a) and in the "high" stake condition (figure 4b). In figure 4a, we observe rejection rates of 12.5 percent in treatment 1, 7.5 percent in treatment 2 and 40.9 percent in treatment 3. No major differences across gender can be found.[7] Although the overall trend suggests a negative correlation between intended responder's payoff and rejection rates, note that realized outcomes also vary across treatments, ranging from 60, 35, and 10 currency units for the responder. This finding is thus not surprising.

Figure 4a: responder behavior in the "low" stake condition

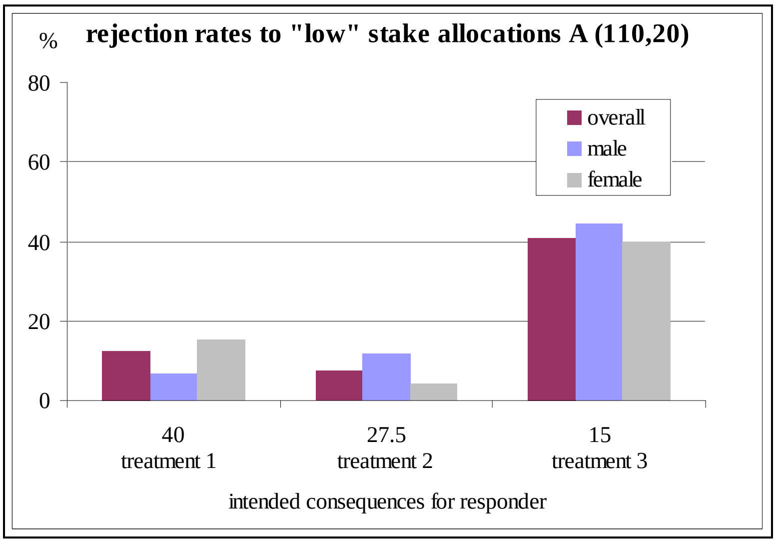
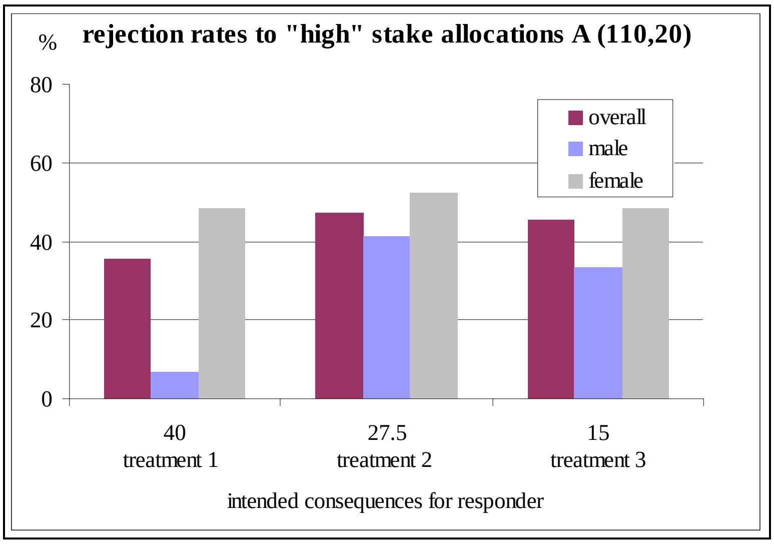


Figure 4b: responder behavior in the "high" stake condition



As explained before, the isolated impact of intended consequences on negative reciprocity is captured by rejection rates to "high" stake allocations. At this node the level of unkindness

[7] t=-1.16, p=0.25 for treatment 1, t=0.19, p=0.85 for treatment 2, and t=0.57, p=0.57 for treatment 3 (all two-sided).

varies across treatments while unchosen alternatives and realized payoffs are held constant. In the first treatment, 35.4 percent of all “high” stake allocation are rejected (see figure 4b). In the second treatment, responders reject the (110,20) offer in 47.5 percent of all cases. In the third treatment, the “high” stake allocation is rejected by 45.5 percent of the responders. The differences in rejection rates between treatments 1 and 3 (t=0.98, p=0.17, one-sided) and between treatments 1 and 2 (t=1.14, p=0.13, one-sided) indicate an overall trend that is in line with the hypothesis that intended consequences matter. But these effects miss conventional levels of significance. Moreover, the difference between rejection rates in treatments 2 and 3 points toward the wrong direction (t=0.19, p=0.57, one-sided). More unkind offers are slightly less often rejected comparing treatments 2 and 3. We must hence state that the impact of intended consequences on negative reciprocity appears to be of weak nature, less important than suggested by current reciprocity theories.

Figure 4b also depicts rejection rates sorted by the responders’ gender. Across all three treatments, rejection rates of female subjects are around 50 percent – broadly invariant to changes in the intended consequences. Rejection rates of male responders are significantly below that rate (t=2.47, p=0.02, two-sided) and seem to differ across treatments. When proposers act only mildly unkind, male responders abstain from retaliation (1 of 15 male responders reject). Rejection rates in the first treatment are significantly lower than in the second (t=2.37, p=0.01, one-sided) and in the third treatment (t=1.73, p=0.05, one-sided). But intended consequences seem only to matter for mildly unkind offers. There is no significant difference between rejection rates in treatments 2 and 3 (t=0.38, p=0.65, one-sided).

Probit Analysis

The descriptive analysis did not control for effects other than the treatment manipulation. The following estimations provide a more in-depth investigation of rejection behavior. Table 4 reports the results of two probit regressions on the likelihood to reject the “high” stake allocation (110,20). The leftmost column lists the explanatory variables: the intended consequences when proposing allocation A minus 27.5,[8] a gender dummy (=1 for female responder), and an interaction term between the gender dummy and intended consequences that will be explained below. The next columns provide coefficients, z-statistics, and p-values for sets of variables of both models. Model statistics are reported at the very bottom of table 4.

Table 4: probit results

	probability to reject the “high” stake allocation (110,20)

[8] By subtracting 27.5 from intended consequences, the second treatment is normalized to be the baseline.

	model 1			model 2		
independent variable	coef.	z	p>|z|	coef.	z	p>|z|
constant	-0.61	-2.88	0.004	-0.59	-2.74	0.006
intended consequences – 27.5	-0.01	-0.81	0.415	-0.04	-1.71	0.088
female	0.59	2.38	0.017	0.58	2.28	0.022
female x (intended consequences – 27.5)				0.04	1.52	0.129
N		132			132	
Pseudo R^2		0.04			0.05	

The results of the first estimation corroborate the previous conjecture that the intended consequences of an action play only a marginal role for responder behavior (model 1). The corresponding coefficient has the predicted sign. An increase in intended consequences for the responders tends to lower the likelihood to reject the “high” stake allocation. But this effect is beyond conventional levels of significance (p=0.415). We also find evidence that inequality aversion may be more pronounced among female responders. Women are significantly more likely to reject than male responders (p=0.017).

Capturing the interaction between gender and intended consequences, model 2 provides the results of a second probit analysis including a corresponding cross term. This term captures the idea that women may not react to variations in the intended consequences, while men do respond to changes. Again, we observe the coefficient of intended consequences for the responder to be negative. This time the effect is weakly significant (p=0.088). This gives some credit to the hypothesis that the lower the intended consequences the higher the probability to reject. Note, however, that this effect only embraces male responders. As conjectured in the descriptive section, it completely vanishes among female responders (although here the cross term variable slightly misses conventional levels of significance with p=0.129). Again, there is also significant evidence for a stronger general inclination of women to reject given offers (p=0.022).

7. Discussion

Across treatments, rejection rates are generally high indicating preferences for equality being prevalent among all subjects. This effect is more pronounced among female responders. Confronting responders with different levels of unkindness driven by intended consequences stimulates only very weak variation in rejection rates. As a result, we have to reject the idea that intended consequences generally matter for reciprocal responses. However, this study restricts its analysis to intended consequences in the domain of unkind behavior. It remains open for future research to investigate the effects of intended consequences for kind behavior.[9]

With respect to the gender differences observed in many fairness games this study can contribute to the ongoing debate among scholars. Cox (2002) and Lambsdorff and Frank (2011) argue that women may be less strongly motivated by concerns for negative reciprocity but try to reduce differences in realized payoffs. The results of this study confirm this conjecture. Male responders exercise negative reciprocity when observing highly unkind offers but abstain from retaliation when proposers exercise only slightly unkind behavior. Women, instead, are found to be largely invariant to changes in the intended consequences of an action. They may rather perceive kindness by evaluating foregone and realized payoffs.

A possible explanation for this phenomenon may come from neighboring disciplines. In social psychology, for example, it is widely believed that women and men pass through different forms of socialization that successively trigger different cognitive processes for assigning e.g. causality and responsibility (e.g. Beling et al. 2001; Bottoms et al. 2011). Women could for instance disrespect the 50 percent chance of getting 60 in the first treatment and attribute intentions based on a worst-case scenario – a bias known as "probability neglect" in risk perception research (e.g. Rottenstreich and Hsee 2001). They may assess the unkindness of an action by evaluating the maximum harm associated with actual behavior. Men, in contrast, may build up beliefs about the other player's intended consequences using the objective probabilities. They may refer to the most-likely scenario.

8. Conclusion

Reciprocity models argue that deeds and omissions drive our perception of another person's kindness. While the impact of foregone payoffs has been intensively studied, little has been done to investigate whether the intended consequences of the actual behavior matter for reciprocation. This paper investigates how intended consequences can provoke negative reciprocity. It presents an experimental design that is able to vary the intended consequences of an action at constant levels of realized and alternative payoffs. In each treatment proposers can either offer an equal split or flip a coin to determine the actual payoff allocation. In the first treatment, flipping the coin is mildly unkind. In the second treatment, it is moderately unkind, whereas in the third treatment flipping the coin is strongly unkind toward the responder.

Comparing responses at constant levels of realized payoffs and unchosen alternatives, we find only an insignificant impact of intended consequences on rejection rates. On aggregate terms, these findings suggest that unkindness evaluations barely incorporate intended conse-

[9] For example, a straightforward method to test the impact of intended consequences on kind behavior would be to set the foregone payoffs in each treatment to (100,0).

quences. But behavior differs across subjects' genders. Male subjects appear to react to variations in intended consequences while female players seem to be rather invariant. This irregularity can be explained by gender-specific notions of fairness. The majority of men may be realists, while women are more pessimistic about the other player's intended consequences.

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