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TRACING FAIRNESS INTENTIONS: CHINESE WHISPER

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Abstract

The paper aims at defining the role of intentions for reciprocity. The ultimatum game is modified, by adding a kind of randomizer (“Chinese Whisper”), to generate outcomes which are not intended and thus to separate the proposers’ initial intentions from their actual offers. The mechanism ensures that the responder reacts to changing intentions and not to changing outcomes. This experimental approach also has the advantage that the number of available options for the proposer is not limited. Our evidence supports the view that fairness theory should explicitly address intentions – responders exhibit different acceptance rates depending on the intentions of proposers.

JEL Classification: C72, C91

Keywords: Fairness; Reciprocity; Intention; Ultimatum game

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1 Introduction

Choosing a reaction to other people's actions frequently includes a judgement of their intentions. People care about other people's intentions, because they prefer a social environment where bad outcomes are only caused by chance but not driven by the will of fellow individuals. Good intentions are somewhat like a warm coat: If good intentions are recognizable, individuals are more willing to tolerate bad outcomes. And the recognition of bad intentions brings about less tolerance. In both cases, knowing intentions reduces uncertainty in evaluating outcomes because the intentions of others matter.

This line of argument is by no means undisputed: Motives of fair behaviour are still a black box – there is no unanimous understanding of the underlying decision-making process. Two competing approaches should be differentiated: The first is that fairness is a preference of a person who defines which allocations are acceptable and which are not. This evaluation is solely a matter of outcomes. The second is that not only actual outcomes but also other factors influence the decision to reciprocate. Among such factors are intentions, the questions of causation and responsibility, and many others.

Our paper suggests an experiment to test whether and how underlying perceived intentions of one person affect the reciprocal behaviour of the other person. The aim of this paper is to isolate intentions from outcomes in order to show the effect of intentions only. We enhance the well known ultimatum game by the intervention of the randomizer mechanism we call Chinese whisper after a popular children's game.^{**} This allows us to create two stages in the game: first, the intentional stage, second, the outcome stage, so that it is possible to clearly attribute the reciprocal reaction of the subjects to the different factors. It will be shown, that the experimental results definitely support the idea of intentional fairness.

The rest of the paper is organized as follows: Section 2 sets the stage by reviewing reciprocity theories with regard to fairness. Section 3 provides a detailed description of the experimental design we applied with 82 students of the University of Göttingen, Germany. The experimental results are presented and discussed in Section 4. Section 5 offers a conclusion and possible extensions of the experiment.

^{**} In German, this game is called „Stille Post“ („silent post“). The only translation we found was „Chinese Whisper“, obviously referring to the inability of most English speaking people to understand Chinese. As we share this inability we feel the mechanism is well described even though we warn all Chinese speaking people that they should read it as „whatever foreign language I don't know“. As far as we and our language abilities are concerned it could have been French, Italian, Greek or many other whispers.

2 Literature review

The idea that fairness considerations influence the evaluation of the outcomes and thus the willingness to reciprocate is not new. But what fairness exactly is and how it could be measured, is still not quite clear. The two important approaches to fairness are the consequentialist and the intention approach. Consequentialist fairness theories based on Bolton and Ockenfels (2000) and Fehr and Schmidt (1999) do not allow for the influence of intentions when evaluating outcomes. The basic principle of consequentialism is that fairness consideration rests upon inequity aversion, which is influenced only by the consequences of an action and not by underlying motives. Still, Fehr and Schmidt (1999) do not fully deny the possibility of intention-driven reciprocity. They allow for intentions in a reduced form: the consequences of the action can be perceived as the consequences of intentions. Intentions are thus equated to the consequences or to the inequity preferences and distributional concerns. The intentions are not explicitly incorporated into the model and are not separable from the consequences. Bolton and Ockenfels (2000) argue in an even more clearly consequentialist way. From their perspective, reciprocity and competition do not allow for intentional influence in evaluating fairness. The determinants of fair behaviour are equity considerations as well as strategic reasons.

The intention approach goes back to psychological and sociological studies. One of the possible starting points is Gouldner (1960), who states that the reciprocal behaviour is universal but not unconditional and depends on the recipient's needs as well as on resources, free will, motives (e.g. intentions) and constraints of the donor's behaviour (p. 171). This study does not reveal however, how the motives of the donor's behaviour influence the reciprocal action. Some further and experimental research is conducted by Greenberg and Frisch (1972). They show in a psychological experiment that obligation and attribution of motivation are important mediators of reciprocity: "The willingness to reciprocate is a positive function of the evaluation of how motivated the donor was to help, which in turn is a positive function of both the intentionality (deliberate vs. accidental help) and the magnitude of the help received" (Greenberg and Frisch (1972), p. 101). The same theoretical concept motivated Kahn and Tice (1973) in their study. Their results are much in line with those of Greenberg and Frisch (1972) and also of Goranson and Berkowitz (1966) implying that the intentionality of the helper's action plays the major role in the intensity of reciprocity. These studies are an important step in the experimental literature towards the deeper analysis of the intentional fairness considerations but they only differentiate the case of deliberate help vs. accidental help, the latter meaning that donors are not even aware of helping. These experiments do not investigate the influence of deliberate intentions of both sorts (helping vs. not helping).

Another important point in the evaluation of outcomes is the question of procedural justice which can be sometimes seen as a proxy for the intentions. Tyler (1988) finds that procedural justice plays a key role in mediating reactions to outcomes, so that procedural fairness is even more important than distributional fairness. The major criteria defining procedural fairness are

representation (process and decision control), the effort to be fair, ethicality, honesty, consistency et cetera (Tyler (1988), pp. 128-131). If a subject binds itself to these criteria of procedural justice she reveals good or fair intentions. In the analysis of organizational change, process orientation and outcome orientation are determined by organizational identification. Individuals with a higher degree of identification with their organization are far more concerned with procedural fairness than specific outcomes (Van Knippenberg et al. (2006)). The importance of such factors leads directly to the incorporation of intentional attributes into the theory of fairness.

One of the first to incorporate psychological insights into economic studies was the fairness model of Rabin (1993), who focuses on intentional considerations in fairness and reciprocity. He approximates intentional attitudes with a choice from a range of available strategies, so that beliefs about another person's intentions influence actual behaviour. Dufwenberg and Kirchsteiger (2004) enhance the model of Rabin (1993) and focus on reciprocity considerations in sequential games.

The model of Falk and Fischbacher (2006) proposes a theory of reciprocity based on the perceived kindness of an action, defined jointly as the actual outcome and the underlying intentions. The outcomes are evaluated as fair depending on an equity standard. Additionally, intentions influence the evaluation: if the intentions are absent, the behavioural response is less intense and is determined only by outcomes. However, this paper does not differentiate between intentions which exist and are kind, and intentions which exist and are unkind.

A variety of experiments have been conducted to test whether intentionality affects the reciprocal behaviour. Blount (1995) generally supports the importance of intentions and finds that the possibility of causal attribution (self interested or neutral, social vs. environmental causal agent) signals intentions and evokes significant differences in behaviour. Falk et al. (2000) propose a similar experiment with the intention and no-intention treatments in the moonlighting game. In the no-intention treatment the outcomes are determined by a random device. In the intention treatment, the intentions of the proposer are followed by intended outcomes and produce both positive and negative reciprocity, unlike the no-intention treatment. The intentional attribution is carried out in form of depriving the first mover of any choice at all. The experimental study of Falk et al. (2003) also restricts the alternatives of fair acting in the ultimatum game, so that this could be used as a proxy for intentions ('he wanted to be unfair, because he had the possibility to offer an equal split and did not make use of it'), and finds that the rejection rate of the same offer (8/2) falls as the available alternatives become more and more unfair. Within intentionalist fairness approaches it is not surprising that the fewer possibilities one has to choose one's actions from (to act fairly), the lower the negative reciprocity in evaluating unfair outcomes. And it is equally obvious in this context that dicing will bring about almost no reciprocity. Nelson (2002) designs a similar experiment as an ultimatum game, limiting the strategic alternatives of the proposer and also finding that "the thought counts". All of these experimental studies model intentions indirectly and derive

the intentional attribution either from the limited acting alternatives or from the comparison between the presence of intentions and their absence. They all miss addressing directly the different sorts of intentions (fair/unfair) thereby concentrating on secondary evidence for intentions.

Indeed, the reduction of possibilities as a proxy of intentions sheds light on responders' evaluation of intentions which do not exist. So if the unkind outcomes are not intended, they are going to be punished less. And the same holds true for kind outcomes: non-intended outcomes produce no reciprocal reaction. However, the main point of this paper is that the non-intentional treatment provides little insight into existing fair intentions or unfair intentions. Moreover, it fails to differentiate between intentions with intended outcomes and intentions with unintended outcomes. Therefore, we suggest incorporating one more step into decision making, so that intentions are uncoupled from the outcomes. In other words, Falk et al. (2003) focus on the resources and free will of the proposer, while we examine the direct influence of the proposer's motives on the responder's action.

3 The Experiment

Our experimental design is a variation of the ultimatum game (Güth et al. (1982)) where the proposer decides how much of € 5 he will offer to the responder (50 cent interval), and the responder decides if he is going to accept or reject the offer. If he accepts, the € 5 are split accordingly. If he rejects both get nothing.

Our modification, which we term "Chinese Whisper", is as follows: After the proposer makes his offer, it is put into a randomizer so that it reaches the responder not in its original form, but modified. For example, if the proposer offers an initial 2.5/2.5 split, the Chinese Whisper could transform it into a final 4/1 split. Or there could be an initial offer of 4.5/0.5 which reaches the responder as a final 2.5/2.5 split. This final split – after the Chinese Whisper – is relevant for the actual splitting. So the Chinese Whisper can produce outcomes which are not intended. This design permits a clear separation between outcomes and intentions. Our Chinese Whisper is modelled as a random device which produces all possible outcomes with equal probabilities.

There are three rounds in the experiment, and in each round there € 5 are to be gained. There is a random matching of proposers and responders in order to eliminate learning or cooperation effects. Both the proposer and the responder are informed about the random matching. The announcement of information about the outcomes in each round and the payments are made after completing the entire experiment. Each round contains instructions, control questions and the decision sheet. In each round the participants obtain the instructions only for the particular round, and are not informed that further rounds follow. The decision to participate in the second (third) round is made after the first (second) round decision is finalized.

The **first round** is a normal ultimatum game. In this round the proposers are asked to offer a split, which is then matched with the decision of the responders. The responders have to fill in a table (Table 1) indicating which splits they would accept and which they would not. These data are used to decide if and how the € 5 should be split between proposer and responder. The responders must take a decision to accept before they get the offer (strategy method of Selten (1967)).

Poposers offers:		0.5€	1€	1.5€	2€	2.5€	3€	3.5€	4€	4.5€
Proposer gets...		0.5€	1€	1.5€	2€	2.5€	3€	3.5€	4€	4.5€
you get ...	4.5€	4€	3.5€	3€	2.5€	2€	1.5€	1€	0.5€	
Would you accept this offer? (y/n)										

Table 1. Responder's decision sheet in the first round

After the decisions are made the proposers are informed about the second round and the Chinese Whisper modification and are asked if they would like to participate in the next round with the same split offer as in the first round.

The **second round** is the “Chinese Whisper” modification. The responder is informed about the Chinese Whisper modification and that the proposer did not know about it at the moment of decision. The proposer must offer the same split in the second round as in the first. The responder has to fill in two tables with binding strategic responses (see table 2). Table 2 reveals his decision in the case of fair intentions of the proposer for a 2.5/2.5 split (the words “fair”/“unfair” are not used in the instructions).

“Chinese Whisper” offer	Proposer gets...	0.5 €	1 €	1.5 €	2 €	2.5 €	3 €	3.5 €	4 €	4.5 €
offer	you get...	4.5 €	4 €	3.5 €	3 €	2.5 €	2 €	1.5 €	1 €	0.5 €
Your decision	Would you accept the offer? (y/n)									

Table 2. Decision sheet of the responder in the second round, fair intentions (offer is 2.5/2.5)

The responders are also asked which offers they would accept if the intentions of the proposers were 4.5/0.5 (see table 3). The obtained responses are matched with the proposer's offer and the Chinese Whisper results. If the proposer's offer was either 2.5/2.5 or 4.5/0.5, then these tables serve as a decision how the € 5 are going to be split (acceptance of the responder required). In the case that the offer of the proposer differs from these two variants the responder was asked to respond to this as well in an additional form. For these responders the second round consisted of two steps. For the evaluation of intentional influence on the actions the border cases (2.5/2.5 vs. 4.5/0.5) are of the greatest importance because they

symbolize the fair and most unfair intentions. All the cases between are weaker forms of these two.

“„Chinese Whisper“” offer	Proposer gets...	0.5 €	1 €	1.5 €	2 €	2.5 €	3 €	3.5 €	4 €	4.5 €
	you get...	4.5 €	4 €	3.5 €	3 €	2.5 €	2 €	1.5 €	1 €	0.5 €
Your decision	Would you accept the offer? (y/n)									

Table 3. Decision sheet of the responder in the second round, unfair intentions (offer is 4.5/0.5)

In the **third round** the proposers know that their offer can be changed by the Chinese Whisper before the responder decides. The responder knows about the Chinese Whisper possibly altering the decision, and that the proposer also knows about it. The proposers are asked to make a new split offer. The responders are asked to fill in the same fair intentions and unfair intentions sheets as in tables 2 and 3 and, if necessary, to fill in the additional feedback form if the offer of the proposer differs from 2.5/2.5 or 4.5/0.5. The only difference to the second round is now that both proposers and responders are informed about the Chinese Whisper and both know that the other knows.

Rewarding and punishing in this context are evident if the responder reacts differently to the same outcome depending on the intentions of the proposer. For example, if the responder refuses the 4/1 offer in the first round (without the Chinese whisper) and accepts the 4/1 offer in the second round, in the fair intentions-treatment, the responder exhibits rewarding behaviour: He tolerates an initially intolerable offer because of the “good will” of the proposer. In the same way, if the responder in the unfair intentions treatment refuses, say, a 3/2 offer, which was accepted in the first round, it is regarded as punishing behaviour: The responder accepts a monetary loss in order to punish the unfair intentions of the proposer even if the outcomes are actually tolerable. So the reciprocity is modelled on accepting initially intolerable outcomes. In our experimental design it is possible to attribute both fair and unfair intentions to fair and unfair outcomes so that only the intentions are being evaluated.

To summarize the design, we introduce the first round to identify individuals concerned with fairness. Only those individuals are of interest for our purpose. This round also generates split offers from the proposer that are not influenced by the Chinese Whisper. The second round tests the difference between the fair and unfair intentions and the responders' reaction to them. The intentions are explicitly revealed so that the responders do not have to form beliefs about the beliefs of the proposer, but instead know the true intentions of the proposer, because proposers can only choose whether to resubmit their offer but cannot submit a new one, and the responder knows about it. The third round tests possible strategic behaviour of proposers and responders. The hypothesis is that the proposers offer other splits, knowing

that their decision is not influencing the outcome in order to guarantee the acceptance of the responder. The responder could understand this consideration and not respond to the “fair” intentions of the proposer. The tests of these hypotheses are offered in the next section.

4 Results

The experimental group consists of 82 students, of whom 12 are economics students and an additional 12 had some economic courses in the past. The roles of proposers and responders are randomly assigned, so that there are 39 proposers and 43 responders (offers of 4 proposers were used twice).

Responder

The mean of the minimum accepted offer in the first round is EUR 1.51 which is significantly (t-statistic of 9.8) different from the homo oeconomicus prediction (the minimum possible accepted offer of 0.5). This confirms general fairness preferences and is not really new. Out of 43 responders, 7 subjects (4 of them with some background in economics) accept all possible offers (16.3%). These individuals are taken from the sample as not being concerned with fairness problems at all. For them, intentions cannot play a role as they are purely maximizing their pay-offs. For our purpose only the rest of the group (83.7%) is of interest: 36 responders who turned out to be concerned with some fairness considerations or inequity aversion.

Our results support the case of intentional-based reciprocity: the majority of subjects concerned with fairness respond to changing intentions. The responders are ready to accept lower (more unfair) offers if the intentions were fair. The difference between the average minimum accepted offer in the fair intentions and unfair intentions treatments in the second round is 0.36, significant at a 5% level (one-tailed t-test). The acceptance rate of each “unfair” offer is higher if fair intentions are involved.

The third round shows the same effect – higher acceptance rates of fairly intended unfair outcomes – but it is less significant. There is also no significant difference between the second and the third round, so that the responders do not substantially alter their behaviour according to strategic behaviour. The detailed experimental findings about the responders are summarized in Table 4. However, intentional reciprocity in the positive domain is not responsible for this behaviour alone – inequity aversion still exists, even if fair intentions reduce the refusal rate.

Compared to the first round there are more responders in the second willing to accept even the lowest offer. This effect can be attributed to both the intentional background of the proposers’ actions or the introduction of the randomizer between the intention and the real proposal, so that it can not be clearly evaluated here. An experiment with a pure random device would be one of the extensions discussed in the last section of the paper.

Blount (1995) suggests that under environmental attributions without any human influence, people act like payoff maximizers. In our experiment the outcome is based solely on a random

mechanism as the intended offer does not influence the outcome in the Chinese Whisper. Nevertheless the (even non-materialized) intentions of the proposers alter the behaviour of the responders significantly.

Round		Acceptance rate in %					Mean of MAO*/ t-tests
		2.5	2	1.5	1	0.5	
first		97.2	86.1	47.2	27.8	0.0	1.71
second	fair intentions	97.2	83.3	69.4	41.7	25.0	1.39
	unfair intentions	88.9	69.4	52.8	25.0	16.7	1.75
	paired t-test of the difference and (p-value)	1.35 (0.091)	1.71 (0.048)	1.97 (0.028)	1.97 (0.028)	1.14 (0.131)	-2.057 (0.023)
third	fair intentions	97.1	82.9	65.7	42.9	28.6	1.37
	unfair intentions	94.3	77.1	62.9	34.3	17.1	1.56
	paired t-test of the difference and (p-value)	1.00 (0.162)	0.71 (0.243)	0.44 (0.331)	1.00 (0.162)	1.67 (0.052)	-1.35 (0.093)

Table 4. Responders' acceptance rate of different offers, paired t-tests and p-values for differences between the treatments (* = Minimum accepted offer)

The ultimatum game actually offers no possibility to hurt the other person, the proposers being just more or less kind to the responders. Falk et al. (2000) therefore have some doubts about applying the ultimatum game framework to testing reciprocity, because the basic design is not salient enough to produce significant results. Despite these general doubts, which we basically share, our experiment reveals that intentions which are kinder (fair split) or less kind (unfair, but still a positive split) are evaluated differently by responders. So we conclude that intentions play such an important role that even in the general ultimatum framework they become significantly prevalent.

Proposer

The proposer has three decisions to make: in the first round he offers a split, in the second round he decides to participate or not to participate with this initial offer in the second round and in the third round he offers a new split again.

The average split offered is higher than the homo oeconomicus hypothesis requires but is in line with the other ultimatum game studies: The mean offers of 2.09 in the first round and 2.31 in the third round both differ significantly from the predicted 0.5 split (t-statistics 21.34 and 12.68 respectively). It is striking that the proposers offer more than is apparently necessary: the minimum accepted offers are lower than the offers of the proposers. The difference between the mean of the first and the third rounds of proposers' offers is statistically insignificant but the variances of both rounds (SD 0.71 and 1.05) are significantly different (F-statistic 2.16, p-value 0.02). It is worth noting that the proposers decide on the split offer in the third round without knowing the results of the first and second rounds, so that learning effects are eliminated and the difference is only due to strategic decision-making. So while proposers try to ensure the responders' acceptance by offering splits which are more responder-friendly, the responders do not really react to it.

Euro	Proposed responders' shares										Mean	SD
	5	4.5	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0.5		
First (=second) round (in percent)	0	0	0	10.0	45.0	20.0	12.5	5.0	5.0	2.5	2.09	0.72
Third round (in percent)	5.4	5.4	0	13.5	40.5	13.5	2.7	8.1	8.1	2.7	2.31	1.05
Difference											paired t-test 1.027 (0.31)	F-test 2.16 (0.02)

Table 5. Proposers' offers in the first and third round (in percent).

5 Conclusions

This paper examines the difference between kind and unkind intentions and their influence on responders' reactions. We examine this difference by applying a mechanism we call the Chinese Whisper. This differs from a simple random device by revealing the intention of the proposer while separating the intention (initial offer) from the actual outcome (after the Chinese Whisper). Results show, firstly, that a majority of individuals (83.7%) incorporate fairness considerations into their decision making. Secondly, regarding these individuals, the paired t-test of reactions measured by the means of the minimum accepted offer to fair and unfair intentions of proposers reveals a significant effect of intentions at a level of 0.023. Thirdly, , the acceptance rate is in addition almost always significantly higher for fair intentions than for unfair intentions; it is only insignificant for the lowest possible offer of 0.5. Fourthly,

proposers offered a higher mean share to responders in the third round. They also offered more extreme shares. This suggests strategic behaviour on behalf of proposers. Responders reacted similarly to the second round but less strongly. All our findings are very much in line with Charness and Levine (2007), who analyse intentions and outcomes in the labour market and the reciprocity of workers who can choose their effort level.

There are two possible extensions to our experiment. The first is to apply a purely random device without any background of intentions. In such a setting, responders react only to a computer's random device and proposers are reduced to simple receivers according to the responders' acceptance or decline of offers. The predictions for this experiment are rather simple. Firstly, the overall acceptance rate of the Chinese Whisper offers is going to be higher than the regular split offers, because responders accept more if offered by a random device than they would if offered by a fellow individual. Secondly, acceptance of Chinese Whisper offers without an intentional background is going to be lower than the Chinese Whisper offers in the case of kind intentions and higher than the Chinese Whisper offers in the case of unkind intentions, while the difference is not going to be symmetrical.

The second could be an application in the moonlighting framework. Material payoffs in the setting of our ultimatum game do not treat kind and unkind intentions symmetrically. Punishing is costly in the sense that refusing the offer means sacrificing one's own part of the money, while rewarding is easy because accepting the initially unacceptable offer generates a monetary payoff and no costs. With regard to inequity aversion, the setting treats both types of intentions equally. If both punishing and rewarding were costly (or both free) we would observe more significant differences between the intentional treatments. In order to eliminate this bias it would be interesting to pursue the moonlighting game (Abbink et al. (2000)), which offers a suitable experimental design for this purpose.

The experiment, if consolidated by the proposed possible extensions, suggests that institutions should ensure transparency of intentions. In our understanding, knowledge about intentions reduces uncertainty for responders. For proposers there is a clear incentive to hide malignant intentions but to reveal good intentions. Therefore, institutions should help intentions to be recognised. Frey and Bohnet (1995) generalize the notion of fairness as being influenced by social institutions: property rights, interaction between the players and – as in many intentional studies – opportunities set. We would suggest that increased transparency would be regarded as a fairer institutional environment.

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