What's in a Name? Anonymity and Social Distance in Dictator and Ultimatum Games

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Abstract: The standard procedure in experimental economics maintains anonymity among laboratory participants. Yet, many field interactions are conducted with neither complete anonymity nor complete familiarity. When we are involved in interactive situations in the field, we usually have some clues concerning the characteristics of others; however, in environments such as e-commerce, these clues may not be very substantial. The issue of trust and behavior in virtual business is quite relevant in the contemporary economy. How will people respond to varying degrees of anonymity and social distance? This paper compares the standard procedure of playing dictator and ultimatum games with the same games played by participants who knew the family name of their counterparts. When these names were revealed, dictators allocated a significantly larger portion of the pie. However, this information had no significant effect on the offers in the ultimatum game, as it appears that strategic considerations crowd out impulses toward generosity or charity. Our results also have direct applications to fund-raising and philanthropic activities.

1. INTRODUCTION

The influence of social preferences on economic behavior has recently become a focus of considerable research. Participants in laboratory experiments frequently choose not to maximize their own material payoffs when social influencs are present. In two of the classic experimental games, people allocate positive sums of money to anonymous strangers in the dictator game, and reject positive monetary offers in the ultimatum game. A relevant consideration is how robust such behavior is to variations in *social distance*, by which we mean the emotional proximity induced by the situation.

The influence of social distance is a relevant concern for e-commerce, as there are typically no face-to-face interactions and behavior may be sensitive to subtle cues. Firms such as Hewlett-Packard are beginning to consider the issue of trust and behavior in virtual business. The degree of generosity (altruism) of potential philanthropists may also reflect considerations of perceived social distance.

Social distance is a term that has been used in the social science literature since at least Bogardus (1928). The idea is that people are expected to act more favorably toward those with a higher degree of social kinship.[1] Typical determinants of social distance are nationality, occupation, race, religion; the weights assigned to each category vary somewhat across cultures.[2] Perceived social distance has been found to have effects even in laboratory settings; for example, a seminal social psychology experiment by Tajfel, Billig, Bundy, and Flament (1970) finds that subjects strongly favor members of their

[1] Frank (1985) suggests that people are more apt to make comparisons with people who seem less distant.
[2] See Triandis, Davis, and Takezawa (1965) for a discussion of how these vary across the U.S., Germany, and Japan.

experimental ingroup, even in a situation devoid of the usual trappings of ingroup membership.

However, there are rather few studies in economics that explore the influence of social distance on behavior (Section 2 discusses the existing literature). As it is standard in economics experiments to maintain anonymity among the participants, there is generally only a rather limited range for perceived social distance. Roth (1995) points to a possible reason for this, suggesting that anonymity has become the rule due to concerns with the potential loss of control over the social environment. Yet this point may be most appropriate when we are testing a theory based on the principle that people are selfish; if we suspect that people are not entirely selfish, we may instead be interested in the patterns of non-selfish concerns.

Historically, in one of the first bargaining experiments reported in the economic literature, Siegel and Fouraker (1960) chose a procedure in which the two bargaining parties will remain anonymous to each other throughout the experiment. They explained their choice (pp. 22-23) as follows: "This procedure eliminates certain variables … connected with interpersonal perceptions, prejudices, incompatibilities, etc." However, ignoring these variables may lead to a lower degree of external validity for an experiment. In fact, Siegel and Fouraker continue: "It is our belief that such variables should either be systematically studied or controlled in experimentation on bargaining. It cannot be assumed, as has often been done, that such variables may simply be neglected. We have chosen to control these variables at this stage of our research program, with the intention of manipulating and studying them systematically in future studies."[3]

[3] Unfortunately, Siegel's untimely death cut this research agenda short

The emphasis in our paper is on the observation that many field interactions are conducted with neither complete anonymity nor complete familiarity. When we are involved in interactive situations, we usually have some clues concerning the characteristics of others. It seems valuable to investigate the influence of decreasing the social distance in a manner that avoids the loss of control discussed above. How will participants respond to a modest reduction in the degree of anonymity and social distance?

We study behavior in the dictator game and the ultimatum games (discussed in section 3). In our control treatments, the experimental procedure uses the standard set-up of anonymity only with respect to the other participant(s). As a treatment variable, we also conduct sessions in which the participants also learn the family name of their counterpart.[4] Participants from two different universities are used to ensure that this is the only additional information they receive (that is, they do not know their counterpart personally). The hypothesis tested is whether this additional information, regarded as irrelevant by traditional game theory, affects behavior simply by reducing the social distance between participants.

[4] We do not provide first names, as this would introduce potential gender effects. Eckel and Grossman (1992), Fershtman and Gneezy (2001), and Dufwenberg and Muren (2000) provide evidence that knowing the gender of one's counterpart can affect choices.

2. PREVIOUS WORK

Bohnet and Frey (1995) posit a hierarchy of "institutional characteristics" that determines the extent to which fairness considerations are active. With anonymity, one has only a purely intrinsic motivation to behave fairly; when people can identify each other, the fairness norm is partially activated; when people can also communicate with each other, the fairness norm is strongly active. Holm (2000) and Fershtman and Gneezy (2001) use the names of subjects in the experiments to signal social background such as gender and ethnicity. Both studies find strong effect for these signals.

Experiments with face-to-face bargaining and unrestricted communication indicate that behavior is different than with the standard anonymous environment. There are far fewer bargaining failures in the Nydegger and Owen (1975) face-to-face experiment than in a similar anonymous bargaining experiment by Roth and Malouf (1982). This comparison also holds for the face-to-face bargaining in Hoffman and Spitzer (1982) vs. the anonymous bargaining in Binmore, Shaked, and Sutton (1989). Radner and Schotter (1989) find that face-to-face bargaining yields 99% of the potential gains from trade, whereas anonymous bargaining achieves only 92%. But face-to-face bargaining is an extreme case, and may do more than simply remove anonymity. Roth (1995) suggests that face-to-face interactions may trigger social training which crowds out underlying preferences.

Some experiments have investigated the effect of increasing social distance beyond the standard laboratory anonymity condition, where participants can see each other before and after (and even during) an experiment, share common traits (e.g., school, age group, nationality), and may well be friends or acquaintances. Charness, Haruvy, and

Sonsino (2000) explore the effect of increasing social distance by comparing behavior in a classroom experiment and in an Internet experiment. While they find significantly less influence for social preferences in the virtual environment, the patterns across the treatments are surprisingly similar, and most people exhibit a willingness to sacrifice money.

Hoffman, McCabe, Shachat, and Smith (1994) were the first to employ a *double-blind* procedure, in which subjects are also guaranteed anonymity with respect to the experimenters. This higher degree of anonymity effectively increased the social distance, and was found to induce changes in behavior.[5] The authors suggest that what may seem like fair behavior may be due not to a taste for fairness, but due to a social concern for what others think. They argue that traditional non-cooperative game theory is about strangers with no shared history, so that we should follow this guideline in testing the theory.

Bohnet and Frey (1999) conduct dictator games at the University of Zurich. In addition to the baseline dictator game, types of *visual identification* are varied in three treatments. In two-way identification, all subjects were asked to stand up and look at each other for a few seconds. In both of the two one-way identification treatments, recipients held cards with identification numbers; in one of these treatments, recipients also told the audience their names, majors, hobbies, and "where they came from." Their data clearly reject the hypothesis that the distribution of allocations is the same in all treatments. While the cumulative distribution of offers does not provide significant differences between every pair of treatments, it is worth noting that providing verbal

information traditionally considered relevant to social distance does appear to increase allocations.[6]

Bolle (1998) finds that people seem to anticipate that one's name can have an effect on another person's behavior. In his "Rewarding Trust Game", the first mover can choose to forego an outcome in which she would receive 80 and the other person would receive 0, or to allow the second mover to unilaterally apportion 160 between the two parties. In his design, each second mover was asked to choose rewards for two first movers, and only some of the decisions were chosen for payoff. An innovation is that each first mover chose a pseudonym, which was shown to the second mover. There were 7 cases where a second mover chose different rewards for two trusting first movers. Thirteen economics students (peers to the experimental participants) were later asked to predict which pseudonym received a higher reward in each of these cases. In 5 of the 7 cases, one of the paired pseudonyms was guessed to have received a higher reward by more than 60% of the evaluators. In each of these five instances, the guess was correct.

[5] However, see Bolton and Zwick (1995) and Bolton, Katok, and Zwick (1998) for somewhat different results concerning subject-experimenter anonymity.

[6] The maximum difference of these two cumulative distributions ($N_1 = 25$, $N_2 = 18$) appears to be about .35, according to Figure 1 of Bohnet and Frey (1999). The Kolmogorv-Smirnov test gives $\chi^2 = 5.13$, 2 degrees of freedom, $p = 0.08$ (two-tailed test). However, the effect of the additional information provided in the verbal treatment cannot be separated from the effect of the verbal presentation *per se*.

3. EXPERIMENTAL DESIGN

Our 2x2 experimental design varied the game (ultimatum or dictator) and whether family names were provided to the first movers.

The ultimatum game was first studied in Güth, Schmittberger, and Schwarze (1982). This is a two-player game in which one player (the *proposer*) provisionally receives an amount of money ("the pie") and makes a proposal to the other player (the *responder*) regarding how to divide this money between them. If the responder accepts the proposed split, it is implemented; otherwise, both players receive zero. Assuming that players want to maximize own monetary payoffs, the subgame-perfect equilibrium is for the proposer to take (almost) all of the money for herself. The main result of this experimental literature is that the subgame-perfect equilibrium is very rarely played. Proposers typically offer between 40 to 50 percent of the pie to the responders, and smaller proposals are frequently rejected.[7]

The dictator game is a simpler form of the ultimatum game, where one player (the *allocator*) receives an amount of money and makes a unilateral decision how to divide it. The other player (the *recipient*) must accept this split of the pie. Once again, on the assumption that people are only concerned with maximizing own monetary payoffs, the unique Nash equilibrium is for the allocator to take all the money for herself. Two main conclusions emerge from the literature on this game (e.g., Kahneman, Knetsch, and Thaler 1986, Forsythe, Horowitz, Savin, and Sefton 1994, Hoffman, McCabe, Shachat, and Smith 1992, and Hoffman, McCabe, and Smith 1996). First, the equilibrium

[7] Camerer and Thaler (1995), Güth (1995), and Roth (1995) present surveys of this literature.

prediction is not supported by most of the data, and second, results are very sensitive to the experimental procedure (see the surveys in Roth 1995 and Davis and Holt 1993).

Our experiments were conducted at Tilburg University and the University of Amsterdam using first year undergraduate students in economics. In each of the dictator and ultimatum games, sixty participants (30 pairs) were assigned to each of the two treatments. In all treatments, the first mover (allocator or proposer) was from Tilburg University and the recipient or responder was from Amsterdam University. Each participant was told that her counterpart was a student at the other university. The amount of the pie was 100 points, each worth 0.25 Guilders ($0.60 at that time). Each participant was paid privately according to the decision(s) made.

4. RESULTS

Table 1 shows the allocations and proposals made in each of the 4 treatments:

TABLE 1 – Allocations and proposals

Game	Amounts chosen and # of first movers choosing each amount												Mean choice
	0	*5*	*10*	*15*	*20*	*25*	*30*	*35*	*40*	*45*	*50*	*55*	
Dictator, no name	13	2	0	0	2	4	2	0	1	0	6	0	18.3
Dictator, name	8	1	1	0	0	2	0	1	4	0	12	1	27.2
Ultimatum, no name	0	0	0	1	0	0	3	2	7	2	15	0	43.2
Ultimatum, name	0	0	1	0	0	0	0	1	8	1	19	0	45.3

First movers were restricted to choosing multiples of 5.

First, in line with all previous literature, there are substantial differences between first-mover behavior in dictator games and ultimatum games. The dictator game is one of generosity, since the recipient is effectively helpless. On the other hand, the ultimatum

game has a strategic component, since a proposer may (correctly) fear that the responder will reject a small offer. Accordingly, offers in the ultimatum games average far more than allocations in the dictator games.

We find an interesting interaction effect between knowing the name and the type of game. In the dictator game, we find that providing family names results in more generous allocations. However, in the ultimatum game revealing the name of the recipient had no significant effect on behavior. Figures 1 and 2 show the cumulative distributions of the allocations and proposals made in the dictator and ultimatum games, respectively:

Figure 1 - Cumulative Dictator Allocations

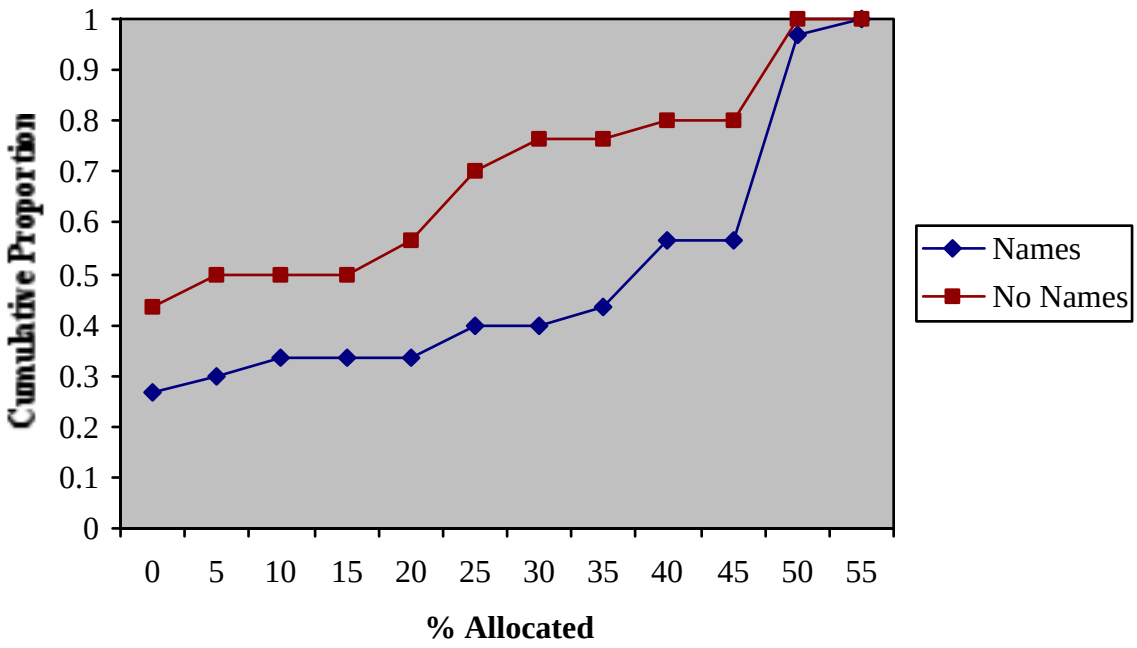
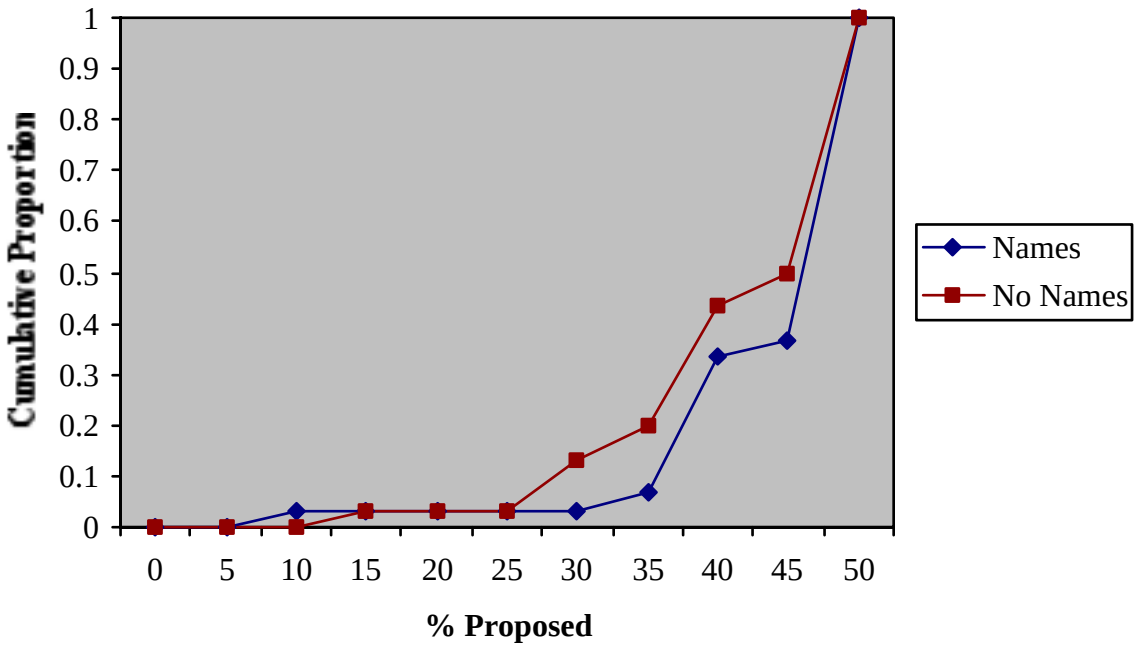


Figure 2 - Cumulative Ultimatum Proposals



The allocators who were told family names gave about 50% more than those who were not told this information. 43% (13 of 30) of the dictators in the name treatment gave their counterpart at least 50% of the pie,[8] compared with only 20% (6 of 30) in the no name treatment. Only 27% of the participants in the name treatment gave 0, compared to 43% in the no name treatment. The difference between the dictator treatments is visually apparent in Figure 1. The allocations in the two treatments are significantly different both by a rank-sum Wilcoxon-Mann-Whitney test [$Z = 2.15$, $p < 0.03$] and a Kolmogorov-Smirnov test on cumulative distributions [$\chi^2 = 8.07$, 2 degrees of freedom, $p < 0.02$].[9]

On the other hand, although there is a slight tendency to make higher offers in the ultimatum game when told the family name of the responder, the average proposals were

[8] Note that one even gave 55% of the pie.
[9] See Siegel and Castellan (1988) for descriptions of these tests.

quite similar in the ultimatum treatments. Figure 2 shows very little difference in the cumulative distribution. This lack of a significant difference is confirmed by both the Wilcoxon-Mann-Whitney test [$Z = 1.20$, $p = 0.23$] and the Kolmogorov-Smirnov test [$\chi^2 = 1.07$, 2 degrees of freedom, $p = 0.60$].

A total of five proposals were rejected, four in the no names treatment (15, 30(2), and 40) and one in the names treatment (10). Since there were more low offers in the no names treatment and since the rejection sample is very small, we cannot draw any definite conclusions about rejection behavior. Nevertheless, payoff efficiency in the ultimatum game is somewhat higher (97% to 87%) when family names are provided. The test of differences in proportions gives Z = 1.40, not significant at conventional levels ($p = 0.16$).[10]

5. DISCUSSION

Camerer and Thaler (1995) write on p, 216: "In some hotels, the person who cleans the room signs a card, presumably to increase tips. We suspect this ploy works. If so, perhaps offers in the dictator game would increase if the Allocator knew that the Responder's name was Pat (though not which Pat). This is related to the well-known phenomenon that people are willing to pay more to save a 'known' life than a statistical

[10] The specific test statistic is $Z = (p_1 - p_2)/S_{p_c}$, where p_i is the proportion of B choices following a B signal in subsample *i*, and $S_{p_c} = \sqrt{p_c(1-p_c)(\frac{1}{N_1}+\frac{1}{N_2})}$ is an estimate of the standard error of $p_1 - p_2$. p_c is an estimate of the population proportion under the null hypothesis of equal proportions, $p_c = (p_1 N_1 + p_2 N_2)/(N_1 + N_2)$, where N_i is the total number of B signals in subsample *i.* See Glasnapp and Poggio (1985).

life. At the social level, leaving a girl in a well to die is beyond rude, but doing nothing about an unsafe highway is acceptable behavior." [11]

The results reported in this paper indeed support this conjecture. As Camerer and Thaler (1995) argue, to some extent the dictator game is similar to leaving a tip for the cleaner. Indeed, our limited intervention seems to have reduced the social distance between the participants in the dictator game enough to have a significant effect on allocations. However, providing the family names in the ultimatum game had little effect on the proposals.

Clearly, the two games are very different from each other.[12] The dictator game is one of "charity", with some perceived social norm for sharing the experimental proceeds and some degree of willingness to comply with it. In this situation, generosity may be inversely related to experienced social distance, which is sensitive to whether a name is provided.[13] In contrast, the ultimatum game has components of both generosity and strategy. The game seems framed more like a strategic choice where one tries to extract as much surplus from the game as possible, regardless of the social distance. In effect, the evident strategic considerations crowd out impulses of generosity.[14]

A striking parallel example of the effects of framing is seen in Samuels and Ross (1993).[15] In their study, the same Prisoner's Dilemma game was played in two treatments, where this game was labeled as either "The Community Game" or "The Wall

[11] There is an extensive literature in social psychology trying to understand identifiability and empathy. See for example Schelling (1968) and Karen and Loewenstein (1997).
[12] For further discussion of this point see Frey and Bohnet (1995).
[13] Note that as the Dutch student pool was relatively ethnically homogenous, being told the surname is less likely to offer ethnic cues than in more mixed societies.
[14] This is similar in spirit to the model proposed by Frey (1993), where employee loyalty to the firm is crowded out when the firm chooses to monitor her behavior.
[15] A good description of this unpublished study can be found in Ross and Ward (1996).

St. Game." 70% of participants chose the cooperative play in the first treatment, compared to only 30% in the latter case. In our ultimatum game experiments, strategic considerations appear to outweigh the modest difference in social distance induced by providing the surname.[16]

People typically have some cues or signals about their counterparts in field interactions. Given the contemporary trend toward interaction at a distance (e.g., e-commerce), there may only be limited amounts of information available, such as another party's name. We have seen that the degree of sensitivity is itself sensitive to the nature (or framing) of the game. Thus, it seems important to investigate the sensitivity of behavior to the differences in social distance that can be induced in a laboratory or Internet setting.

Social distance seems to cut across many dimensions, particularly in environments without face-to-face interaction. While it is not surprising that demographic information about race, religion, and nationality can affect behavior, additional concerns in the laboratory include whether other people (either participants or the experimenter) can identify one's behavior. Dufwenberg and Muren (2000) provide an interesting example in a dictator game conducted in a classroom, where only a couple of people were randomly chosen to receive monetary payoffs. Fewer dictators allocate positive amounts to recipients when they must go on stage to receive payment. This is especially true when male dictators know they are paired with other males. It will take serious research to delineate clear patterns; perhaps the failure to implement the grand research goal of

[16] Charness (2000) provides evidence from a gift-exchange experiment that suggests that people are more generous when the responsibility for an allocation rests solely on their own shoulders. In our experiment, giving the other player an opportunity to reject an allocation could be seen as relieving the proposer from a social imperative to be charitable.

Fouraker and Siegel has made economists' efforts to understand social distance incomplete.

Our results have direct application to fund-raising and philanthropic activities, as well as to the area of relationships in e-commerce. Social preferences may have more influence in situations that are perceived to be less strategic in nature. A crucial step is to learn more about the different effects of reducing social distance across different environments. One clear extension is to study other experimental games. This would seem to be fertile ground for further investigations.

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APPENDIX - Instructions/Decision Forms

Instructions for the Proposer

Welcome to this experiment in decision making. Soon you will be randomly matched with another student. The other student is from Amsterdam University, and His/Her name is:_____ .

In the experiment, 100 points are to be divided between yourself and the other student. You are called the Proposer and he/she is called the Responder.

We will ask you to make a proposal about how to divide the 100 points between yourself and the Responder. You must choose amounts that are multiples of 5 (i.e.: 0, 5, 10, …, 95, 100). We will then ask the Responder to decide whether to "accept" or "reject" your proposal.

(a) If the Responder accepts the proposal, then each of you will earn points according to the proposal you made,

(b) If the Responder rejects the proposal, then neither of you will earn any points.

At the end of the experiment each of you will receive 25 cents for each point you have. If you have no questions, please write down your name and your proposal.

Your name:_____

Your Proposal:

# of points for the Proposer (you): # of points for the Responder:

Please note that the numbers in the two boxes should add up to 100.

Instructions for the Responder

Welcome to this experiment in decision making. Soon you will be randomly matched with another student. The other student is from Tilburg University, and His/Her name is:_____ .

In the experiment, 100 points are to be divided between yourself and the other student. You are called the Responder and he/she is called the Proposer.

We asked the Proposer to make a proposal about how to divide the 100 points between him/herself and you; the proposed amounts must be multiples of 5 (i.e.: 0, 5, 10, …, 95, 100). Now we ask you to decide whether to "accept" or "reject" his/her proposal.

(a) If you accept the proposal, then each of you will earn points according to the proposal made,

(b) If you reject the proposal, then neither of you will earn any points.

At the end of the experiment each of you will receive 25 cents for each point you have. If you have no questions, please write down your name and whether you accept or reject the proposal written below.

Your name:_____

The Proposal made by the Proposer:

# of points for the Proposer:	# of points for the Responder (you):

Your decision (please write accept or reject):_____