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# Moral Framing in Dictator Games by Short Sentences*

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## Abstract

Recent papers on double-blind dictator games have obtained significant generous behavior when information regarding recipient is provided. But the lack of information disincentives other-regarding behavior and then, the subject's behavior closely approximates the game-theoretic prediction based on the selfishness assumption. This paper conducted four treatment of dictator games. We used one-room design, between-subjects anonymity and extra-credit point as rewards. Two treatments were used as baseline whereas the other two were aimed at reinforcing the recipient powerlessness and positive reciprocity. To promote these environments we include a "non–neutral"



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sentence to the instructions. Our baseline and modified DG are statistically different from each other, indicating that the additional sentences promote other–regarding behaviour. In fact, pure-selfish behavior vanishes. Keywords: dictator game, framing effect, social issues, fairness, reciprocity. **J.E.L. Class.:** D63, D64, C91

# 1 Introduction

The Dictator Game is a decision problem in which a player (the dictator) decides how to allocate a fix amount of money between another player (the recipient) and himself. It was considered as a excelent way of analysing human altruism because any amount of money not kept by the dictator was incompatible with a purely selfish subject and accordingly it was interpreted as showing some kind of altruism. The usual finding was that the dictators left a positive amount of money to their recipients. However, nowadays the behaviour of subjects in the Dictator Game is no longer interpreted in such a *naive* fashion. It is reckoned that when carrying the Dictator Game (or any other game) to a laboratory the design of the experiment (including the instructions given to the experimental subjects) has a great impact on the ob-

served behaviour. In the literature on Dictator Games, we find papers with neutral instructions and strong mechanisms for anonymity. Among them, Bolton et al. [3], Hoffman et al. [19] and Hoffman et al. [18] report deviations from the theoretical prediction in very few cases. On the other extreme there are papers with non-neutral instructions in the sense that dictators are informed about some attributes of the recipients: Eckel and Grossman [12] uses the American Red Cross as recipient, Burham [7] provides dictators with photos of their recipients, Charness & Gneezy [10] provides dictators with the names of their recipients and finally Brañas-Garza [5] informs dictators about the poverty of their recipients. The effect of this information provision is to increase considerably the amount of money left to the recipients. In fact, the percentage of non-zero giving is overwhelming The conclusion is that the behaviour of subjects in the Dictator Game is greatly influenced by the framing of the situation. The idea behind is that the information provided to the dictators creates a *context* that motivates other-regarding behaviour. In the absence of this context, as Eckel and Grossman [12] states "it is not surprising that the subject's behavior closely aproximates the game-theoretic prediction for noncooperative, nonrepeated games with selfish, payoff-maximizing subjects."In this paper we also aim at promoting a more generous behaviour but

without any kind of context. Instead of providing the dictators with information, we add an aditional sentence to the neutral instructions while keeping anonymity mechanisms. The purpose of the sentence is to call the subject's attention to a particular moral rule rather than creating a context in which that moral rule applies, as Eckel and Grossman [12] and the other papers cited above did. In our experiment, we use two different sentences which are intended to capture two "universal" moral rules. The first one reads "*Note that your recipient relies on you*".[1] This sentence connects with several papers which focus on the emergence of helping behavior (see Schwartz [20] and Eagly & Crowley [11]). The second one reads "*Note that the recipients performed the same task before*".[2] This sentence engages with recent research on reciprocity (see Bolton and Zwick [4] and Charness & Rabin [9]). Our main result is that these sentences promote other-regarding behaviour to a large extent. In fact, *the percentage of zero offers declines from the commonly observed 50% in a standard Dictator Game to 10%.* The rest of the paper is as follows. Section 2 describes our experiment. The results and its discussion are done in Sections 3 and 4. Finally Section 5 concludes.

[1] The spanish wording was "Recuerda él está en tus manos".

[2] The spanish wording was "Recuerda él tomó la misma decisión anteriormente".

## 2 Experimental Design and Procedures

We conduct four versions of the Dictator Game (DG hereafter). These treaments were performed at the same time within only one room, although in two steps. Following Frohlich et al. [15] (Maryland one room treatment) we placed in the same room dictators and recipients, hence all individuals could see each other. *Step 1*: Treatments 1 & 2 were conducted at the same time: 40 dictators and 40 recipients.

1. **Treatment 1**, T1 (*Baseline I*): A standard DG with 20 dictators and 20 recipients. Dictators were given their instructions and recipients were kept ignorant of what was going on. The instructions read:

   *"A fixed amount of 10 experimental units has been provisionally allocated for you and your recipient. These 10 units are equal to 0,5 extra points in the final grade of Intermediate Microeconomics. Your task is to decide how to divide this amount of points between your recipient and yourself. Any division (even keeping all for yourself) is allowed. Your partner will be randomly selected from those 20 subjects placed in the row of your left. Thank you for your participation"..*[3]

[3]The above text came after the following initial paragraph: Welcome to this experiment

2. **Treatment 2**, T2 (*Moral Framing I: Helping others*): A modified DG with 20 dictators and 20 recipients. Dictators received identical instructions to treatment T1, except one aditional (non-neutral) sentence at the end. This sentence was "*Note that your recipient relies on you*".

*Step 2*: In this step, we switched roles among participants of the experiment, i.e. the forty (20+20) subjects who remained ignorant in treatments T1 and T2 (those subjects who without their knowledge acted as recipients) became dictators in treatments 3 & 4. Also, the former dictators acted as recipients in these new treatments.

3. **Treatment 3**, T3 (*Baseline II: Order effect*): A standard DG with 20 dictators (recipients in Step 1) and 20 recipients (dictators in Step 1). The difference between this treatment and T1 is that dictators *could infere* their participacion as recipients in treatment T1.

4. **Treatment 4**, T4 (*Moral Framing II. Reciprocity*): A modified DG with 20 dictators (recipients in Step 1) and 20 recipients (dictators in Step 1). Dictators received identical instructions than T3's with an

on decision making, etc. The between-subjects anonymity was completely guaranteed. Original instructions were written in Spanish.

aditional (non-neutral) sentence at the bottom. This sentence was: "*Note that the recipients performed the same task before*".

The experimental sessions were carried out during March 2004 at the University of Jaén, Spain. The total population sample amounted to 80 students. These students were volunteers from two groups enrolled in the subject "Intermediate Microeconomic".[4] They belong to the second semester of the first year in the Bussines degree, what implies that they had no training in Game Theory. Students were recruited by an open invitation to participate in a voluntary exam. Eighty one students came to the voluntary exam the day of the experiment. Given that our design required the number of subjects to be multiple of four, one of the subjects was randomly selected to act as monitor, earning 0,25 point as show-up fee. The remaining 80 subjects participated in the experiment. Once students were randomly placed in four columns containing 20 individuals each, the experiments were conducted according to the next sequence:

**First:** Column 1 subjects (left side) played treatment T1 at the same time than column 3 individuals played treatment T2.

[4]The first author teaches this subject at that University.

**Second:** After these subjects had finished their assigments and *without any feedback*, column 2 students played treatment T3 and column 4 individuals (right side) played treatment T4.

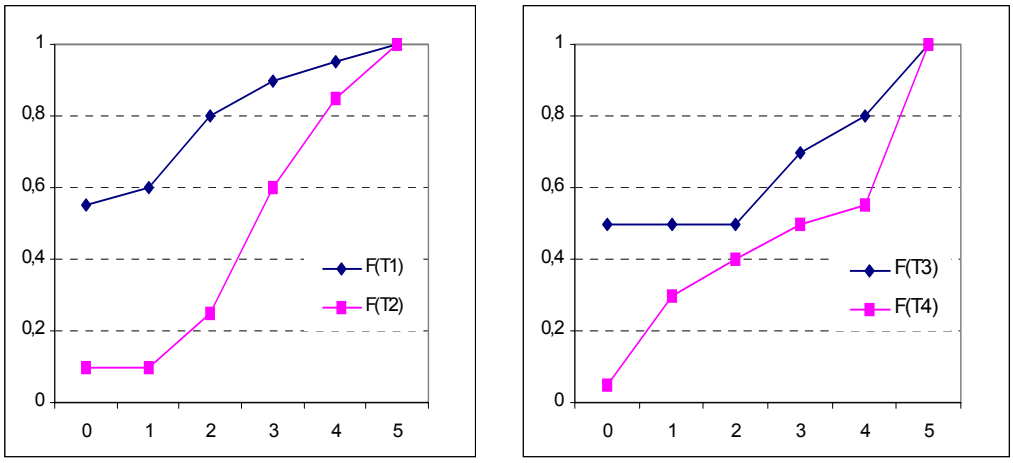
# 3 The Analysis of the Moral Framings

Table 1 displays dictators' givings in our four treatments. Recall that treatments T1 and T3 were baseline treatments whereas treatments T2 and T4 were our modified treatments. We first analyse the success of our moral framing in promoting more generous behaviour by comparing our modified treatments with their associated baseline treatments.

*Moral Framing I*

Recall that the added sentence is: *Your recipient relies on you (in Spanish "is placed in your hands").* Our motivation here is that by making the dictators become aware of the powerlessness of their recipients, they will respond by displaying a more generous behaviour. Well, the Mann-Whitney ($\chi^2 = -3,42; p = 0,00$) and the Kolmogorov-Smirnov tests ($\chi^2 = 1,73; p = 0,00$) reject the null, thus T1 and T2 are not drawn from the same population. This

means that *the additional sentence has an effect on the subjects behaviour.* By looking at the following picture 1a, where the cumulative frequencies for these two treatments are plotted, we see that the donations in T2 first-order stochastically dominates the donations of the baseline treatment. Hence, the additional sentences promotes a more generous behaviour.




(a) T1 vs. T2 (b) T3 vs. T4

FIGURE 1: TREATMENT EFFECTS

An statistical analysis of the donations as given in Table 1 shows that the use of the additional sentence $(i)$ increases the average contribution from 12% to 31% of the endowment and $(ii)$ the number of subjects leaving nothing falls from 55% (11 subjects) to 10%. We now explore our second moral framing.

| Dictators | Treatments[5] | | | |
|---|---|---|---|---|
| Givings | T1 | T2 | T3 | T4 |
| 0 | 11 | 2 | 10 | 1 |
| 1 | 1 | 0 | 0 | 5 |
| 2 | 4 | 3 | 0 | 2 |
| 3 | 2 | 7 | 4 | 2 |
| 4 | 1 | 5 | 2 | 1 |
| 5 | 1 | 3 | 4 | 8 |
| ≥6 | 0 | 0 | 0 | 1 |
| N | 20 | 20 | 20 | 20 |
| Mean | 1,2 | 3,1 | 2 | 3,25 |
| Median | 0 | 3 | 1,5 | 3,5 |
| Mode | 0 | 3 | 0 | 5 |
| St. Dev. | 1,57 | 1,41 | 2,15 | 1,94 |

TABLE 1: DONATIONS BY TREATMENTS

[5]The modal value in each treatment is in bold.

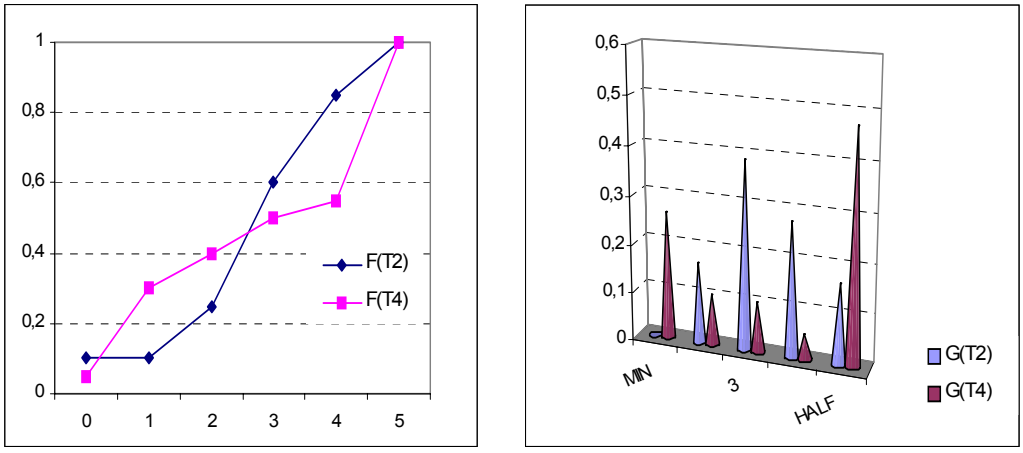
*Moral Framing II*

Our second sentence is: *Note that the recipients performed the same task before*. Our motivation here was to promote reciprocity feelings. Well, the Mann-Whitney ($\chi^2 = -2,16; p = 0,03$) and Kolmogorov-Smirnov tests ($\chi^2 = 1,42; p = 0,03$) reject the null, thus T3 and T4 are not drawn from the same population. This means that this second sentence also has en effect on subjects behaviour. By looking at figure 1b,[6] which plots the cumulative frequency of donations for these two treatments, we see that the donations in T4 first-order stochastically dominates the donations in its beaseline. Hence, again the additional sentence promotes a more generous behaviour. The most striking features of the donations data are that the use of the additional sentence ($i$) increases the average contribution from 20% to 32,5% of the endowment and ($ii$) the number of subjects leaving nothing falls from 10 to 1.

*Helping behavior vs Reciprocity*

[6] To simplify the only individual giving 6€ (T4) has been included within the group of subjects giving 5€.

We finally compare the effects of the two sentences to each other to see whether there are some differences, i.e. whether subjects had different reactions to these sentences. Next figure 2a plots the cumulative frequencies for our two modified treatments. Note that in this case, neither treatment stochastically dominates the other.[7] To understand what is happening, let us focus on figure 2b, which plots the donations in these two treatments. Note that this figure only considers non–zero contributions.




(a) Cumulative frequencies

(b) Relative frequencies

FIGURE 2: HELPING VS. RECIPROCATE [T2 AND T4]

[7]Not even a second order stochastic dominance is obtained.

From this figure, it appears a clear difference in the shapes of the givings, what indicates that the effect of the additional sentence is different across treatments: Whereas the helping–others treatment (T2) has an inverted U-shape, the reciprocate treatment (T4) displays a U-shape.

- The reciprocate treatment promotes extreme forms of behaviour: 13 subjects (77%) donated either the min or the half. Interestingly the majority of the subjects (8) reacted to the sentence by displaying an equal-division behaviour.

Recall that our sentence gave not any information about *how the recipient had performed the same task before*. Those subjects who believed that their recipient had been generous positively reciprocate to them (8); other dictators who believed in selfish recipients punished them (5). In this sense, the reciprocity depends on beliefs. Overall, the equal-division effect is greater than the selfish reaction, what causes the reciprocate treatment to be statistically different from its baseline treatment.

- On the other hand, the helping–others sentence does not provoke polarised reactions, but promotes other–regarding behaviour in a more uniform way, the modal donation being 3.

Our conclusion is therefore that the helping–other sentence has a one-way effect whereas the reciprocate sentence has a two-way effect. However, both of them, as analysed before, helps to promote more generous behaviour with respect to the baseline treatments.

# 4 Further Analysis

We need to perform a final analysis for the conclusions reached in the previous section to be placed in the literature. The reason is that our DG experiment has several differences with respect to the regular procedure followed in the papers cited in the Introduction. These differences are:

1. The use of extra-points instead of money as the reward mechanism. We chose this reward mechanism not only because it is cheaper but because our feeling was that extra-points have a greater motivational power in students.

2. One single room vs. two rooms (A: dictators; B: recipients). Recall that students were called to a voluntary exam.

3. Between-subject anonymity (vs. doubled-blind). We needed to identify participants to properly add the extra-points to their final grades. This

was done by asking their university identification numbers.

So for our results to be comparable with those found in the literature on DG, we need to show that our baseline data are comparable to the data reported in standard DG experiments. We do so in two steps. First, we show that the data of our two baseline treatments are drawn from the same population. Second, we use data from Hoffman et al. [18] (HMSS) and Frolich et al. [15] (FOM.) for comparison purposes. As a first step, and given that T1 dictators played their game in the first step and T3 dictators did the same task in the second step, we check whether there is any difference between them. This might be because dictators in T3 could figure out that they acted as recipients of T1 dictators, implying that some kind of reciprocity could operate. Fortunatelly, the Mann-Whitney ($\chi^2 = -1,11; p = 0,31$) and the Kolmogorov-Smirnov tests ($\chi^2 = 0,94; p = 0,32$) for unpaired samples do not reject the null of equal distribution. The conclusion is that T1 & T3 samples are drawn from the same population. This analysis allows us to merge T1 and T3 samples. We will name *standard dictator game* (SDG) to those data arising from T1 and T3. Second, we compare our SDG data to those reported in HMSS and in FOM. We perform three changes with respect to HMSS: points (vs. money) + one room (vs. 2 separated rooms)

+ single anonymity (vs. double blind). With respecto to the FOM design, there appear two differences: points (vs. money) + single anonymity (vs. double blind). The statistical analysis follows:

- *SDG vs HMSS*: The Mann-Whitney ($\chi^2 = -1,57; p = 0,11$) and the Kolmogorov-Smirnov tests ($\chi^2 = 1,23; p = 0,09$) for unpaired samples do not reject the null of equal distribution. Also, the Kruskal-Wallis test ($\chi^2 = 3,32; p = 0,19$) for $k = 3$ unpaired samples (T1, T3 and HMSS) does not reject the null of equal distribution. Hence HMSS and SDG observations are drawn from the same population.

- *SDG vs FOM*: The Mann-Whitney ($\chi^2 = -1,46; p = 0,14$) and the Kolmogorov-Smirnov tests ($\chi^2 = 0,99; p = 0,28$) for unpaired samples do not reject the null; also, the Kruskal-Wallis test ($\chi^2 = 3,15; p = 0,20$) for $k = 3$ unpaired samples (T1, T3 and FOM) does not reject the null, hence FOM & SDG data are drawn from the same population.

Next figure illustrates SGD, HMS and FOM donations cumulative frequency. As Figure 3 shows, the SDG cumulative frequency is between HMSS and FOM frequencies.[8] Hence, our baseline data are in line with those arising

[8] We observe that HMSS first-order stochastically dominates SDG and SDG first order stochastically dominates FOM.

from standard DG experiments, what validates our conclusions on the use of sentences to promote more generous behaviour.

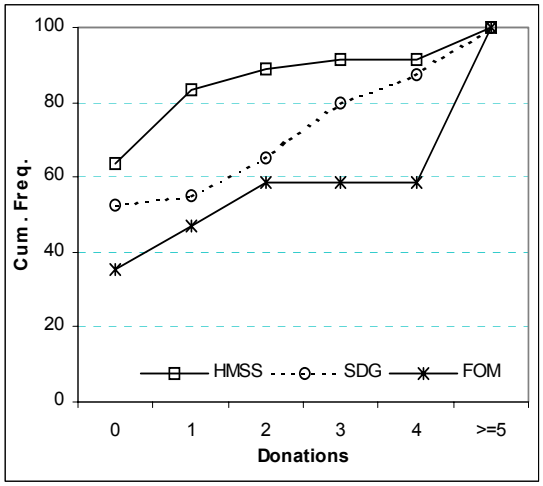



FIGURE 3: DONATIONS IN HMSS, FOM & SDG

# 5 Conclusions

The traditional way of promoting other-regarding behaviour in DG is to create a context in which fairness and altruism appear as natural responses (see Eckel & Grossman [12]). This paper has replaced the context by a sentence, i.e. we add a sentence to the neutral instructions used in standards DG experiments. The aim of the sentence is to drive subjects attention to a particular social or moral rule. Hence, in our paper, rather than creating

the context in which a particular social or moral rule applies, we induce subjects to use a particular rule. We use two different sentences: (i) "*Note that your recipient relies on you*". The idea here is that by making the dictators become aware of the powerlessness of their recipients, they will respond by displaying a more generous behaviour; and (ii) "*Note that the recipients performed the same task before*". The motivation here was to induce reciprocity feelings. Our results show that the above sentences are successful at increasing the dictators donations. In fact, pure selfish behaviour which is so commonly observed in DG with neutral instructions and strong mechanisms for anonymity vanishes in our experiment.

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