# Minimal Social Cues in the Dictator Game

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Mary Rigdon*
University of Michigan

Keiko Ishii
Hokkaido University

Motoki Watabe
Waseda University

Shinobu Kitayama
University of Michigan

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## 1 Introduction

Giving to others is individually costly, yet generates benefits to the recipient. Such altruistic behavior has been well documented in experimental games between unrelated, anonymous individuals (Forsythe, *et al.*, 1994; Eckel and Grossman, 1998; Andreoni and Vesterlund, 2001; Andreoni and Miller, 2002; Harbaugh, Mayr, and Burghart, 2007; Andreoni, Harbaugh, and Vesterlund, 2008). Matters of *social distance* between giver and receiver, or between giver and a potential bystander, are also known to be relevant to the level of giving behavior. Experimental evidence indicates that people give more if they know more about the potential recipients, for example if they see the recipient or if they know the person's name, major, or hobbies (Bohnet and Frey, 1999a, 1999b; Charness and Gneezy, 2007) or if the recipient is a major charity (Eckel and Grossman, 1996) or a welfare recipient (Fong, 2007). Similarly, people are more giving if they think that someone else is monitoring their donations, whether that someone else is another subject (Cason and Mui, 1997) or the experimenter (Hoffman *et al.*, 1996). However, giving behavior does not seem to be invariant across genders: in laboratory environments, females transfer more than males do (Eckel and Grossman, 1998),

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and males are more sensitive to the value the transferred amount has to recipients than females are (Andreoni and Vesterlund, 2001; Andreoni, Brown, and Rischall, 2003).

The relationship between choice behavior and social distance in these contexts is sensitive to even low-level signals. Contributions to public goods tend to increase when people make contributions in an environment with "watching eyes" — a pair of eyes drawn on an honesty box (Bateson, *et al.*, 2006) or a digital representation of a robot with large eyes on the subjects' computer screens (Burnham and Hare, 2007). Similar results have also been reported for the dictator game (Burnham, 2003; Haley and Fessler, 2005). These studies illustrate how sensitive giving behavior can be to the presence of "watching eyes", choice behavior becoming more generous or altruistic in their presence.[1] Drawing on this evidence, the present study examines the strength of these effects by weakening the "watching eyes" stimulus presented to subjects. Because such a stimulus is known to automatically activate the cognitive representations of others watching them, it might alert people to possible observation over their otherwise seemingly private behaviors (Emery, 2000; Haxby, Hoffman, and Gobbini, 2000). Moreover, this process might be so fully ingrained into unconscious social cognition that it could be set off by a weak stimulus that carries no realistic basis to a pair of human eyes (Kitayama, *et al.*, 2004; Bentin *et al.*, 1996). Thus, such a stimulus may act as a minimal social cue.

This paper reports results of an incentivized laboratory experiment manipulating an extremely weak "watching eyes" stimulus in the dictator game. Prior to making their decision, we present dictators with an extremely simple visual stimulus: either three dots in a "watching-eyes" configuration, or three dots in a neutral configuration (see Figure 1). The watching-eyes configuration is suggestive of a schematic face—a stimulus that is known to weakly activate the fusiform face area of the brain (Tong, *et al.*, 2000; Bednar and Miikkulainen, 2003; Johnson and Morton, 1991). Given the experimental evidence for automatic priming of watching eyes of others, it is thus reasonable to hypothesize that even though the social cue is very weak, this activation might be sufficient to produce a significant change in social behavior. Our results demonstrate that such a weak social cue does increase giving—in conditions of complete anonymity—and this difference in behavior across subjects is entirely explained by differences in the choice behavior of males. Several studies report gender differences in dictator giving under double-blind protocols: males tend to give little and females give more (Eckel and Grossman, 1998; Andreoni and Vesterlund, 2001).[2] In our control treatment, we replicate this gender difference, finding that females give twice as much to anonymous recipients as males do. But we find that the presence of schematic watching eyes doubles the

[1] See Milinski and Rockenbach (2007) for a review and a discussion of the arms race between observing and being observed.

[2] Bekkers (2007) reports differences in the opposite direction; however, the results are from a survey in which the only two options available to dictators are to give the entire earned endowment or nothing, and the stakes are for vouchers at a department store or air miles.

Figure 1: Watching-eyes Configuration (left); Neutral Configuration (right)

amount male dictators give while leaving female choice behavior unaffected.

## 2 Social Distance and Social Cues

The dictator game (DG) is played between two players, Dictator and Recipient.[3] Dictator is endowed with a pie of value $M$ and must decide on some distribution of $M$ between the two players. The Recipient cannot respond; the distribution of the pie chosen by Dictator is the final allocation. Non-cooperative game theory makes a clear prediction about Dictator's choice behavior: in a one-shot interaction, a self-interested non-satiated Dictator will take the entire endowment, leaving nothing for Recipient. This prediction is invariant under any manipulation of payoff-independent variables in the DG: manipulating any variable whose value has no impact on the utilities assigned to the outcomes in the game by necessity cannot change how a purely self-interested and maximizing Dictator values taking the whole of $M$ and leaving nothing for Recipient.

It is well-known that behavior in the DG (among other environments) is sensitive to social distance. One way of achieving high levels of social distance in the DG is to shield the decision makers completely as in a double-blind protocol in which neither Recipient nor experimenter knows the choice behavior of a particular subject. In these extreme conditions, division of $M$ is driven much closer to the self-interested outcome (Hoffman, *et al.*, 1994; Hoffman, *et al.*, 1996; Eckel and Grossman, 1996). Some proportion of the population exploits the anonymity.

Intuitively, the perceived social distance in an environment is related to the cues in the environment that make the distance salient. Thus, for example, in a situation where subjects must stand and meet each other, there are pretty obvious social cues present and the perceived social distance comparably lower than the high levels in a double-blind situation. There is a large literature surrounding social distance in DG experiments; broadly speaking, the results indicate that the lower the social distance—the stronger the social cues present—the less

[3]See Camerer (2003), Rigdon (2003), and List (2007) for surveys of DG research.

Dictator behavior conforms to what would be expected of self-interested maximizers (Bohnet and Frey, 1999a; Buchan, Croson, and Johnson, 2001; Burnham, 2003; Charness, Haruvy, and Sonsino, 2003; Krupka and Weber, 2006; Duffy and Kornienko, 2007).

We are interested in manipulating a social cue in the DG that is both very weak and yet plausibly relevant for perceived social distance: visual stimuli in one of the three dot configurations in Figure 1 (Kitayama and Imada, in press). These stimuli are weak social cues, and are under-specified enough to invite different perceptual interpretations. But there are important differences between them. While stimuli like those in the watching-eyes configuration cause weak activation in the fusiform face area of the brain, those like the neutral configuration fail to activate this area (Tong, *et al.*, 2000; Bednar and Miikkulainen, 2003; see also Johnson and Morton, 1991). It is thus interesting to see whether such a social cue increases charitable giving, whether those effects are gender invariant, and whether the social cue can work to reduce social distance *without Dictators realizing it.* We find evidence suggesting positive answers to all three questions.

But why should there be any interesting gender differences if the social cue is so weak that it operates without Dictators realizing it? There are two competing hypotheses. One hypothesis is that females are more sensitive to their social environment and hence to social cues—their choice behavior is more sensitive to how it may impact the attitudes of others—and hence making those potential impacts just a little more salient would have a greater impact on their behavior compared to male giving behavior. Thus, given this hypothesis, we would expect giving to increase more for females than for males in our treatment condition. A second hypothesis says we should expect the reverse: it is known that males give less than females under the extreme social distance afforded by double-blind protocol, perhaps because females are more socially aware and therefore already view the DG as a social allocation decision. Thus, there is simply *more room* for males' choice behavior to be affected by the presence of a weak social cue than for females. Our results support the second hypothesis, suggesting that it is male and not female choice behavior that is more socially sensitive.

## 3 Design and Procedures

Our design uses a double-blind protocol for the DG, and varies a simple visual stimulus to obtain two treatments: FACE and CONTROL. In FACE, subjects are presented, prior to making their decision, with the three dots configured in the watching-eyes configuration. In CONTROL, they see the 180-degree rotation, the neutral configuration.

Manipulation of the stimuli across treatments involves changing the configuration of a set of three dots on each Dictator's decision sheet. The dots occur in the center of the decision sheet, between brief instructions and the location where the Dictator records the allocation decision. Each subject is exposed to one and only one configuration on the decision sheet;

hence, the design is between-subjects. In each session, half of the subjects are randomly allocated to FACE and the other half are randomly allocated to CONTROL.

Twelve experimental sessions were run at the Research Center for Group Dynamics' Robert Zajonc's Experimental Laboratories with undergraduate students at the University of Michigan from a variety of majors.[4] Sessions had sixteen to twenty subjects and took less than 45 minutes to complete. A total of 58 dictators made decisions in FACE and 55 in CONTROL. Each participant received a $5 show-up payment and was immediately seated in the laboratory. After signing a consent form, each was given a set of instructions that explained the DG and procedures in neutral terms to avoid framing (see Appendix A). These were read aloud once everyone had arrived. Each subject was then randomly assigned the role of Dictator or Recipient and randomly matched with a completely anonymous counterpart.[5] Dictators remained in the laboratory and Recipients were escorted to a seat in the waiting room. The subjects then played the DG once and only once, and this fact was common information.

To implement the double-blind protocol, Dictators selected for themselves a large envelope containing two smaller envelopes. One of these smaller envelopes contained a decision sheet (see Appendices B and C). The other envelope contained two sheets: (1) a picture-completion task and (2) a short demographic questionnaire with two additional questions on the reverse side about procedure-believability. The picture-completion task displayed the same dots from the subject's treatment, and asked the subject to use the dots to complete a picture. The demographic questionnaire included questions about gender, year in school, major, etc.[6] The procedure-believability questions asked the subject to indicate, on a scale from 1 to 10, the degree to which he believed the decision was completely anonymous and the degree to which he believed he was paired with an individual in the other room (see Appendix D). Each document had a numeric code at the top to match decisions with the answers to the questionnaires. Likewise Recipients, after being seated in the waiting room, selected a large envelope containing the same short demographic questionnaire and the same two questions about procedure-believability; each document also had a numeric code at the top.

As soon as all Dictators had an envelope, they were asked to open the one envelope containing their decision sheet and given 2 minutes to record their decision. They placed the sheet back in the envelope and dropped it in a box at the back of the laboratory. Once all Dictators were finished, they were asked to open the other envelope, and complete the

[4]Data are available from the authors at request. The sessions took one month to complete. Subjects were recruited two ways: via flyers around campus and using the RCGD's subject pool. Those who had previously participated in similar experiments were excluded.

[5]The random allocation to role was accomplished via a draw from a bingo cage. Bingo balls numbered 1 through $N$, where $N$ was the number of people who showed up to participate, were placed by the experimenter into a bingo cage located at the front of the room. Each subject approached and received a draw from the bingo cage: if the number drawn was between 1 and $\frac{N}{2}$, the subject was a Dictator; if the number drawn was between $\frac{N}{2}+1$ and $N$, the subject was a Recipient. The result of the draw was announced to all participants in the room.

[6]Available on author's website.

questionnaires. During this time, the experimenter took the envelopes containing the decision sheets to another room where decisions were recorded.

Once all Recipients completed their questionnaires, each was called one at a time to receive their earnings based on their counterpart's decision. Each slid their envelope containing the coded questionnaires under the door, the experimenter looked up the code, placed the amount sent by the Dictator in the envelope, and slid the envelope back under the door to them. Once all Recipients had been paid, Dictators were called one at a time to receive payment. Each slid the envelope containing the coded questionnaires under the door, the experimenter looked up the code, placed the amount kept by the Dictator in the envelope, and slid the envelope back under the door to the subject. Average earnings (including a $5 show-up payment) were $12.70 for Dictators and $7.30 for Recipients.

# 4 Results

Examining Dictator decisions across the two conditions, the average transfer in FACE is 37 cents higher, but this is not significantly different from CONTROL ($2.48 versus $2.11; $p = .2418$).[7] From prior results, we expect that differences might surface in the distribution of transfers; Figure 2 graphically displays this information across treatments. The proportion of Dictators playing the dominant strategy of sending $0 is 40% in CONTROL compared to only 25.42% in FACE; these proportions are significantly different ($p = 0.0431$).[8]

Data from the picture completion task suggest that our treatment stimulus succeeded in priming low-level facial recognition mechanisms. In FACE, subjects complete the picture on the stimulus reproduced on a post-decision making questionnaire by drawing something classifiable as a face (human, cartoon, or animal – even a few devils!) at a rate of 58.63% compared to only 29% in CONTROL ($p = .0015$).[9]

It is worth noting that we had several economics' majors participate as Dictators ($N = 11$), five in CONTROL and six in FACE. Given evidence from previous laboratory experiment, one might expect that economics majors' behavior in the DG, with a strong norm of rationality, to be unaffected by the treatment.[10] In fact, 82% send $0, regardless of condition. Interestingly,

[7] Unless otherwise noted, statistical tests were conducted using a two-tail test via the non-parametric Wilcoxen two-sample ranksum test.

[8] In Hoffman *et al.* (1994, 1996), approximately 65% of dictators give nothing and in Eckel and Grossman (1996, 1998), approximately 53% give nothing. The percentage in our baseline is *lower* than in these studies. Our procedures do differ from the double-blind conditions in these studies that use envelopes containing dollar bills and blank slips of paper so that a dictator can leave immediately following their decision. In our experiment, dictators made their decision by recording an amount on a decision sheet and also had to retrieve earnings by sliding a private code under the door to an experimenter. Our procedures differ largely because we wanted to gather demographic data (we are interested in gender differences), data on how Dictators complete the figure, and some information on the extent to which subjects believed their decisions were double-blind.

[9] $p$-value was calculated using a two-sample difference in proportions test.

[10] For experimental evidence that economics' majors tend to behave more in line with standard economic

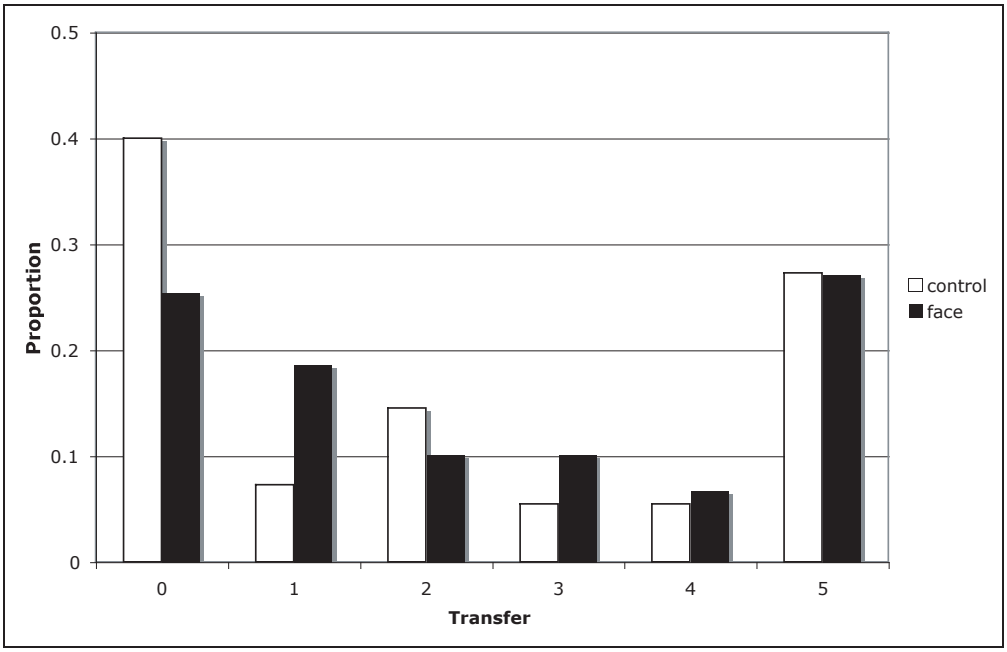


Figure 2: Distribution Transfers

if we exclude data for these majors from the analysis, we then find a strongly significant generosity effect across the two treatments: the proportion of dictators who send $1 or more is 62% in CONTROL compared to 80.77% in FACE ($p = 0.0366$).[11]

Additionally, if we examine the distributions of transfer conditional on the Dictator's gender there are interesting and significant treatment effects. Figure 3 shows the distribution of transfers for male dictators and Figure 4 shows the distribution of transfers for female dictators. Table 1 reports by gender the average amount transferred for each treatment and the percent of Dictators sending $1 or more.

First, in the baseline, the amount transferred by female dictators is significantly higher than for male dictators ($p = .0007$). We conducted a Logit analysis to see if females, regardless of amount transferred, were more likely to transfer money than males. Regressing DONATE (DONATE= 1 if transfer $> 0$) on GENDER (GENDER= 1 if female), we see females are 2.6 times

predictions, see Marwell and Ames (1981), Carter and Irons (1991), Frank, *et al.* (1993), and Selten and Ockenfels (1998). Frank and Schulze (2000) and Frey and Meier (2007) provide evidence that the lower generosity is due to self-selection rather than indoctrination from economics' course-work. There is some evidence from several field studies that economists cheat less on their association dues (Yezer, *et al.*, 1996) and are more cooperative than their social science counterparts (Laband and Beil, 1999). Given our data is from a laboratory experiment, our results are more in line with the evidence provided from similar environments.

[11] We conducted simple regression analysis with giving as the dependent variable and demographic variables as the independent variables, including major category (sciences, humanities, business, and undecided). There were no significant effects so the regressions are not reported here.

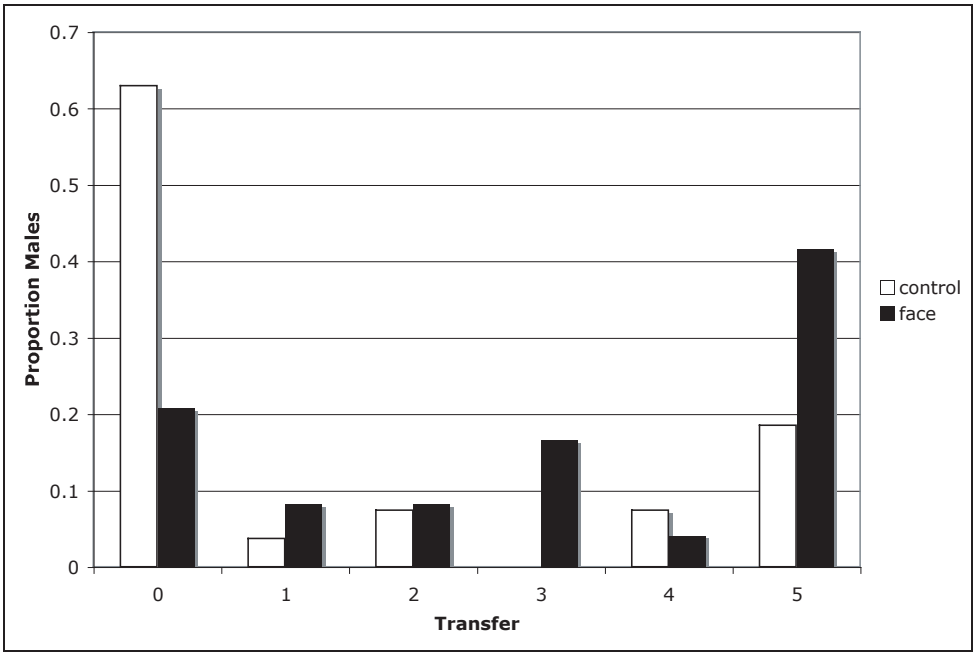


Figure 3: Distribution Transfers, Male Dictators

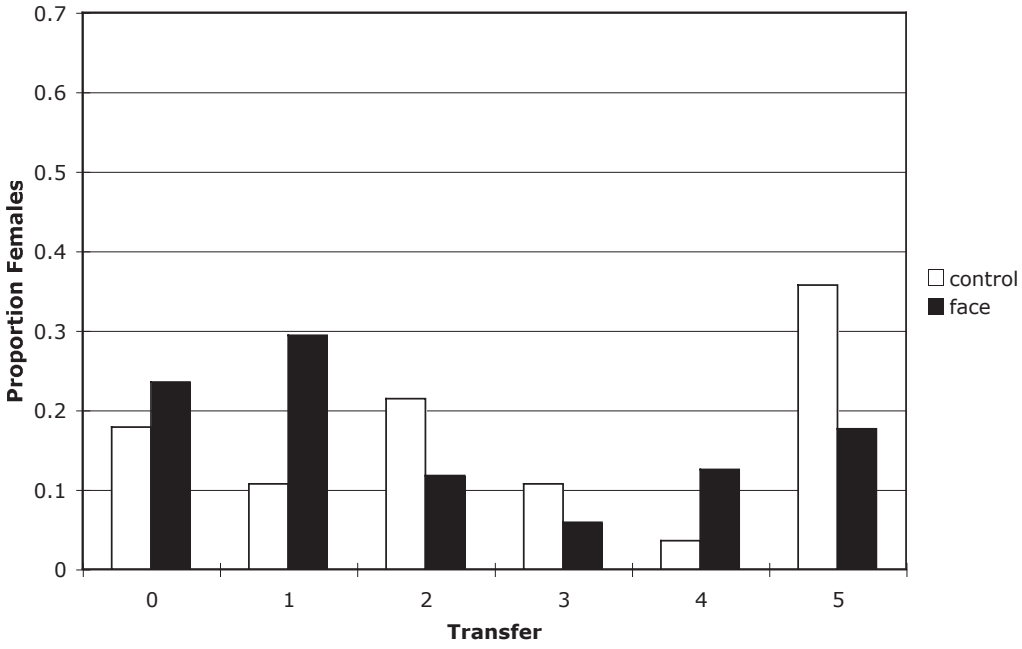


Figure 4: Distribution Transfers, Female Dictators

| | N | Avg. Transfer ($) | $1 or more (%) |
|---|---|---|---|
| Male–Control | 27 | 1.41<br>(2.08) | 37.04<br>(49.21) |
| Male–Face | 24 | 3.00<br>(2.04) | 79.17<br>(41.49) |
| Female–Control | 28 | 2.79<br>(1.95) | 82.14<br>(39.00) |
| Female–Face | 34 | 2.12<br>(1.95) | 73.53<br>(44.78) |

Table 1: Descriptive Statistics by Gender

more likely than males to fall in this category ($p = 0.021$). The gender results in CONTROL are consistent with the gender differences Eckel and Grossman (1998) and Andreoni and Vesterlund (2001) report in a double-blind DG.[12] However, our results are not consistent with the lack of gender differences in Dictator giving found in Haley and Fessler's baseline (2005) and Bolton and Katok (1995). One difference between our protocol and their studies is that we used neutral framing of the decision task in the instructions, whereas their studies used non-neutral terms such as "game" and "player" in the instructions. It is an empirical question whether framing of the DG as a "game" and decision roles as "players"—as opposed to "decision task" and "Proposer/Receiver"—might impact generosity, and it is an empirical question whether these effects of framing might differ across genders.[13] Nevertheless, results in a variety of experimental bargaining games suggest that certain types of framing influence the level of observed cooperative behavior: e.g., market-framing in the ultimatum game (Hoffman, *et al.*, 1994), labeling a counterpart as a "friend" or "foe" in a trust game (Burnham, *et al.*, 2000), and using "moralistic" frames or "justice vs. fairness" procedures in the DG (Brañas-Garza, 2007; Shariff and Norenzayan, 2007; Schurter and Wilson, in press) all change the levels of cooperative behavior compared to neutral baselines. It is natural to conjecture that dictator giving will be sensitive to "game" framing in interesting ways, but this remains to be tested empirically. The point here is that our neutral baseline is broadly consistent with the stylized facts from DG and similar bargaining experiments.

Our primary result is that the presence of a weak social cue—the stimulus in the watching-eyes configuration—impacts giving behavior of *males but not females*. In particular, males

[12] Our finding that females are more generous is also consistent with results reporting that females are more cooperative than males in a double-blind prisoner's dilemma game (Ortmann and Tichy, 1999).

[13] One potentially interesting hypothesis that emerges from our research and the findings of earlier studies is that female dictator giving will be lower if the situation is framed as a game rather decision task, but male dictator giving will remain unchanged.

send significantly more in FACE: \$1.41 in CONTROL compared to double that in FACE, \$3.00 ($p = .006$). Additionally, significantly more male Dictators send \$1 or greater in FACE: 37.04% in CONTROL compared to double that in FACE, 79.17% ($p = .0027$). We conducted a Logit analysis to see the extent to which gender influences the amount transferred in FACE. Regressing AMOUNT (AMOUNT= 1 if transfer > average transfer) on GENDER (GENDER= 1 if male), we see males are 3.35 times more likely than females to fall in this category ($p = 0.048$). Together these results demonstrate a strong tendency of male Dictators to behave more altruistically in the presence of this weak social cue. On the other hand, the difference in average transfers by female Dictators across treatments is not statistically significant ($p = 0.1592$) and the difference in proportion of female Dictators who send \$1 or greater is not significantly different across the treatments ($p = 0.4233$).[14] As reported above, female Dictator giving is already extremely high in the baseline compared to males: 82% are sending \$1 or more dollars compared to only 37% of males. Therefore the weak social cue in the FACE treatment increases male giving, bringing it in line with the giving observed by females. In fact, under FACE, the average amounts sent no longer differ by gender and the proportion of generous Dictators is also not significantly different across gender ($p = 0.1232$ and $0.6242$).

We sketched two competing hypotheses for why sensitivity to weak social cues might not be gender invariant. One hypothesis is that females are generally more socially aware, and thus more generally affected by the presence of the social cues. Another hypothesis is that, perhaps even *because* females are more socially aware, it is males who stand to be affected most by such a weak social cue. Our results support this second hypothesis: males are sensitive to weak social cues in a highly anonymous situation. This is likely because males, but not females, exploit the double-blind environment. But in the FACE treatment, even though subjects report believing that the procedures were in fact double-blind, exploiting the double-blind environment is thwarted.[15] Processing the stimulus ultimately activates the fusiform face area of the brain, making the environment seem—at a pre-conscious level, perhaps accessible to the decision making processes but not to introspection—less anonymous and hence less socially distant. Females, on the other hand, seem to *already* view the choice problem in the CONTROL treatment as a social allocation task. Thus, a weak cue in FACE that makes the potential impact of her choice on the attitudes of others more salient has no effect on her giving behavior.

[14] It is worth noting that in Figure 4, the proportion of females in FACE who give \$5 is about half the proportion who give \$5 in CONTROL; yet, using a Kolmogorov-Smirnov test, we fail to reject the null hypothesis that the two samples come from the same distribution ($p = 0.239$).

[15] In answering the question about the degree to which they believed their decisions were completely anonymous, the average reported level by Dictators did not differ across treatments (on a scale from 1 to 10): 9.07 in CONTROL and 8.26 in FACE ($p = 0.1234$). Moreover, there are no significant differences in the answers between males and females on this question. It is interesting to note that for males, the reported level of believability is marginally significantly *lower* in the FACE condition compared to males in the CONTROL condition: 9.2 versus 8.0 ($p = 0.0640$). For the Recipients, pooling across treatments, the average report by them was also very high, 8.53.

## 5 Discussion and Conclusions

A double-blind protocol is known to influence giving, pushing the distribution toward selfish division. Our two main results are that: first, even in this context, we see that the presence of an extremely weak social cue shifts the distribution toward more generous division; second, this effect is due to the differential impact that the watching-eyes stimulus have on male dictators.

While there is a large literature relating social distance to giving in the DG, most of that literature manipulates fairly high-level social cues, such as whether or not the subjects have been introduced before the choice task. Our results, like those in Haley and Fessler (2005), and the public good experiments in Burnham and Hare (2007) and Bateson *et al.* (2006), are striking in part because the cue manipulated is simply a visual stimulus representing watching eyes. Yet our results also differ importantly from these; in part because the watching-eyes stimulus we use is abstract, minimal, and has a natural control. The treatment stimulus in earlier studies bear no systematic relationship to the control stimulus: in some cases there is no non-trivial visual stimulus in the control treatments). It is thus difficult using this stimulus to isolate the extent to which giving behavior is impacted by a weak social cue in these environments. Our visual treatments, in contrast, are uniform in this respect. More significantly, the stimulus in previous experiments are neither abstract nor minimal. Instead they tend to be *relatively strong*: they represent a (partial) face—a face that seems, in the case of Haley and Fessler (2005), aggressive and punishing or at least steely-eyed or, in the case of Burnham and Hare (2007), happy and doe-eyed robot named *KISMET* (subjects see the name). If stimulus like these activate the fusiform face area, which seems plausible, it arguably does so on the level of cartoons not on the (weak activation) level of schematic faces. Thus our results, based on the more minimal dot-configuration stimulus, suggest a strong result.

The sensitivity of choice behavior in the DG is well-known. And some have pointed to this sensitivity as evidence that what really drives experimental results in the DG has more to do with "experimenter demand" than with any underlying social preferences (Bardsley, 2008).[16] If that were right, then why should it matter that we see such an impressive treatment effect in our experiment for such minimal social cues? While choice behavior in the DG is sensitive to contextual changes, it is not haphazard. Manipulations along, for instance, the dimension of social distance *systematically* and *predictably* affect giving behavior: decrease social distance, increase giving. The same goes for property rights manipulations (Oxoby and Spraggon, 2008), house- *versus* own-money (Cherry, Fryblom, and Shogren, 2002), and framing (Brañas-Garza, 2007; Shariff and Norenzayan, 2007; Schurter and Wilson, in press).

[16] Bardsley puts the suggestion this way: "dictator giving is a product of experimental demand characteristics and attitudes to the experiment, with the choice set contributing to the cues which indicate appropriate behaviour."

If data in the DG were instead driven by "experimenter demand", then we would not expect such systematic and predictable sensitivity: in each case, the option presented to subjects is simply the basic DG with the same basic set of giving options; therefore, "experimenter demand" would seem to be constant—but observed behavior is not.

Our results in the baseline also support those of Eckel and Grossman (1998) and Andreoni and Vesterlund (2001)—women are significantly more generous than men in a double-blind dictator game (where the price of giving is a one-for-one dollar transfer), sending almost twice as much as men. Moreover, the proportion of female dictators sending $1 or more to the recipient in the baseline is much higher than that of males: 82% compared to only 37%.

These results extend prior research on social distance by examining differences in giving behavior in the presence of an extremely weak social cue. We find significant gender differences across the two treatments. Male dictator behavior is found to be highly responsive to the presence of these watching eyes—males give twice as much to Recipients in FACE as they do in CONTROL. On the other hand, female dictator behavior remains unchanged in the presence of eyes. This is consistent with the psychological literature on relational-interdependence; females are more likely to define themselves in terms of close relationships than males are (Cross and Madson, 1997; Cross, *et al.*, 2000). People who are characterized along this dimension view relationships as integral to their everyday life. This may be true in anonymous, one-shot interactions as well. Therefore, we hypothesize that when making resource allocation decisions females—having this greater import of relationships—will be more likely to view the task as a social exchange, and hence whether or not someone is "watching" their decision may be irrelevant to their giving behavior.

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# A Instructions for Both Treatments and Decision Sheets

Welcome to this experiment on decision–making. In addition to the $5 you have received for showing up on time, you may earn an additional amount of money, which will be paid to you in cash at the end of the experiment completely anonymously.

You will be randomly divided into two groups: Proposers and Receivers—so half of the people in today's experiment will be Proposers and the other half will be Receivers. Proposers will remain in Room 212 and Receivers will move to Waiting Room 2.

Every participant will have a unique secret code. Based on this unique secret code, you will be randomly paired with one person in the other room. You will not be told who this other person is either during or after the experiment, and he or she will not be told who you are during or after the experiment. Only an assistant who is hired to pay you at the end of the study will use this information to determine the amount each of you are to receive.

The experiment is conducted as follows. The Proposer begins with an additional $X. The Proposers task is to decide how much of this money each person in the pair is to receive. The Proposer can allocate any portion of the $X to the Receiver.

The Proposer's earnings are: $X minus the amount specified for the Receiver to receive. The Receiver's earnings are: the amount specified by the Proposer for the Receiver. The experiment is then over.

*Procedures*

- ▷ The Proposer will receive a manila envelope containing a decision sheet. He or she will have 2 minutes to complete the decision sheet, place it back in the envelope, and drop the envelope at the back of the room. Once all Proposers have made their decisions, the experimenter will hand the envelopes to an assistant for recording.
- ▷ Each Proposer will receive a unique secret code printed on an envelope. To receive payment, the Proposer will slide his or her envelope under a closed door, an assistant will look up his or her allocation decision, place any earnings in an envelope, plus the $5 show-up fee, and slide it back under the door.
- ▷ Each Receiver will receive a unique secret code printed on an envelope. To receive payment, each Receiver will slide his or her envelope under a closed door, an assistant will look up his or her Proposers allocation decision, place any earnings, plus the $5 show-up fee, in an envelope and slide it back under the door.

*Anonymity*

The experiment is structured so that no one, including the experimenter, will know the decision you make today. Each person will receive a unique secret code that cannot be matched with any individual decision maker. Note: The code will be used to receive payment.

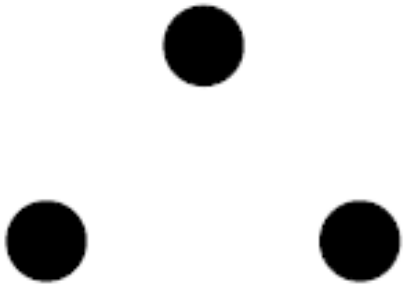
This completes the instructions. If you have a question at any time, please raise your hand and an experimenter will come by to answer it.

## B Decision Sheet: Control Condition

# Money Allocation Sheet

You have received $5 for showing up on time.

You now have an additional $10 to allocate between you and the Receiver you are paired with in the other room (in $1 increments). Please record how much money you will keep for yourself, and how much you will allocate to the Receiver.



I will keep: $_____

I will give: $_____

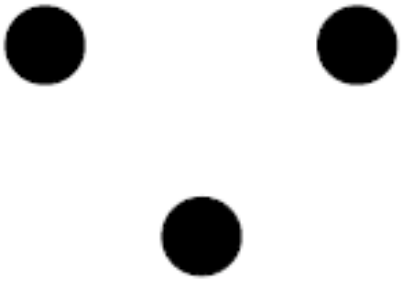
Total: $__10__

## C Decision Sheet: Face Condition

# Money Allocation Sheet

You have received $5 for showing up on time.

You now have an additional $10 to allocate between you and the Receiver you are paired with in the other room (in $1 increments). Please record how much money you will keep for yourself, and how much you will allocate to the Receiver.



I will keep: $_____

I will give: $_____

Total: $ 10

# D Procedure-believability Questionnaire

Please read each statement, and circle your answer using the following scale from 1 to 10:

(1) Do you believe your decision was completely anonymous?

| **Don't believe at all** | | | | | | | | | **Com-pletely believe** |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

(2) Do you believe you are paired with an individual in the other room?

| **Don't believe at all** | | | | | | | | | **Com-pletely believe** |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |