Eye images do not promote prosocial behaviour or norm compliance in an online Dictator Game

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10 Abstract

Evidence for the effect of eye images on prosocial behavior is mixed: some studies have found that images of eyes enhance cooperative behavior while others have not replicated this effect. In a recent meta-analysis, Nettle et al. (2013) argued that previous null results have occurred because data have been analysed incorrectly. Specifically, the authors predicted that eye images
15 either (i) reduce variance in donation amount by reducing the likelihood that the Dictator will keep the entire endowment or (ii) increase compliance with cooperative norms. Since several previous studies have only looked at the effect of eye images on mean donation amount, they have not tested these predictions. We test both hypotheses here using a Dictator Game (n = 779) conducted over Amazon Mechanical Turk, a setup that has previously yielded negative results.
20 We provided players with two types of descriptive norm information, by telling them how much others typically give in this setting. We compared donations under the norm treatments with decisions made under control conditions, where no norm information was supplied. In each setting, subjects were additionally shown images of eyes or a control image (flowers) so that any additional effect of eye images on prosocial behavior could be examined. Eye images did not
25 increase Dictator Game giving, regardless of whether 'giving' was defined as mean donation or

simply the tendency to make a non-zero donation. Furthermore, eye images did not increase compliance with a descriptive norm in this setting. Due to these negative results, we conclude that the conditions and underlying mechanisms that lead to positive effects of eyes on prosocial behaviour remain elusive.

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Introduction

Empirical evidence abounds to support the idea that people are more cooperative when they know that others will observe their behaviour (1-4), and it has been proposed that images of eyes evoke a similar response as being observed by a real person. Several laboratory and real-world experiments
35 have suggested that cooperative behaviour is increased when subjects are exposed to eye images, relative to neutral controls (reviewed in (5,6)). Nevertheless, there have also been several prominent failures to replicate the positive effect of eye images on cooperative behaviour, with a recent meta-analysis suggesting that the current evidence is consistent with the hypothesis that there is no main effect of eye images on prosocial behaviour (6). An alternative explanation for these failed
40 replications is that the watching eye effect is context-specific. Indeed, Nettle et al. (5) have suggested that watching eyes do not increase pro-sociality per se but instead increase the tendency to comply with an established norm of cooperation. We test this hypothesis here.

A common paradigm for investigating the effect of eye images on cooperative behaviour under
45 laboratory settings is the Dictator Game (7). This is a two-player game where one player, the Dictator, is given an endowment and is allowed to give any share of the endowment to the other player, the Receiver. In this game, the Receiver must accept any share offered by the Dictator. An income-maximising, self-interested individual is expected to keep the entire endowment but humans rarely behave this way. In most cases, Dictators give around 28 % of the endowment to the Receiver,
50 although there is also usually substantial variation around this mean, with many players choosing to

keep the entire endowment or to give half of the money to the partner (see (8) for a meta-analysis). Several studies have identified factors that might influence Dictator Game giving, including the effect of presenting the Dictator with eye images during the game. While some studies have found that eye images motivate more generous allocations to the Receiver in this game (e.g. (9-12)), others studies
55 have not replicated this effect (13).

Nettle et al. (5) suggested that the ambiguity over the effect of eye images on cooperative behavior arises because researchers have not asked the right questions with their data. In Dictator Game settings, researchers have typically asked whether eye images increase the mean donation made to
60 receivers. Nettle et al. (5) suggested that eye images might instead make people less prone to extreme strategies in social settings. we should observe reduced variance in donation amount when people view eye images than when they view control images (5). Indeed, where this effect is explicitly measured, it is observed that the presence of eye images reduces variance in Dictator donations (5,9). An alternative hypothesis is that eye images only promote prosocial behavior when prosocial behavior
65 is normative in that context (5). As such, in the context of the Dictator Game, it has been argued that eye images should not be expected to increase the amount donated to the receiver but instead to increase the propensity of giving any non-zero donation (5). This is based on the (albeit unverified) idea that giving something to the Receiver is an established social norm in this game. Indeed, in some studies, it does seem to be the case that eye images decrease the tendency of the dictator to keep the
70 entire endowment (e.g. (5,9,10) but see (14)). However, it is not clear from these studies whether the dictators perceived that the norm in this setting was to give some of the endowment to the receiver.

Based on the predictions outlined in the metastudy by Nettle et al., (2013), here we tested the hypotheses that (i) eye images make people more likely to comply with a descriptive social norm,
75 and (ii) eye images reduce variance in dictator donations. When we first wrote this paper, no studies had experimentally manipulated the presence or absence of a local descriptive norm and then asked

how eye images affect compliance with that norm. In the long interval since writing it and not getting it accepted anywhere, some studies have started to address this question. For example, a recent study by Bateson et al. (15) where a local littering norm was manipulated (by experimentally adding or
80 reducing litter) and the presence of eyes on further littering in these two norm scenarios was measured. In this setting, the authors found no evidence to suggest that eye images increased cooperative behaviour (by reducing littering) or increased compliance with a social norm (by littering only when litter was already present). There was a non-significant interaction between the presence of eye images and the number of observers on littering behaviour: curiously, eye images apparently
85 only reduced littering behaviour when there was a minimum of six observers present. This result is puzzling: further investigation (preferably with a pre-registered study) is warranted to explore whether this was a statistical anomaly or a trend that is truly representative of real-world patterns of behaviour. A more recent study asked whether eye images increased tendency to comply with normative information to pay for newspapers under an honour system, finding that normative
90 information alone ('the majority of our readers pay for their copy') was more effective than the norm information combined with eye images at promoting honesty (16). Since the predictions that eye images (i) reduce variance in donation amount or (ii) increase compliance with experimentally created norms were originally formulated with respect to Dictator Game giving, it makes sense to test these hypotheses in that setting. We do this here.

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Methods

This project was approved by the University College London ethics board under the project number 3720/001. All data were collected in March 2014 using the online labour market, Amazon Mechanical Turk (MTurk, www.mturk.com). No deception was used in this study and subjects were not debriefed
100 as to the purpose of the study after the game. Participation in this study was voluntary and subjects could choose to opt in or out of the game (by choosing to click the hyperlink to access the study) after reading a brief description of the task. Since participation was voluntary and subjects participated

anonymously, our ethics approval does not stipulate that we obtain written or verbal consent from subjects recruited from MTurk. Mechanical Turk is now a widely accepted tool for conducting
105 behavioural experiments online (see (17) for a review) and the results of many classic studies, originally performed in laboratory settings, have been replicated several times using MTurk (17).

We recruited 1,600 MTurk workers to play a Dictator Game. Of these workers, 800 were randomly assigned to the 'dictator' role and 800 to the 'receiver' role in the game, although the more neutral
110 terms 'Player 1' and 'Player 2' were used in the information seen by subjects and are used hereafter. Receivers generated no data in this task and thus are not included in any analyses.

In the game, Player 1 was endowed with a sum of \$0.50 (c.f. (18)) and was told that they could choose to give as much of this sum as they wanted to Player 2 (see online supplementary information for
115 game instructions). MTurk workers are identified by a unique 14- digit code rather than their names. Workers were told that their ID would not be revealed to their partner in the game, thus ensuring anonymity. Player 1 was asked to select one of 11 donations to send to Player 2, from \$0.00 to \$0.50, increasing in \$0.05 increments. After taking part in the Dictator Game, subjects were asked to state their age and gender.

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All subjects were required to answer three comprehension questions correctly. If a subject answered any of the comprehension questions incorrectly, s(he) was excluded from taking part in the study. Ultimately, 21 workers assigned to the dictator role were excluded, so our analyses are based on
125 $n=779$ dictators (age range: 18-67, mean: 30 ± 0.4 ; 494 males, 282 females, 2 did not specify).

The 779 individuals assigned to the dictator role were randomly assigned to one of eight treatments. Treatments varied with respect to the information that the participant received prior to playing the game and whether the information was accompanied by an image of eyes or flowers. We used six
130 different eye images and six different flower images in this study (sourced from Google Images; Figure 1). Flowers were used as the control image following previous studies (e.g. (18-20)). In the norm treatments, the participant received one of two descriptive norms (see below). In the control treatments, we included the number '25' and the number '50', respectively, to control for the possibility that these numbers might have acted as an anchor (21) for donation amounts in the norm treatments.
135 Anchoring occurs when the presentation of the first piece of numerical information influences judgements and decisions made thereafter (22).

“Give Half” norm: Data show that Player 1 typically gives \$0.25 to Player 2 (eyes, $n = 99$ / flowers, $n = 98$).

140 “Give Something” norm: Data show that Player 1 rarely keeps the entire \$0.50 (eyes, $n = 99$ / flowers, $n = 96$).

“Give half” control: Data show that most MTurk workers are over 25 years old (eyes, $n = 99$ / flowers, $n = 96$).

“Give something” control: Data show that most MTurk workers are under the age of 50 (eyes, $n = 95$
145 / flowers, $n = 97$).

Data analyses

We asked the following main questions:

150 **(i) Do eye images reduce variance in donation amount or propensity to keep the entire**

donation? We asked whether the presence of eyes versus flowers was associated with reduced variance in donation amount or reduced propensity to keep the entire endowment, as predicted by Nettle et al. (5). Since the presence of normative information in the instructions could also have influenced these variables, for these tests we restricted the analysis to data collected under control conditions (although the analyses were repeated including all data and were not qualitatively different).

(ii) Do eye images increase compliance with a descriptive norm?

We ran two General Linear Mixed Models (GLMMs) to ask whether compliance with each of the descriptive norms was affected by image type. In the first model, we used the data from the “Give Half” norm group, with associated control, resulting in a sample size of 392 for analysis. We created a binary response term called 'Complied' which was set as '1' if Player 1 gave \$0.25 or more to Player 2 and '0' if Player 1 gave < \$0.25 to Player 2. This term was set as the response term in a binomial GLMM with the terms 'Image (Eyes / Flowers)', 'Treatment (Norm / Control)', and the two-way interaction 'Treatment x Image' included as explanatory terms in the model. ‘Image ID’ was included as a random effect. In the second model, we used the data from the “Give Something” group, with associated control. The response term 'Complied' was set as '1' if Player 1 gave any non-zero donation to Player 2 and '0' if Player 1 kept the entire endowment for themselves. The same explanatory terms were fitted to this model as in the model above, resulting in a sample size of 387 for analysis.

(iii) Do eye images increase donation amounts?

Finally, we asked whether the presence of eye images (in the absence of normative information) resulted in increased mean donations in this game. Donations were extremely right-skewed. Hence, we transformed donation into a three-level, ordinal categorical variable, according to the interquartile range of the data. We used only data from the control conditions, resulting in n= 387 for analysis.

All data were analysed using R version 3.4.1 (<http://www.r-project.org>). To determine the relative importance of the explanatory terms included in each model, we used an information-theoretic approach with model averaging as described in (23). Under an information- theoretic approach, a series of candidate models are generated, with each model representing a biological hypothesis. Rather than testing a null hypothesis, the relative degree of support for each model from the candidate set is calculated (24). Initially, we specified a global model which included all the explanatory and random terms. The input variables were then standardized according to (25), allowing the relative strength of parameter estimates to be interpreted. We used the package MuMIn (26) to derive and compare submodels from the initial global model. Models were compared to one another using Akaike's Information Criterion corrected for small sample sizes (AICc). A subset of 'top models' were defined by taking the best model (the model with the lowest AICc value) and any models within 2AICc units of the best model (following (24)). Using this subset of 'top' models, we computed the average parameter estimates for each term included in the subset of models, as well as the relative importance of the term. Importance is calculated by summing the Akaike weights of all models where the term in question is included in the model. Akaike weights represent the probability of a given model being the true model (compared to other candidate models in the set) (24). Importance can therefore be thought of as the probability that the term in question is a component of the best model (27). In the results section, we only present the parameter estimates from the top models (those that were within 2 AICc units of the best model). All data and R code are available at Figshare (doi: 10.6084/m9.figshare.5459266).

Results

The mean amount Player 1 donated to Player 2 in the current study was $\$0.13 \pm 0.00$ (the same values were obtained when calculated separately for eyes and flowers conditions), corresponding to 26 % of the stake. The median donation was $\$0.10$ (the same value was obtained when calculated separately

for eyes and flowers conditions) and the modal donation for each image type was \$0.00 (Figure 1).

(i) Do eye images reduce variance in donation amount or propensity to keep the entire

205 **donation?** Our data did not support the hypothesis that variance in donation amount is reduced when subjects view eye images as opposed to control images (Levene's Test for homogeneity of variance: $df = 1$, F value = 0.61, $P = 0.43$) Neither did the presence of eye images significantly reduce Player 1's tendency to keep the entire endowment. Using data just from the control conditions, 84 / 194 (43.3 %) participants who saw eye images donated nothing to the receiver, compared with 79 / 193 (40.9
210 %) who saw flowers (Chi-squared test: $X^2 = 0.14$, $df = 1$, $P = 0.71$).

(ii) Do eye images increase compliance with a descriptive norm?

First, we established how successful our control treatments were at evoking compliance relative to the matched control treatment. In the "Give Half" norm treatment 72 / 197 (36.5 %) players
215 complied with this norm, which was not significantly different to the 65 / 195 (33.3 %) who gave half the matched control (Chi-squared test: $X^2 = 0.32$, $df = 1$, $p = 0.57$). For the "Give Something" norm treatment, however, our norm information did alter players' behaviour relative to the matched control: 134/195 (68.7 %) players who saw the norm information complied compared with 111/192 (57.8 %) players in the matched control (Chi-squared test: $X^2 = 4.49$, $df = 1$, p
220 = 0.03).

Compliance with the "Give Half" norm was not affected by the presence of eye images, or by an interaction between seeing the image and the norm in conjunction (Table 1). There was a slight positive effect of the norm information on the tendency to give at least half the endowment to the
225 receiver, but the confidence intervals associated with this effect included zero. These patterns were largely the same for the model investigating compliance with the "Give Something" norm (Table 2).

(iii) Do eye images increase mean donations?

Looking at just the control data, eye images had a slightly negative effect on the donation amount
230 (Table 3), though the confidence intervals associated with this effect are also consistent with the
hypothesis that image type has no effect on donation amount.

Discussion

This study adds to the growing literature on the effect (or lack thereof) of eye images on prosocial
235 behaviour (6). In contrast to the prediction outlined in (5), which suggested that eye images encourage
people to comply with social norms rather than to make higher donations per se, here we found no
evidence that eye images promote normative behaviour. While we were able to alter players'
behaviour (in one of the experimental conditions) by giving information about how other people
typically behave in this game, the addition of eye images to this norm information did not increase
240 compliance with the norm relative to neutral images of flowers. Moreover, we found no evidence to
suggest that eye images increased the propensity to make a non-zero donation to the receiver, or that
eye images reduced variation in donation amount. These results, together with those from other
studies (reviewed in (6)), call into question the idea that artificial surveillance cues promote prosocial
behaviour and suggest that, if they do, they only do so under a restricted set of condition (which so
245 far remain elusive).

Eye images did not increase compliance with either the 'give half' or the 'give something' norm. The
analyses suggest that our "Give Half" information was unsuccessful at promoting compliance. On the
other hand, our other "Give Something" norm manipulation was effective: telling players that most
250 people give at least some of the endowment to the receiver in this game did decrease the dictator's
tendency to keep the entire endowment. Adding eye images to this information, however, did not

have an additive effect on compliance. It is not clear why our 'give something' norm was more effective at increasing compliance than the 'give half' norm but one plausible explanation is that people can comply with a 'give something' norm for a smaller cost than is involved in complying
255 with a 'give half' norm. Previous work has shown that subject compliance with normative information declines as the cost of compliance increases (28).

It is not yet clear why some studies find a positive effect of eye images on prosocial behavior, while others fail to replicate this effect. It has been suggested that Dictator Games with low stakes typically
260 lead to a high proportion of players making a non-zero donation and so additional effects of eye images on giving behavior would be difficult to detect (5). Notwithstanding that stake size may indeed affect dictator donations (29), the data from this study showed that 296 / 779 of the players (38.0 %) kept the entire endowment, which is a larger percentage than in the original Haley & Fessler study (9) (where 30.6 % kept all the money), where a significant positive effect of eyes on probability of
265 giving something was detected. Thus, the small stakes used in MTurk studies are unlikely to be the driving force behind the null effect of eye images in this setting.

Another reason for the apparent inconsistency in watching eye effects is that the sample size is typically far larger when recruiting subjects from the internet and so type I errors are far less likely
270 to occur than when smaller sample sizes are used. Studies conducted over the internet might also differ in some fundamental way to those that are conducted under laboratory and field settings. For example, Sparks & Barclay (30) suggest that frequent internet users' exposure to advertisements online render them adept at screening out stimuli that are prominent but irrelevant to the task at hand (e.g. our eye and flower images in this task). If this were the case then it might explain why data
275 collected using MTurk have consistently yielded no meaningful effect of eye images on Dictator Game giving. Alternatively, eye images might only increase prosocial behavior when the actor perceives a real possibility of being observed by another individual (as suggested by(18,31)). Many

Dictator Games are conducted under conditions of anonymity but, in most cases, there is still an experimenter in the room and even the presence of an uninvolved third-party (in the form of the experimenter) has been shown to influence behavior in these types of game (1,32,33). By contrast, studies conducted over the internet, or with manipulations that make participants feel unobserved may reduce the feeling that behavior is being watched by others. A recent study conducted over the internet found that eye images did increase Dictator Game giving (34). However, as the authors of this study point out, subjects in their study may have felt less anonymous than MTurk workers because (i) their identities were known to the experimenter and (ii) they also had to meet the experimenter in person to collect their earnings from the game. The crucial question of whether eye images only work when people feel their identity and behavior might really be revealed to others has not been performed yet but may help to explain why there is apparently so much variation in the effect of eye images on prosocial behavior.

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By asking players about whether they had played a Dictator Game previously on MTurk, we were also able to gain valuable information on whether Mturk workers are likely to have had experience with this common game. We found that around a quarter of subjects had played a Dictator Game before. This is consistent with a previous study which showed that, in a series of seven related experiments conducted over the period of a few months, around 70 % of workers participated in only one experiment (35). More importantly, we did not find any systematic effect of naïveté on subject behavior in the Dictator Game. Again, this concurs with previous results (35), which show that informed subjects' responses in traditional social psychology games are not qualitatively different to those of naive subjects. Together, these results lend credibility to the assertions that data collected on MTurk are comparable to those collected using traditional undergraduate samples and, in many cases, may be more valuable since a more diverse slice of the true population can be sampled (Behrend et al., 2011; Berinsky et al., 2012; Horton et al., 2010; Suri & Watts, 2011) (17,35).

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The evidence presented here is fairly unequivocal: in an online Dictator Game setting, eye images do
305 not decrease variance in donation amount; do not increase the likelihood of non-zero donations; and
do not increase compliance with descriptive norms. We therefore reiterate that the current evidence
supporting a positive effect of artificial surveillance cues on prosocial behaviour is consistent with
the hypothesis that the watching eye effect does not exist – or, if it does, it is fragile and highly
context-specific.

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Parameter	Estimate	Unconditional SE	Confidence Interval	Importance
Intercept	-0.46	0.13	(-0.71, -0.21)	
Treatment (1 = norm)	0.05	0.14	(-0.22, 0.32)	0.32

Table 1. Full model-averaged estimates, unconditional standard errors, confidence intervals and relative importance for variables included in the top model set for the model investigating whether subjects complied with the “Give Half” norm. Image ID was included as a random term in the model.

Parameter	Estimate	Unconditional SE	Confidence Interval	Importance
Intercept	0.40	0.19	(0.02, 0.77)	
Treatment (1 = norm)	0.37	0.29	(-0.20, 0.93)	0.77
Image type (1 = eyes)	-0.05	0.14	(-0.31, 0.22)	0.26

Table 2. Full model-averaged estimates, unconditional standard errors, confidence intervals and relative importance for variables included in the top model set for the model investigating whether subjects complied with the “Give Something” norm. Image ID was included as a random term in the model.

Parameter	Estimate	Unconditional SE	Confidence Interval	Importance
Intercept 1 2	-0.31	0.12	(-0.54, -0.08)	
Intercept 2 3	3.45	0.30	(2.86, 4.03)	
Image type (1 = eyes)	-0.01	0.11	(0.20, -0.22)	0.27

Table 3. Full model-averaged estimates, unconditional standard errors, confidence intervals and relative importance for variables included in the top model set for the model investigating donation amount. Donation amount was converted into a 3-level ordered categorical variable, based on the interquartile range of the distribution of the data. Image ID was included as a fixed term in the model.

Figure 1. Images used in this study.

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Figure 2. Mean donation amounts (\$, $\pm$ SEM) for eye and flower images, respectively, according to whether participants saw the “Give Half” or the “Give Something” norm information.

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1. Andreoni J, Petrie R. Public goods experiments without confidentiality: a glimpse into fund-raising. *Journal of Experimental Social Psychology*.
2. Barclay P, Willer R. Partner choice creates competitive altruism in humans. *PRSB*. 2007;274(1610):749–53.
3. Sylwester K, Roberts G. Reputation-based partner choice is an effective alternative to indirect reciprocity in solving social dilemmas. *Evolution and Human Behavior*. 2013 Apr 2;34:201–6.
4. Soetevent AR. Anonymity in giving in a natural context - a field experiment in 30 churches. *Journal of Public Economics*. 2005 Jan 13.
5. Nettle D, Harper Z, Kidson A, Stone R, Penton-Voak IS, Bateson M. The watching eyes effect in the Dictator Game: it's not how much you give, it's being seen to give something. *Evolution and Human Behavior*. 2013 Jan;34(1):35–40.
6. Northover SB, Pedersen WC, Cohen AB. Artificial surveillance cues do not increase generosity: two meta-analyses. *Evolution and Human Behavior*. 2016.
7. Kahneman D, Knetsch JL, Thaler R. Fairness as a Constraint on Profit Seeking: Entitlements in the Market. *Am Econ Rev*. American Economic Association; 1986 Sep 1;76(4):728–41.
8. Engel C. Dictator games: a meta study. *Exp Econ*. 2011 May 20;14(4):583–610.
9. Haley KJ, Fessler DMT. Nobody's watching? *Evolution and Human Behavior*. 2005 May;26(3):245–56.
10. Rigdon M, Ishii K, Watabe M, Kitayama S. Minimal social cues in the dictator game. *J Econ Psychol*. 2009 Jun;30(3):358–67.
11. Keller J, Pfattheicher S. Vigilant self-regulation, cues of being watched and cooperativeness [Internet]. *onlinelibrary.wiley.com*. 2011 [cited 2014 Mar 27]. Available from: <http://onlinelibrary.wiley.com/doi/10.1002/per.797/pdf>
12. Oda R, Niwa Y, Honma A, Hiraishi K. An eye-like painting enhances the expectation of a good reputation. *Evolution and Human Behavior*. Elsevier Inc; 2011 May 1;32(3):166–71.
13. Matsugasaki K, Tsukamoto W, Ohtsubo Y. Two Failed Replications of the Watching Eyes Effect. *Lett Evol Behav Sci*. 2015;6(2).
14. Vogt S, Efferson C, Berger J, Fehr E. Eye spots do not increase altruism in children. *Evolution and Human Behavior*.
15. Bateson M, Callow L, Holmes JR, Roche M, Nettle D. Do Images of “Watching Eyes” Induce Behaviour That Is More Pro-Social or More Normative? A Field Experiment on Littering. *Plos ONE*. 2013.
16. Brudermann T, Bartel G, Fenzl T, Seebauer S. Eyes on social norms: a field study on an honor system for newspaper sale. *Theory and decision*. 2014 Aug 12.

17. Stewart N, Chandler J, Paolacci G. Crowdsourcing Samples in Cognitive Science. *TICS*. 2017;21(10):736–48.
18. Raihani NJ, Bshary R. A positive effect of flowers rather than eye images in a large-scale, cross-cultural dictator game. *PRSB*. 2012;279:3556–64.
19. Bateson M, Nettle D, Roberts G. Cues of being watched enhance cooperation in a real-world setting. *Biol Lett*. 2006 Sep 22;2(3):412–4.
20. Carbon C-C, Hesslinger VM. Bateson et al.'s (2006) Cues-of-Being-Watched Paradigm Revisited. *Swiss Journal of Psychology*. 2011 Nov 4;70(4):203–10.
21. Wilson TD, Houston CE, Etling KM, Brekke N. A new look at anchoring effects: basic anchoring and its antecedents. *J Exp Psychol Gen*. 1996 Dec 1;125(4):387–402.
22. TVERSKY A, KAHNEMAN D. Judgment Under Uncertainty - Heuristics and Biases. *Science*. 1974;185(4157):1124–31.
23. GRUEBER CE, Nakagawa S, LAWS RJ, JAMIESON IG. Multimodel inference in ecology and evolution: challenges and solutions. *J Evol Biol*. 2011 Jan 27;24(4):699–711.
24. Burnham KP, Anderson D. Model selection and multi-model inference. 2nd ed. New York: Springer-Verlag; 2002.
25. Gelman A. Scaling regression inputs by dividing by two standard deviations. *Statistics in Medicine*. John Wiley & Sons, Ltd; 2008 Jul 10;27(15):2865–73.
26. Barton K, Barton MK. Package “MuMin.” Version 1.9. 18. 2015.
27. Symonds MRE, Moussalli A. A brief guide to model selection, multimodel inference and model averaging in behavioural ecology using Akaike's information criterion. *Behav Ecol Sociobiol*. Springer-Verlag; 2010 Aug 25;65(1):13–21.
28. Raihani NJ, McAuliffe K. Dictator game giving: the importance of descriptive versus injunctive norms. *Plos ONE*. 2014 Dec 11;9:e113826.
29. Raihani NJ, Mace R, Lamba S. The effect of \$1, \$5 and \$10 stakes in an online dictator game. *Plos ONE*. 2013 Jan 1;8(8):e73131–1.
30. Sparks A, Barclay P. Eye images increase generosity, but not for long: the limited effect of a false cue. *Evolution and Human Behavior*. 2013 Sep;34(5):317–22.
31. Tane K, Takezawa M. Perception of human face does not induce cooperation in darkness. *Lett Evol Behav Sci*. 2011 Jul 26;2(2).
32. Hoffman E, McCabe K, Smith VL. Social distance and other-regarding behavior in dictator games. *Am Econ Rev*. JSTOR; 1996;86(3):653–60.
33. Rege M, Telle K. The impact of social approval and framing on cooperation in public good situations. *Journal of Public Economics*. 2004;88(7-8):1625–44.
34. Baillon A, Selim A, van Dolder D. On the social nature of eyes: The effect of social cues in interaction and individual choice tasks [Internet]. *Evolution and Human Behavior*. 2013 [cited 2014 Apr 2]. Available from: http://ac.els-cdn.com/S1090513812001353/1-s2.0-S1090513812001353-main.pdf?_tid=dc6c0170-ba69-11e3-9a50-

35. Berinsky AJ, Huber GA, Lenz GS, Alvarez RM. Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk. *Political Analysis*. Oxford University Press; 2012 Jul 1;20(3):351–68.