

Breaches of Trust Change the Content and Structure of Religious Appeals

Supplementary Materials

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1. Supplementary Analyses

All R code and data are available and will be maintained at:

<https://github.com/bgpurzycki/Social-Ecology-of-Gods-Minds>.

1.1. Free-list results

1.1.1. General results

Table S1 | Summary statistics for free-listed items (pooled sample). Only items where Smith's $S \geq 0.10$ are included. See R script for full details. $N = 279$.

Item Listed	Mean Salience	Sum Salience	Smith's S	n listed
Dishonesty	0.75	157.72	0.57	211
Murder	0.67	127.86	0.46	190
Theft	0.68	122.68	0.44	181
Cheating	0.64	65.63	0.24	102
Greed	0.56	60.89	0.22	109
Hatred	0.66	53.90	0.19	82
Adultery	0.61	53.70	0.19	88
Violence	0.57	49.83	0.18	88
Sin	0.88	34.50	0.12	39
Cruelty	0.56	34.40	0.12	61
Selfishness	0.59	28.70	0.10	49

1.1.2. Results by condition

Table S2 | Summary statistics for free-listed items by condition. Only items where Smith's $S \geq 0.10$ are included. See R script for full details. $N = 279$.

Condition	Item Listed	Mean Salience	Sum Salience	Smith's S	n
Control	Dishonesty	0.77	44.14	0.60	57
Control	Theft	0.71	37.00	0.50	52
Control	Murder	0.69	33.69	0.46	49
Control	Cheating	0.70	19.57	0.26	28
Control	Hatred	0.70	18.17	0.25	26
Control	Adultery	0.64	15.40	0.21	24
Control	Violence	0.59	13.50	0.18	23
Control	Greed	0.54	13.06	0.18	24
Control	Cruelty	0.57	8.53	0.12	15
Defect	Dishonesty	0.74	39.15	0.61	53

Defect	Theft	0.72	28.80	0.45	40
Defect	Murder	0.64	27.47	0.43	43
Defect	Cheating	0.61	17.60	0.28	29
Defect	Greed	0.54	16.73	0.26	31
Defect	Adultery	0.64	12.70	0.20	20
Defect	Violence	0.62	11.80	0.18	19
Defect	Hatred	0.68	11.60	0.18	17
Defect	Cruelty	0.63	10.00	0.16	16
Defect	Selfishness	0.63	7.50	0.12	12
Split	Dishonesty	0.75	38.46	0.57	51
Split	Murder	0.70	32.40	0.48	46
Split	Theft	0.63	28.18	0.42	45
Split	Cheating	0.68	17.77	0.27	26
Split	Greed	0.56	12.80	0.19	23
Split	Adultery	0.60	12.60	0.19	21
Split	Violence	0.54	11.34	0.17	21
Split	Sin	0.90	10.80	0.16	12
Split	Cursing	0.63	9.40	0.14	15
Split	Idolatry	0.42	8.30	0.12	20
Split	Cruelty	0.48	7.20	0.11	15
Split	Selfishness	0.63	6.90	0.10	11
Split	Hatred	0.52	6.73	0.10	13
Delay	Dishonesty	0.72	35.97	0.49	50
Delay	Murder	0.66	34.30	0.46	52
Delay	Theft	0.65	28.70	0.39	44
Delay	Greed	0.59	18.30	0.25	31
Delay	Hatred	0.67	17.40	0.24	26
Delay	Violence	0.53	13.19	0.18	25
Delay	Adultery	0.57	13.00	0.18	23
Delay	Sin	0.93	12.10	0.16	13
Delay	Cheating	0.56	10.70	0.14	19
Delay	Cruelty	0.58	8.67	0.12	15
Delay	Selfishness	0.56	7.90	0.11	14
Delay	Rape	0.65	7.80	0.11	12

1.2. Experimental results

1.2.1. Greed models

For the sake of robustness checking, we also ran a variety of model specifications to examine the stability of the effect of experimental conditions. These models are backward selected from the main model simply by removing one variable at each step. Results are details in Table S3 and shows that across specifications, the effects of conditions are stable.

Table S3 | Odds ratios (exponentiated estimates) and 95% credibility intervals of regression results for greed models. Model names correspond to model name in R code.

	bfull5	bfull4	bfull3	bfull2	bfull1
Defect	1.78 [0.93, 3.44]	1.79 [0.93, 3.45]	1.77 [0.94, 3.33]	1.79 [0.97, 3.39]	1.79 [0.96, 2.43]
Split	1.03 [0.55, 1.95]	1.03 [0.53, 1.99]	1.01 [0.53, 1.96]	1.03 [0.53, 1.99]	1.02 [0.53, 1.99]
Delay	1.37 [0.71, 2.61]	1.38 [0.72, 2.59]	1.38 [0.74, 2.62]	1.40 [0.77, 2.61]	1.40 [0.75, 2.57]
Religiosity	0.95 [0.86, 1.07]	0.95 [0.85, 1.07]	0.97 [0.87, 1.08]	0.97 [0.87, 1.09]	--
Sex	1.10 [0.67, 1.79]	1.12 [0.70, 1.83]	1.04 [0.64, 1.69]	--	--
Age (centered)	1.02 [1.00, 1.04]	1.02 [1.00, 1.04]	--	--	--
Income	1.11 [0.47, 2.62]	--	--	--	--
Intercept	0.61 [0.23, 1.63]	0.64 [0.27, 1.55]	0.59 [0.26, 1.37]	0.59 [0.26, 1.31]	0.51 [0.32, 0.78]

1.2.2. Greed set models

Table S4 reproduces the same models, but with the stacked data predicting listing a greed set item.

Table S4 | Odds ratios (exponentiated estimates) and 95% credibility intervals of regression results for greed set models. Model names correspond to model name in R code.

	bfull5s	bfull4s	bfull3s	bfull2s	bfull1s
Defect	1.15 [0.91, 1.46]	1.14 [0.90, 1.45]	1.15 [0.90, 1.47]	1.15 [0.90, 1.47]	1.15 [0.90, 1.47]
Split	1.03 [0.81, 1.32]	1.03 [0.80, 1.31]	1.03 [0.81, 1.30]	1.04 [0.81, 1.34]	1.03 [0.82, 1.32]
Delay	0.88 [0.69, 1.12]	0.87 [0.69, 1.12]	0.88 [0.69, 1.12]	0.89 [0.70, 1.14]	0.88 [0.68, 1.12]
Religiosity	0.98 [0.94, 1.02]	0.98 [0.94, 1.02]	0.98 [0.95, 1.02]	0.98 [0.95, 1.02]	--
Sex	1.07 [0.90, 1.29]	1.07 [0.90, 1.29]	1.06 [0.88, 1.26]	--	--
Age (centered)	1.00 [1.00, 1.01]	1.00 [1.00, 1.01]	--	--	--
Income	0.97 [0.67, 1.35]	--	--	--	--
Intercept	0.35 [0.24, 0.49]	0.34 [0.25, 0.47]	0.34 [0.25, 0.46]	0.35 [0.26, 0.46]	0.31 [0.26, 0.37]

3. Data notes

We initially planned to include a few other variables in our analyses that we subsequently refrained from using. One was education level: (1) Less than a high school degree, (2) High school diploma, (3) vocational training, (4) attended college, (5) bachelor's degree, (6) graduate degree, (7) unknown—but in the main models reported here, we ignore education as there was too little variance across conditions. We also asked about a game check. Once finished, participants answered a variety of non-strategic, non-game-oriented filler questions, with the last being a check on how real participants thought Player B was (1 = *very skeptical* to 7 = *very confident* that the participant with whom they played with was real). Participants largely responded above the midpoint of the scale ($M = 4.62$, $SD = 2.04$, mode = 7) which was not notably different across conditions. As including this variable (or a mean-split dummy) made models fail due to lack of variance (i.e., there were not enough people who were sufficiently skeptical), we do not include it in our present analyses. We also asked participants to self-report their fiscal and social liberalism on scales of 1 (conservative) to 7 (liberal). Initial diagnostics demonstrated that these two were highly correlated ($b_{\text{social conservatism}} = 0.71$, 95% CI [0.64, 0.79]). Predictably, our religious commitment scale was moderately negatively correlated with the mean of these two liberalism items ($b_{\text{religiosity}} = -0.24$, 95% CI [-0.32, -0.15], $r = -.32$, 95% CI [-0.42, -0.21]). As we wished to avoid problems associated with multicollinearity and our theoretically important variable was religiosity, we did not include liberalism in our analyses.

4. Dataset Codebook

Table S5 | Dataset codebook.

Variable Name	Description
PARTID	Participant ID #
ReligFram	If the study was given a religious frame or not, (1) religious, (0) not
defect	If the participant experienced being defected on or not - (1) defect, (0) not
Condition	Condition: (1) defected on, (2) fair split, (3) fills out the TG but no answer till free list, (4) no TG ever
gen	gender, (1) male, (2) female
age	age
edu	(1) Less than a high school degree, (2) High school diploma, (3) vocational training, (4) attended college, (5) bachelor's degree, (6) graduate degree, (7) unknown
ethnic	(1) Caucasian, (2) African American, (3) East Asian, (4) pacific islander, (5) Latino/Latina, (6) Middle Eastern, (7) Indian, (8) Native American, (9) other
ethnic_TEXT	ethnicity text if choice was "other"
Nationality	nationality
lang	language
income	(1) under 5k, (2) 5k-10k, (3) 10k-15k, (4) 15k-25k, (5) 25k-35k, (6) 35k-50k, (7) 50k-65k, (8) 65k-80k, (9) 80k-100k, (10) over 100k
SC	Social conservative (1= con – 7 = lib)
FC	Fiscal conservative (1= con – 7 = lib)
relig	Religion, (1) Christian, (2) Muslim, (3) Jewish, (4) Hindu, (5) Buddhist, (6) Atheist, (7) Agnostic, (8) other
CompFail1	Comprehension 1
CompFail2	Comprehension 2
CompFail3	Comprehension 3
CompFail4	Comprehension 4
CompFail1B	Comprehension second try 1
CompFail2B	Comprehension second try 2
CompFail3B	Comprehension second try 3
CompFail4B	Comprehension second try 4

TG_DV	Trust Game decision
Free_list	Free list as it was entered in total
1st	1st position entered into the free list
LIST1	Coded 1 st listed
2nd	2nd position entered into the free list
LIST2	Coded 2 nd listed
3rd	3rd position entered into the free list
LIST3	Coded 3 rd listed
4th	4th position entered into the free list
LIST4	Coded 4 th listed
5th	5th position entered into the free list
LIST5	Coded 5 th listed
6th	6th position entered into the free list
LIST6	Coded 6 th listed
7th	7th position entered into the free list
LIST7	Coded 7 th listed
8th	8th position entered into the free list
LIST8	Coded 8 th listed
9th	9th position entered into the free list
LIST9	Coded 9 th listed
10th	10th position entered into the free list
LIST10	Coded 10 th listed
11th	11th position entered into the free list
LIST11	Coded 11 th listed
12th	12th position entered into the free list
LIST12	Coded 12 th listed
13th	13th position entered into the free list
LIST13	Coded 13 th listed
14th	14th position entered into the free list
LIST14	Coded 14 th listed

15th	15th position entered into the free list
LIST15	Coded 15 th listed
16th	16th position entered into the free list
LIST16	Coded 16 th listed
17th	17th position entered into the free list
LIST17	Coded 17 th listed
relig_chage	Have they changed religious beliefs since young, (1) yes, (2) no, (3) other
relig_chage_TEXT	text for "other"
new_Relig	what is their new religion if they have changed, same order as demo question
new_Relig_TEXT	text for "other"
belief_levelChange	How strongly have your beliefs in the existence of god changed since childhood?
	(1) changed to no longer believing - (5) no change - (10) changed to more confident believer
unsure_god	If they ever felt unsure about the existence of god?, (1) never - (10) very regularly
relig_service	how often they attend religious service, (1) never - (5) only on holidays - (10) daily
pray	how often they pray, (1) never - (10) very regular
relig_text	how often they engage with religious material (1) never - (10) very regular
god_belife	how strongly they believe in god (1) do not believe - (10) very confident
relig_tradition	how strongly they believe in their religious teaching (1) not at all - (10) very much
god_experience	have had an experience that convinced them god exists, (1) never, (2) once, (3) several times, (4) occasionally, (5) daily
what_we_lookingat	check to see if they could guess what we were looking at
were the Qs respect	cover question
changes to Qs	cover question
these_kinds_study	asking about experience
these_kinds_contin	same but on a (1) nothing like this - (5) exactly like this
Real	how much they believe their partner was real, (1) very skeptical - (7) very confident

5. Full Output of the Study Interface

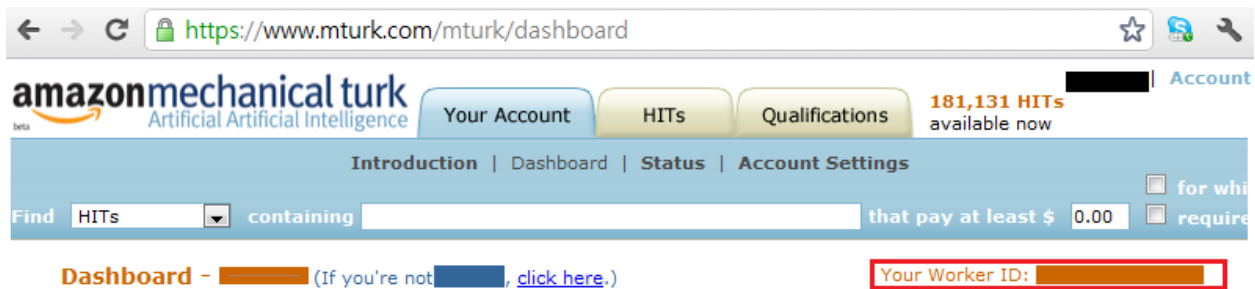
Start of Block: intro

mtid

Welcome!

Please enter your Amazon Mechanical Turk WorkerID. (Please see below for where you can find your WorkerID.) Your WorkerID starts with the letter A and has 12-14 letters or numbers. It is NOT your email address. If we do not have your correct WorkerID we will not be able to pay you. Thank you!

Note that your WorkerID can be found on your dashboard page:



End of Block:

Start of Block: instruction manipulation

Religion Instruction

Thank you for your interest.

In this HIT we are interested in people's religious beliefs, ideas, attitudes and behaviors.

We will have you complete several questions on this topic as well as several other tasks with the opportunity to earn a bonus. However, we will have you first answer several general questions about yourself. For all questions and tasks please do your best to answer as honestly and carefully as possible.

Please continue on to the next section.

Neutral Instruction

Thank you for your interest.

In this HIT we are interested in people's beliefs, ideas, attitudes and behaviors.

We will have you complete several questions and tasks with the opportunity to earn a bonus. However, we will have you first answer several general questions about yourself.

For all questions and tasks please do your best to answer as honestly and carefully as possible.

Please continue on to the next section.

End of Block:

Start of Block: Demographics

Please answer the following questions about yourself as accurately as possible.

Gen) Your gender:

☐ Male

☐ Female

Age) Your age:

Edu) What is the highest level of education you completed:

- ☐ Less than a high school degree
 - ☐ High School Diploma
 - ☐ Vocational Training
 - ☐ Attended College
 - ☐ Bachelor's Degree
 - ☐ Graduate Degree
 - ☐ Unknown
-

Ethnic) What most closely represents your ethnicity?

- ☐ Caucasian
 - ☐ African American
 - ☐ East Asian
 - ☐ Pacific Islander
 - ☐ Latino/ Latina
 - ☐ Middle Eastern
 - ☐ Indian
 - ☐ Native American
 - ☐ Other _____
-

Nationality) What is your Nationality?

Lang) What is your Native or First Language?

Income) Please choose the category that describes the total amount of income you earned in 2015. Consider all forms of income, including salaries, tips, interest and dividend payments, scholarship support, student loans, parental support, social security, alimony, and child support, and others.

- ☐ Under \$5,000
- ☐ \$5,000-\$10,000
- ☐ \$10,001-\$15,000
- ☐ \$15,001-\$25,000
- ☐ \$25,001-\$35,000
- ☐ \$35,001-\$50,000
- ☐ \$50,001-\$65,000
- ☐ \$65,001-\$80,000
- ☐ \$80,001-\$100,000
- ☐ Over \$100,000

SC) Politically, how conservative are you in terms of social issues

- ☐ 1 - Very conservative
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ 6
 - ☐ 7 - Very liberal
-

FC) Politically, how conservative are you in terms of fiscal issues

- ☐ 1 - Very conservative
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ 6
 - ☐ 7 - Very liberal
-

Relig) What is your religious affiliation?

- ☐ Christian
- ☐ Muslim
- ☐ Jewish
- ☐ Hindu
- ☐ Buddhist
- ☐ Atheist
- ☐ Agnostic
- ☐ Other _____

End of Block:

Start of Block: Comprehension Questions (conditions 2-4)

In this portion of the HIT, you will be matched with another individual from MTurk (the person in Role B). You will be in the Role A position - you will be given \$0.50 and have the option to send or not send this full amount to the person in Role B.

If you choose to send the \$0.50, it will be multiplied by 4 and the person in Role B will receive \$2.00. The Role B person will then be given the option to return all (\$2), half (\$1), the original amount (\$0.50) or none (\$0) of the \$2.00 to you. They will get to keep the amount they choose and you will keep whatever they return to you.

If you choose not to send the \$0.50, you will keep this amount and the person in Role B will receive nothing.

To show that you understand how this section works, please answer the questions below.

Note that you will not be able to earn a bonus if you do not answer the questions below correctly.

So, please carefully read these instructions and the questions below.

If the person in role B chooses to return all (100%) of the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
 - ☐ Keeping the full amount
 - ☐ Both options will earn me the same amount
-

If the person in role B chooses to return half (50%) the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
 - ☐ Keeping the full amount
 - ☐ Both options will earn me the same amount
-

If the person in role B chooses to return a quarter (25%) of the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
 - ☐ Keeping the full amount
 - ☐ Both options will earn me the same amount
-

If the person in role B chooses to keep all the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
- ☐ Keeping the full amount
- ☐ Both options will earn me the same amount

End of Page:

Start of Page: (if you failed any of the above comprehension questions)

**** You did not get all of these questions correct ****

We would like to give you one last chance to try again.
Please read the instructions below and do your best to answer carefully

You will be in the Role A position - you will be given \$0.50 and have the option to send or not send this full amount to the person in Role B position.

If you choose to send the \$0.50, it will be multiplied by 4 and the person in Role B will receive \$2.00. The Role B person will then be given the option to return all (\$2), half (\$1), the original amount (\$0.50) or none (\$0) of the \$2.00 to you. They will get to keep the amount they choose and you will keep whatever they return to you.

If you choose not to send the \$0.50, you will keep this amount and the person in Role B will receive nothing.

To show that you understand how this section works, please answer the questions below.

Note that you will not be able to earn a bonus if you do not answer the questions below correctly.

So, please carefully read these instructions and the questions below.

If the person in role B chooses to return all (100%) of the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
 - ☐ Keeping the full amount
 - ☐ Both options will earn me the same amount
-

If the person in role B chooses to return half (50%) the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
 - ☐ Keeping the full amount
 - ☐ Both options will earn me the same amount
-

If the person in role B chooses to return a quarter (25%) of the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
 - ☐ Keeping the full amount
 - ☐ Both options will earn me the same amount
-

If the person in role B chooses to keep all the amount they receive, what decision made by you will earn you the most money?

- ☐ Sending the full amount
- ☐ Keeping the full amount
- ☐ Both options will earn me the same amount

End of Block:

Start of Block: TG

Before making your decision, both you and the person in role B will be provided with a description of each other based on some of the demographic information you both provided.

This description will provide a better understanding of one another as you make your decisions.

Please continue on to confirm your information and then be matched with another person from MTurk.

End of Page:

Start of Page:

wait1 Please wait while your information is obtained ...



End of Page:

Start of Page:

Please confirm that your information below is correct.

You are {age} years old. You have identified your ethnicity as {ethnic} and Nationality as {Nationality}. You also described yourself as {religion}.

- ☐ Yes -This information is correct
- ☐ No -This information is incorrect

End of Page:

Start of Page: If "No – This information is incorrect" is selected

Please correct any mistakes for your information:

- ☐ Age _____
- ☐ Religious affiliation _____
- ☐ Ethnicity _____
- ☐ Nationality _____
- ☐ Belief in the existence of god _____
- ☐ Cancel (write "Cancel") _____

End of Page:

Start of Page:

Please wait while another person from MTurk can join and contribute their information.

If your wait lasts longer than one minute you will be given your \$0.50 to keep and moved to the next section of the HIT.

wait2 Please wait ...



End of Page:

Start of Page:

Some of your information has been sent to the person in role B. Please click continue to view some of the other person's information.

End of Page:

Start of Page: TG

Partner The person in role B is 31 years old. They have identified their ethnicity as Caucasian and Nationality as American. They also describe themselves as {Participant's Section Religion}.

Now choose whether or not to send \$0.50 to the person in role B to be multiplied 4 times.

- ☐ Don't send \$.50
- ☐ Send \$0.50

End of Page:

Start of Page: If they chose send_0

You chose to keep the \$0.50 and send nothing to the person in role B.

End of Page:

Start of Page: condition 3 wait

Please continue on to the next section of this HIT while the person in Role B makes their decision.

End of Block:

Start of Block: Person B's Decision

Please wait while we obtain the person in role B's decision ...

Please wait ...



End of Block:

Start of Block: Person B's Decision

Condition 2

The person in role B chose to keep the whole amount/ return \$0.00 to you.

Condition 3

The person in role B chose to keep half the amount/ return \$1.00 to you.

Participant chose to give nothing

The person in role B chose to received nothing and thus could not return any amount to you.

End of Block:

Start of Block: Free list Q

Thank you for your responses. This is the end of the first section of the HIT. Please continue on to the next section.

End of Block:

Start of Block: Free list Q

In the next section we will ask you a series of questions about your thoughts and beliefs.
Answering them as carefully and accurately as possible.

Please continue on to the following section of the HIT

End of Block:

Start of Block: Free list Q

In the box below, please enter at least 10 things (1-2 words each) you think displeases God.

Again, enter at least 10 items (though more than 10 is welcomed).

End of Block:

Start of Block: End Qs

To the best of your knowledge, what would you say this study was looking at or focused on?

Do you think the way we asked questions about your beliefs and traditions made sense, were respectful, were thoughtful?

Do you think there was some other question we should have asked?

About how many surveys/studies have you participated in on MTurk before?

To what extent have you previously participated in other studies that have questions like this one - asking about religion, etc.?

- ☐ 1 - Nothing like this
- ☐ 2
- ☐ 3 - Something like this
- ☐ 4
- ☐ 5 - Exactly like this

Real A number of studies on Mechanical Turk ask people to exchange money with others. Some requester may use deception, however - we never use deception. Since your actions and the actions of others can really affect the bonuses that other *real* people will earn, we would like to know to what extent did you believe that the other people in this study were real when making your decision?

- ☐ 1 - Very skeptical that others were real
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7 - Very confident that others were real

End of Block:

Start of Block: completion code

Thank you again for participating in our research.

Please enter below this Invitation Code (1234) along with your turk ID.

ex: 1234_AturkID

Your HIT will be approved and paid when the Invitation Code you enter below matches the one in our files, *and* that your answers above in this HIT indicate that you have answered the above questions carefully.

Thank you again for your participation.

End of Block: End
