Without God, everything is permitted? The reciprocal influence of religious and meta-ethical beliefs ☆

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HIGHLIGHTS

- The relation between religious and meta-ethical beliefs is investigated.
- Religiosity and moral subjectivism are negatively correlated.
- Religious priming increases moral objectivism and decreases moral subjectivism.
- Inducing moral subjectivism decreases religious belief.
- Religious and meta-ethical beliefs reciprocally influence each other.

ARTICLE INFO

ABSTRACT

The relation between religious and moral thought has been difficult to unravel because of the multifaceted nature of both religion and morality. We chose to study the belief dimension of religion and the meta-ethics dimension of morality and investigated the relation between God-related thoughts and objectivist/subjectivist morality in three studies. We expected a reciprocal relation between the idea of God and objective morality since God is one prominent way through which objective moral truths could be grounded and thus the lack of such objective truths might imply the absence of God who could set such truths. Study 1 revealed negative correlations between moral subjectivism and several measures of religious belief. Study 2 showed that people adopt moral objectivism more and moral subjectivism less after being implicitly primed with religious words in a sentence unscrambling task. Study 3 showed that people express less confidence about the existence of God after reading a persuasive text about the subjective nature of moral truths. Taken together, the results demonstrate that religious and meta-ethical beliefs are indeed related and can reciprocally influence each other.

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Introduction

Is morality possible without religion? Even if the Godless can do good deeds, on what basis could they justify the moral norms underlying their deeds? It might seem that everything is permitted without God, as Dmitri intimates to Alyosha in Fyodor Dostoevsky's *The Brothers Karamazov* (Dostoevski, 1880/1990; see also Volkov, 2011).

The relation between morality and religion is complex because both morality and religion are many things at the same time. Religion may refer to a set of beliefs involving supernatural agents (believing), a code of conduct to achieve virtue (behaving), a set of rituals and self-transcendent experiences (bonding), or a sense of belonging to a community of like-minded believers (belonging; Saroglou, 2011). Similarly,

morality may refer to prosocial behavior (an aspect of practical ethics), intuitive and reflective judgments of acts as right, permissible or wrong (normative ethics) or beliefs about the basis on which moral claims can be true or justified (meta-ethics). The research reported in this article investigates the reciprocal influence of religious and meta-ethical beliefs experimentally and asks two specific questions: Does priming religious concepts influence people's meta-ethical beliefs (moving them from subjective to objective morality), and does moving people's meta-ethical beliefs either toward objectivity or subjectivity influence their confidence in the existence of God (either increasing or decreasing it)?

Previous research indicated that implicitly or explicitly exposing people to religious concepts (*God*, *sacred*, *spirit*, etc.) influences various morally relevant behaviors. In one of the first studies, Shariff and Norenzayan (2007) demonstrated that making people solve a scrambled sentence task, and implicitly exposing them to religious words in the process, makes them behave more altruistically in a one-shot dictator game. Ahmed and Salas (2011) also found increased prosociality in both a dictator game and a prisoner's dilemma game after religious

priming using a similar scrambled sentence task. Similarly, subliminal priming of religious concepts has been shown to lead to less cheating in an experimental task (Randolph-Seng & Nielsen, 2007), to increased willingness to contribute to charity objectives (Pichon, Boccato, & Saroglou, 2007), and, in combination with a history of religious donations, to punish unfair offers more in an economic game (McKay, Efferson, Whitehouse, & Fehr, 2011). Most recently, Rand et al. (2014) explicitly exposed parishioners to a religious message by making them read a passage from the Gospels and demonstrated that, the more the passage resonated with them, the more the parishioners cooperated in a subsequent prisoner's dilemma game. Thus, the effect of religious priming on moral behavior has been well-demonstrated. On the other hand, its effect on meta-ethical judgments is, to the best of our knowledge, unexplored.

Investigation of meta-ethical beliefs, or beliefs about whether moral claims are objectively or subjectively true, has been scarce in psychology. In one of the early studies, Nichols and Folds-Bennett (2003; see also Wainryb, Shaw, Langley, Cottam, & Lewis, 2004) demonstrated that 4–6 year old children see moral judgments more objective than personal tastes or conventions. More recently, Goodwin and Darley (2008, 2010, 2012) systematically investigated the predictors of adopting an objectivist or a subjectivist approach to morality. An objectivist approach was defined as the belief that, in a disagreement over a moral issue, at least one side has to be wrong. Although most people see moral claims as more objective than conventions and personal tastes, and almost as objective as scientific facts, judgments of objectivity differ on the basis of the content of the moral disagreement and personal factors. In general, dilemmas involving debates about the wrongness of physical harm elicit more objectivist responses than dilemmas involving debates about the necessity of virtuous behavior (Goodwin & Darley, 2012). Religiosity, and especially seeing divine authority as the basis of moral truths, is positively correlated with objectivist morality (Goodwin & Darley, 2008; see also Piazza & Landy, 2013). Furthermore, subjectivist morality is found to be positively correlated with correct answers on the "five blocks" task (reported in Goodwin & Darley, 2010), a task used to assess a dispositional tendency to think analytically (Toplak & Stanovich, 2002). In studies where meta-ethical beliefs were experimentally manipulated, inducing moral relativism was shown to increase cheating (Rai & Holyoak, 2013) whereas inducing moral realism was shown to increase charitable giving (Young & Durwin, 2013). Again to the best of our knowledge, the effect of objective/subjective morality on religious belief has not been experimentally investigated so far.

As indicated above, the aim of the present research is to investigate the reciprocal influence of religious and meta-ethical beliefs. Study 1 correlationally investigated the relationship between these beliefs. Study 2 manipulated the salience of the concept of religion by presenting either religious or neutral words in a sentence unscrambling task and then measured meta-ethical judgments either by eliciting objectivist or subjectivist responses in six moral dilemmas or by eliciting responses on a meta-ethics questionnaire. Study 3 manipulated meta-ethical beliefs by presenting arguments contrasting moral claims either with highly objective scientific claims or with highly subjective conventions and then measured belief in God by a single question about the participants' confidence in the existence of God. We expected religious priming to boost objective morality while diminishing subjective morality because the existence of God is one way to ground objective moral truths. We also expected the subjective morality manipulation to decrease confidence in the existence of God since the absence of objective moral truths might imply the absence of an entity which could set such truths.

Study 1

Method

Participants

With an estimated correlation coefficient of .20, a 95% power of detecting an effect required a sample of about 320 participants. We therefore determined the sample size to be no less than 300 and exceeded this minimum as long as there were extra participants available in the setting the data were collected.

Three hundred and fifty-five undergraduates (mean age = 21.0, $SD = 1.98$, 224 females, 113 males, 18 unreported) from Dogus University in Istanbul participated in the study in return for extra course credit. All participants were native Turkish speakers. Two hundred and eighty-eight participants indicated identification with Islam. Of the remaining 67 participants, 10 identified themselves as atheists, 34 as theists without any organized religion, 13 as believers in a religion other than Islam and 10 declined to answer.

Materials and procedure

Data were collected in a classroom setting with groups of 50–60. The students responded to the Turkish translations of the ethics position questionnaire's 10-item relativism subscale ($\alpha = .89$; Forsyth, 1980) as a measure of subjective morality. In addition, they responded to the Turkish adaptation of the 5-item intuitive religious belief scale ($\alpha = .89$, IRBS; Gervais & Norenzayan, 2012), Turkish translation of the 10-item intrinsic religiosity scale ($\alpha = .78$, IRS; Hoge, 1972), and a single question about confidence in the existence of God (EG; see online Supplementary materials (SM)).

Results and discussion

As expected, moral subjectivism was negatively correlated with all measures of religious belief, $r = -.26$, $p < .001$ for IRBS; $r = -.36$, $p < .001$ for IRS; and $r = -.14$, $p = .01$ for EG. When we controlled for age, socio-economic status, political orientation, gender, and degree of education, the results remained constant (all r's > −.138, all p's < .016). Also, all three religious belief measures were positively correlated with each other (all r's > .44, all p's < .001). As in previous studies (e.g., Goodwin & Darley, 2008), people with strong religious beliefs thought that objective moral principles do exist. In Studies 2 and 3, we investigated the causal relationship between religious and meta-ethical beliefs.

Study 2

Method

Participants

In Study 2, we estimated a medium effect (f) of .3, which required a total sample of about 90 with 80% power of detecting any effect. We therefore determined the sample size to be no less than 40 per experimental condition and exceeded this minimum as long as there were extra participants available in the setting the data were collected.

One-hundred undergraduates participated in Study 2 for extra course credit. Three participants (two in the Religious-prime, one in the Neutral-prime conditions) were excluded from the analyses because they failed to follow the instructions while solving the scrambled sentence task. The remaining sample of 97 participants (mean age = 21.83, $SD = 3.25$, 67 females, 27 males, 3 unreported) was randomly assigned to the Religious-prime ($n = 47$) or the Neutral-prime ($n = 50$) condition. All participants were native Turkish speakers. Seventy-nine participants reported identification with Islam. Of the remaining 18 participants, seven identified themselves as atheists, nine as theists with no affiliation with any organized religion, and two declined to answer. Although seven participants from the Religious-prime group indicated awareness of the religious prime words, no one indicated awareness about the study's objectives or hypothesis. Since excluding these seven participants had no effect on the final results, we included them in the analyses below.

Materials and procedure

Participants first solved a scrambled sentence task adapted from Shariff and Norenzayan (2007). There were 10 groups of five words which, when one word was taken out and the rest rearranged, formed a meaningful sentence of four words. In each group, the participants' task was to take out one word so that a meaningful sentence could be formed. In the Religious-prime condition, five of the 10 sentences included a word that was thought to prime a religious concept. The five words were *spirit*, *divine*, *God*, *sacred*, and *prophet*. Those words were never the ones that needed to be taken out to form a meaningful sentence. The remaining five sentences were neutral in the sense that they didn't prime a religious or any other coherent concept as a whole. All 10 sentences in the Neutral-prime condition were neutral in this sense.

After the sentence unscrambling task, we measured objective and subjective morality in two ways: Participants were first asked to answer questions about six new scenarios involving moral dilemmas and then completed a new eight-item meta-ethics questionnaire adapted from the questionnaire used by Forsyth (1980).

In all the moral dilemmas, there were two people debating a moral issue. Three of the dilemmas contained a debate relevant to the fairness/justice dimension of the Moral Foundations Theory and the other three dilemmas contained a debate relevant to the care/harm dimension (Haidt, 2007: for additional information see SM).

In addition, the moral issue seemed to be highly unambiguous in two dilemmas (one person in the dilemma is more or less obviously right), highly ambiguous in another two (it is difficult to judge which person in the dilemma is right), and in-between (somewhat ambiguous) in the remaining two. We preferred diversity in the dilemmas' degree of ambiguity because we wanted to make sure that even extremely objectivist participants would find at least some dilemmas to some degree ambiguous and even extremely subjectivist participants would find some dilemmas unambiguous (see SM for the moral dilemmas).

After each dilemma, the participants answered three questions using a 7-point scale indicating their degree of agreement with the people debating in the dilemmas. The first two questions asked about how much they agreed with the statements "Person 1 is right" and "Person 2 is right". The third question asked about how much they agreed with the statement "One cannot say Person 1 or Person 2 is right because there are no absolute rights or wrongs in these matters" (see Nichols, 2004). The mean of their responses to the third question on each dilemma was taken to be their subjective morality score, with higher scores reflecting stronger belief in subjective morality. The mean of the absolute value of the difference between their responses to the first two questions on each dilemma was taken to be their objective morality score, with higher scores reflecting stronger belief in objective morality.

Our new meta-ethics questionnaire was composed of two 4-item subscales measuring moral subjectivism ($\alpha = .86$) and moral objectivism ($\alpha = .84$) on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Moral subjectivism subscale measures the extent to which participants endorse the view that moral principles are not universal (e.g. "*Different cultures adopt different values and no moral law is right or wrong in an absolute sense*"), whereas moral objectivism subscale measures the extent to which participants endorse the view that moral principles are universal (e.g. "*We can agree on 'what is moral for everyone' because what is moral and immoral is self-evident*") (see SM for the entire set of items).

We also measured the participants' religiosity level with a one-item religiosity question ("To what extent do you consider yourself as a religious person?") from 1 (not at all religious) to 7 (highly religious).

Results and discussion

Analyses of objective morality scores in the six dilemmas

A 2 (priming: religious or neutral) × 2 (dilemma type: fairness/justice or care/harm) × 3 (dilemma degree: highly unambiguous, in-

between or highly ambiguous) mixed ANOVA (where the latter two factors were within-subjects) on objective morality scores revealed a significant main effect for priming, $F(1, 92) = 5.27$, $p = .024$, $\eta p^2 = .054$. The mean scores of the Religious-prime group ($M = 4.53$, $SE = 0.18$; 95% CI [4.16, 4.90]) were higher than the Neutral-prime group ($M = 3.94$, $SE = 0.18$; 95% CI [3.58, 4.30]) as expected. Dilemma type had no significant effect on objective morality scores ($F < 1$). Dilemma degree had a strong significant main effect on objective morality, $F(2, 184) = 82.84$, $p < .0001$, $\eta p^2 = .474$. Dilemmas we presumed to be highly unambiguous ($M = 5.27$, $SE = 0.13$) were indeed seen as more unambiguous than the dilemmas we presumed to be highly ambiguous ($M = 2.92$, $SE = 0.20$). No interaction involving the priming manipulation was significant. When we controlled for religiosity, the results remained constant (see SM).

Analyses of subjective morality scores in the six dilemmas

Another 2 (priming: religious or neutral) × 2 (dilemma type: fairness/justice or care/harm) × 3 (dilemma degree: highly unambiguous, in-between or highly ambiguous) mixed ANOVA on subjective morality scores revealed a marginally significant main effect for priming, $F(1, 94) = 3.65$, $p = .059$, $\eta p^2 = .037$. The mean scores of the Religious-prime group ($M = 1.37$, $SE = 0.17$; 95% CI [1.04, 1.71]) were lower than the Neutral-prime group ($M = 1.83$, $SE = 0.17$; 95% CI [1.50, 2.16]). Dilemma type was significant, $F(1, 94) = 7.59$, $p = .007$, $\eta p^2 = .075$; the fairness/justice dilemmas ($M = 1.76$, $SE = 0.13$) were seen as more subjective than the care/harm dilemmas ($M = 1.44$, $SE = 0.13$). Dilemma degree, $F(2, 188) = 43.30$, $p < .0001$, $\eta p^2 = .315$, also revealed a significant main effect: Dilemmas we presumed to be highly ambiguous ($M = 2.43$, $SE = 0.18$) were indeed seen as more ambiguous than the dilemmas we presumed to be highly unambiguous ($M = 0.82$, $SE = 0.13$). Neither dilemma type nor dilemma degree interacted with our priming manipulation. When we controlled for religiosity, the results remained constant (see SM).

Analyses of objective and subjective morality scores in the meta-ethics questionnaire

A one-way ANOVA was conducted to test the effects of religious priming on responses to the two subscales of the new meta-ethics questionnaire. This revealed a significant difference between the objective morality scores of the two priming groups, $F(1, 90) = 9.91$, $p = .002$, $\eta p^2 = .099$. The religious priming group ($M = 4.84$, $SD = 1.50$; 95% CI [4.40, 5.29]) had higher objective morality scores than the neutral priming group ($M = 3.80$, $SD = 1.67$; 95% CI [3.30, 4.30]). There was also a significant difference between the subjective morality scores of the two groups, $F(1, 94) = 9.54$, $p = .003$, $\eta p^2 = .092$. The religious priming group ($M = 4.57$, $SD = 1.89$; 95% CI [4.02, 5.12]) had lower subjective morality scores than the neutral priming group ($M = 5.55$, $SD = 1.13$; 95% CI [5.22, 5.87]). When we controlled for religiosity, the results remained constant (see SM).

Study 3

Study 2 manipulated religious thoughts by implicit priming and revealed a change in meta-ethical beliefs toward objective morality. In Study 3, we investigated the reverse causal influence by manipulating meta-ethical beliefs and observing its effect on religious belief.

Method

Participants

In Study 3, we estimated a medium effect (*f*) of .3, which required a total sample of about 111 with 80% power of detecting any effect. We therefore determined the sample size to be no less than 40 per experimental condition and exceeded this minimum as long as there were extra participants available in the setting the data were collected.

One hundred and fifty-two undergraduates from Dogus University were recruited for extra course credit. Two participants (one in the Objective Morality, one in the Subjective Morality condition) were excluded from the analyses for failing to fill out the materials appropriately. The remaining sample of 150 participants (mean age: 21.61, $SD =$ 3.37, 108 females, 42 males) was randomly assigned to the Objective Morality ($n = 48$), the Subjective Morality ($n = 50$) or the Neutral ($n = 52$) condition. All participants were native Turkish speakers. A total of 118 participants indicated identification with Islam. Of the remaining 32 participants, eight identified themselves as atheists, 20 as theists without any organized religion and four declined to report their religious affiliation. No participant indicated awareness of the study's hypotheses.

Materials and procedure

The participants were manipulated with a text intended to move their meta-ethical beliefs toward objectivity (the Objective condition), toward subjectivity (the Subjective condition) or were given no such text (the Neutral condition). In the Objective condition, participants were presented with an argument contrasting moral claims (e.g., "*It is wrong to kill someone for no reason*") with highly subjective conventions or personal preferences (e.g., "*Chess is an enjoyable game*"), thereby revealing the objective nature of moral truths. In the Subjective condition, participants were presented with an argument contrasting moral claims (e.g., "*Immodest dressing is seen as wrong in some cultural settings*") with highly objective scientific claims (e.g., "*The Earth is round*"), thereby revealing the subjective nature of moral truths. In both cases, the argument in the texts was presented as belonging to a (fictitious) famous professor from a famous university. We asked the participants in the Objective and Subjective conditions to indicate the extent to which they agree with the argument in the text on a 5-point scale for manipulation check (see SM for an additional manipulation check on a different sample). In the Neutral condition, instead of the texts, participants were engaged with the 30-item version of the Moral Foundations Questionnaire (Graham et al., 2011), which is unrelated to meta-ethics but related to morality in general. This was intended to make sure that any differences obtained between the first two conditions and the Neutral condition would be not due to being exposed to materials involving moral thinking in general but would be due to thinking specifically about meta-ethics. After the manipulation phase, all participants were asked a single face-valid question about their confidence in the existence of God and they indicated their answers on a scale going from 0 ("I'm sure God doesn't exist") to 100 ("I'm sure God exists") (see SM).

Results and discussion

In the manipulation check, seven participants (five in the Objective condition, two in the Subjective condition) reported that they did not agree with the argument given in the text, and five participants in the Subjective condition reported that they were undecided. However, when we excluded these participants from the analyses, the results remained constant. Thus, the analyses below include the entire sample.

Fig. 1 shows the mean scores for confidence in God in each group. A one-way ANOVA revealed a significant effect of the meta-ethics manipulation on belief in God, $F(2, 147) = 3.99$, $p = .021$, $\eta p^2 = .051$. A post-hoc analysis using the Tukey HSD test revealed that the mean of the Subjective condition ($M = 74.20$, $SD = 25.68$; 95% CI [66.90, 81.50]) was significantly lower than the Objective condition ($M = 85.94$, $SD = 21.31$; 95% CI [79.75, 92.12]) and the Neutral condition ($M = 85.77$, $SD = 24.14$; 95% CI [79.05, 92.49]). The difference between the Objective condition and the Neutral condition, on the other hand, was not significant ($p = .99$).

These results suggest that contrasting moral claims with objective scientific facts through an explicit argument, and thereby creating the
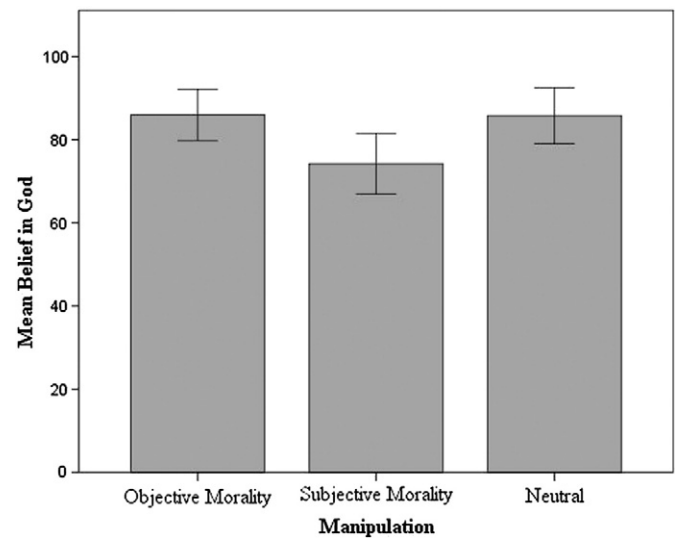

Fig. 1. Mean belief in God in the objective morality, subjective morality and neutral conditions (error bars represent 95% confidence intervals).

impression that moral truths are subjective, decreases the participants' confidence that God exists.

General discussion

The two experimental studies demonstrated that religious thoughts can influence meta-ethical beliefs and vice versa: Priming participants with religious concepts led to more objectivist and less subjectivist responses to moral dilemmas (Study 2) and moving participants' meta-ethical beliefs toward subjectivism decreased their confidence in the existence of God (Study 3). The original contribution of the paper is, therefore, the demonstration that religious and meta-ethical beliefs are not only correlated but can also causally influence each other reciprocally. This demonstration is not only an important contribution to the more general project of delineating the exact relationship between religious and moral thought, it also extends previous research on religious priming and meta-ethical beliefs. First, the results extend the effect of religious priming on moral behavior (e.g., Pichon et al., 2007; Shariff & Norenzayan, 2007) to the domain of meta-ethical judgments. Second, they extend past findings on the correlation between objective and God-based morality (Goodwin & Darley, 2008) by revealing the causal influence of meta-ethical beliefs on belief in God. Introducing two new instruments to measure the degree of objective and subjective meta-ethical beliefs (Study 2) and another instrument to manipulate such beliefs (Study 3) and demonstrating the effect of religious priming in a predominantly Muslim and non-western sample (cf. Henrich, Heine, & Norenzayan, 2010; see also Aveyard, 2014; Bloom & Arikan, 2013) are among the other contributions of our study.

The scope of the reciprocal influence between religion and morality demonstrated in the present studies needs to be investigated further. For example, there are arguments to the effect that only reward-related or positive religious concepts (Harrell, 2012; Pichon et al., 2007) or only punishment-related religious concepts (Shariff & Norenzayan, 2011; Shariff & Rhemtulla, 2012; see also Norenzayan, 2013) promote prosocial behavior. On the other hand, Shariff and Norenzayan (2007) demonstrated that not only religious concepts but also reminders of secular authority promote prosociality. Analogously, the effect on meta-ethical beliefs demonstrated in Study 2 may be due to a factor either more specific or more general than religion per se. Furthermore, since the effect of religious thought on both prosocial behavior and meta-ethical beliefs has now been experimentally demonstrated, it may be time to look for a similar effect of religion on

normative morality, that is, judgments of acts as forbidden, permissible and obligatory (cf. Banerjee, Huebner, & Hauser, 2010).

Possible explanations

What proximate mechanisms might underlie the effects revealed in the present study? A debate has been going on for some time regarding the mechanisms through which religious primes influence prosocial behavior. In one view, the primes automatically trigger behaviors related to religion, prosocial behavior being one of them (Randolph-Seng & Nielsen, 2007, 2008), much as primes related to old age trigger slow walking behavior (Bargh, Chen, & Burrows, 1996). In another view, religious primes might change the participants' cognitive styles, thereby creating a difference in moral judgments (see Shariff, Piazza, & Kramer, 2014). Alternatively, religious primes might trigger the sense of being watched by God which then leads to prosocial behavior either because of reputational concerns or because of fear of supernatural punishment (Norenzayan, 2013; Shariff & Norenzayan, 2007).

Similar direct and indirect mechanisms might be involved in our Study 2. On the one hand, religious primes might directly trigger the thought of God-based objective morality. Goodwin and Darley's (2008) finding that people who base their moral judgments on divine authority tend to be more objectivist is consistent with this interpretation. On the other hand, religious primes might suppress analytic thinking and this change in cognitive style might bring about the change in meta-ethical beliefs. There is indirect evidence that seems to support this alternative interpretation. First, it is well known that when people are in a state of cognitive ease (that is, no problems or threats to their world view), they tend to think more superficially (Kahneman, 2011). Religious priming might have put participants in cognitive ease, thereby suppressing their analytic thinking. Second, Goodwin and Darley (2010) demonstrated that people who adopt objectivist morality tend to do less well on one type of analytic thinking. If this correlation is born out as a causal influence as well, we might indeed expect an increase in objectivist morality after the suppression of analytic thinking.

Another possibility is that being primed with religious words induces a state of anxiety because of the activation of the idea of supernatural monitoring and punishment, which in turn elicits an increased need for cognitive closure, which then leads to stronger adherence to moral objectivism. Need for cognitive closure is a state of mind generally characterized by intolerance for ambiguity and proclivity for simple and rapid answers (Webster & Kruglanski, 1994). Since stressful situations such as being under time pressure or threat are known to elicit the need for cognitive closure (Kruglanski & Freund, 1983; see also Thórisdóttir & Jost, 2011), it is not unreasonable to expect the fear of supernatural punishment to lead to the need for closure. This need in turn is readily satisfied by adopting moral objectivism which enables the person to provide simple answers to tough moral dilemmas. This mechanism and the one mentioned above are not really mutually exclusive because one consequence of the need for closure might again be the suppression of sophisticated, analytic thinking. Whether the fear of supernatural punishment is a critical factor in bringing about moral objectivism needs to be empirically investigated.

Direct and indirect mechanisms might be invoked as well to explain the decrease of belief in God after the subjectivist morality manipulation observed in Study 3. The direct mechanism again refers to the semantic association between the concepts of objective morality and God: suppressing one might directly suppress the other. On the other hand, the mediation between the two might again be provided by analytic thinking: Subjectivist morality manipulation might trigger analytic thinking which in turn suppresses belief in God. There is again evidence consistent with both causal links. First, Goodwin and Darley (2008) demonstrated that, at least in some moral issues, most people are moral objectivists (see also Sarkissian, Park, Tien, Wright, & Knobe, 2011). Therefore, the subjective morality manipulation in our Study 3 presumably led to a greater change of mind, and thus more involved analytical

thinking, on the part of the participants than the objective morality manipulation. Second, it is already established that triggering analytic thinking suppresses belief in God (Gervais & Norenzayan, 2012; Shenhav, Rand, & Greene, 2012). Thus, it is possible that the activation of analytic thinking is the mediating factor between subjectivist morality and disbelief in God.

Limitations

One limitation of Study 2 is that Ethics Position Questionnaire (Forsyth, 1980), from which our meta-ethics questionnaire was adapted, has been criticized for measuring not the objectivity/subjectivity of moral rules, a meta-ethical issue, but whether such rules are universally held, a descriptive issue (Goodwin & Darley, 2010). Similarly, we urge caution that a high score in our objective morality measure used in the moral dilemmas is not necessarily an endorsement of moral objectivism as a meta-ethical position. Therefore, replication of the basic finding of Study 2 with a more accurate measure of meta-ethics positions is warranted.

One potentially confounding variable in Study 3 is the mention of the word "science" in the subjective morality text. Since it is known that manipulating beliefs about science tends to influence beliefs about God (e.g., Preston & Epley, 2009; Shariff, Cohen, & Norenzayan, 2008), it is possible that our subjective morality text decreased belief in God not through the manipulation of meta-ethical beliefs but through the manipulation of science beliefs. Nevertheless, we think that the idea of a decrease in belief in God through the endorsement of subjective morality is a more plausible explanation since, first, the manipulation check confirmed that belief in subjective morality indeed increased as a result of our manipulation, and, second, mention of a scientific authority was also present in the objective morality condition. Several alternative texts in the Neutral condition can be used in future studies to investigate alternative explanations: one which mentions science but not morality, one totally devoid of both science and morality, one which mentions subjective morality but not science, and one which mentions both subjective and objective morality but which does not take sides between them.

Conclusion

Going back to the philosophical questions at the beginning, it is no surprise that the answers turn out to be complex. It seems that our participants were more willing to judge actions as right or wrong when religion was salient on their minds, and they lost confidence in the existence of God when they read an argument to the effect that there are no objective rights and wrongs. In a sense, then, they do seem to intuitively think that more (but maybe not everything) is permitted without God. Indeed, other authors have argued that theists and nontheists differ on a number of moral and nonmoral domains including meta-ethics and cognitive style (Shariff et al., 2014). On the other hand, previous research indicates that children already have a sense of right and wrong before they receive any religious education (Boyer, 2008) and the moral norms of religious and non-religious people are very similar to each other (Pyysiäinen & Hauser, 2010). Clearly, there is no simple relation between religion and morality. Dostoevsky's question in the 19th century awaits further research in the 21st century.

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jesp.2015.01.003.

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