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## The Devil's Advocate: Secular Arguments Diminish both Implicit and Explicit Religious Belief

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### Abstract

The religion-science debate has heated up in recent years, with polemical arguments on both sides decrying the other. Given that the dominant view is of religiousness as a relatively fixed personality trait, all of this furor seems excessive. Interested in just how malleable religiousness is, we exposed half of our participants to an argument against the existence of God by Richard Dawkins. Those exposed to Dawkins' arguments showed lower self-reported religiousness, as well as less implicit association between religion and truth. These results demonstrate the flexibility of trait religiousness.

### Keywords

Religiousness, atheism, implicit associations

Never far from the spotlight, the argument between theism and atheism has recently found its way back to center-stage. Fueled by conflicts over the teaching of Intelligent Design, discussions about the role of religion in fundamentalist terrorism, and a publishing trend for popular books about religion and atheism, (e.g. Harris, 2005; Dawkins, 2006; Dennett, 2006), the arguments and counterarguments for each side have been difficult to escape.

Evolutionary biologist Richard Dawkins (2006) holds a prominent position in such debates, especially as holder of the Chair for the Public Understanding of Science at Oxford University. Dawkins has lamented the barriers that religious teachings present in the acceptance of evolution. The statistics are familiar: 26% of Americans believe that humans evolved through natural selection, while 42% believe human have existed in their present form since the beginning of time (Pew Research Centre, 2005). At the same time, 36% believe the

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Bible is the literal word of God, 85% in Hell, 93% in Heaven and 96% in God. Dawkins' argument is that there is overwhelming evidence for belief in evolution through the process of natural selection, and little or none for the belief in Heaven, Hell or God. Dawkins' intention is to persuade religious believers (and agnostics) that atheism is the most rationally defensible position.

But do these arguments do anything? Theoretical positions and empirical work have stressed that religious beliefs are held to be both very important to people (Hill, 1999) and very stable across the lifespan (Sherkat, 1998; Wink and Dillon, 2001; McCullough *et al.*, 2005), tending to change only in response to major life events such as marriage, having children, or getting divorced (Ingersoll-Dayton *et al.*, 2002). Given debates about the stability of personality traits over the lifespan (Srivastava *et al.*, 2003), it is an important theoretical question as to whether religiousness can be increased or decreased by rational arguments. Many have criticized Dawkins and the other atheist spokespeople for providing texts that polarize rather than convince (e.g., Bunting, 2007), especially given theoretical assumptions that religiousness is too stable to be affected by such polemical arguments. The goal of the current study, then, is to gauge the mutability of religious belief in the face of these arguments for disbelief. Put simply, can rational discourse budge faith?

An immediate impediment to the pursuit, however, is the unreliability of self-report measures, especially for sensitive topics like religiousness (Hadaway *et al.*, 1993). Placed in the context of reading a scientifically partisan passage while participating in a scientific study for an academic course – that is, in a very secular environment and situation – it is certainly possible, even likely, that participants may feel reservations about admitting the extent of their beliefs. Therefore, to provide convergent validity to the self-report measures, we used a recently developed implicit measure of religious belief (Shariff *et al.*, 2007). This task uses the reaction time methodology based on the Implicit Association Task (IAT) to assess implicit beliefs that are less vulnerable to impression management.

## Method

### *Participants and Procedure*

106 (66 female) undergraduate students from Arizona State University completed the task in exchange for course credit. Seventy-seven were raised as Christians (both Catholics and Protestants), seven as Jews, three as Buddhists, one each as a Muslim or Hindu, and 17 were raised with no religion. A ran-

domly assigned 45 participants read an excerpt from a lecture by Richard Dawkins that was reprinted in *The Nullifidian* (1994) and briefly summarized their feelings about Dawkins' position on religion; the 61 control participants wrote about their favourite foods. Following the prime, each participant completed a distracter task, the implicit religious belief IAT (IRBIAT), a self-report religiosity measure, and a demographic questionnaire assessing sex, religion, ethnicity and age.

*Dawkins Passage.* In the lecture excerpt used as the experimental manipulation, Dawkins attacks the argument from design by positing that evolutionary processes were quite capable of creating complexity through the simplicity of mutation and differential selection. He goes on to declare that the existence of God is, not only unnecessary for explaining the origins of complex life, but highly improbable itself. If a highly complex creator made the less complex universe, there is no explanation of how this creator could have been created itself. Thus, claims Dawkins, the explanation begs the question.

*Implicit Associations.* The IAT traditionally allows researchers to compare the implicit associations between two dichotomous pairs of dimensions (for example, the strength of the association for flowers-good/insects-bad *vs.* flower-bad/insects-good; Greenwald *et al.*, 1998). Faster mean reaction times between a target category and one pole of the attribute indicate a stronger association.

The current study used a single-target IAT which only compares one target (in this case, religious objects) across the two poles of an attribute (here: true and false). The religion targets included the words *god, heaven, angel, devil* and *soul*. True attribute words included *actual, true, genuine, real* and *valid*. False attribute words included *fake, false, bogus, untrue* and *phony*. Block order was counterbalanced across participants.

*Self-reported intrinsic religiosity.* Our intrinsic religiosity scale was comprised of the following six questions: "My personal religious beliefs are very important to me", "My religion or faith is an important part of my identity", "If someone wanted to understand who I am as a person, my religion or faith would be very important in that", "I believe strongly in the teachings of my religion or faith", "I believe in God", and "I consider myself a religious person" (Cronbach's  $\alpha = 0.92$ ). These items were responded to from 1 (*strongly disagree*) to 5 (*strongly agree*).

## Results

### *Validating the Implicit Religiosity IAT*

In the control condition, the Religiosity IAT was correlated moderately with our intrinsic religiosity measure ( $r = 0.31$ ,  $P = 0.01$ ), and especially strongly with the single item “I believe in God” ( $r = 0.42$ ,  $P < 0.001$ ). These scores are consistent with the existing literature on implicit-explicit measure relationships (Hoffman *et al.*, 2005), suggesting a valid measure of implicit associations between religion and true versus false.

### *Effect of Anti-Religion Arguments*

Participants reading the anti-religion argument showed significantly lower self-reported responses on our 6-item intrinsic religiosity measure ( $t(104) = 3.55$ ,  $P < 0.001$ ,  $d = 0.70$ ), especially on the single item assessing belief in God ( $t(103) = 5.14$ ,  $P < 0.001$ ,  $d = 1.01$ ).

Results from the measure of implicit religious belief followed the same pattern. Those in the experimental condition scored markedly lower on implicit belief than did control participants ( $t(104) = 2.06$ ,  $P < 0.05$ ,  $d = 0.40$ ; Figure 1).

These results are not an artifact of positive or negative affect, both of which were unaffected by the prime ( $t < 1$ , not significant), and neither of which is correlated with either the explicit or implicit measures of religiousness (all  $r < 0.1$ , not significant).

## Discussion

The results strongly suggest that religious beliefs can be diminished, at both implicit and explicit levels, by arguments such as that of Professor Dawkins. Those reading the Dawkins passage were significantly less likely to endorse our religiosity items including statements such as “I consider myself a religious person” and “My personal religious beliefs are very important to me.” Though the possibility of an effect was predicted, the degree to which explicit beliefs were reduced surprised us. Self-reported belief in God, for instance, dropped by more than a full point on a 5-point scale.

Taken on their own, changes in explicit, self-reports could reflect experimental demand or impression management. Hadaway *et al.* (1993) found that when asked about religious attendance, survey takers tended to overstate their attendance – on average by a factor of two – presumably as a result of a social desirability bias. After reading the Dawkins passage, participants may feel comfortable in presenting a reduced and perhaps even more honest picture of

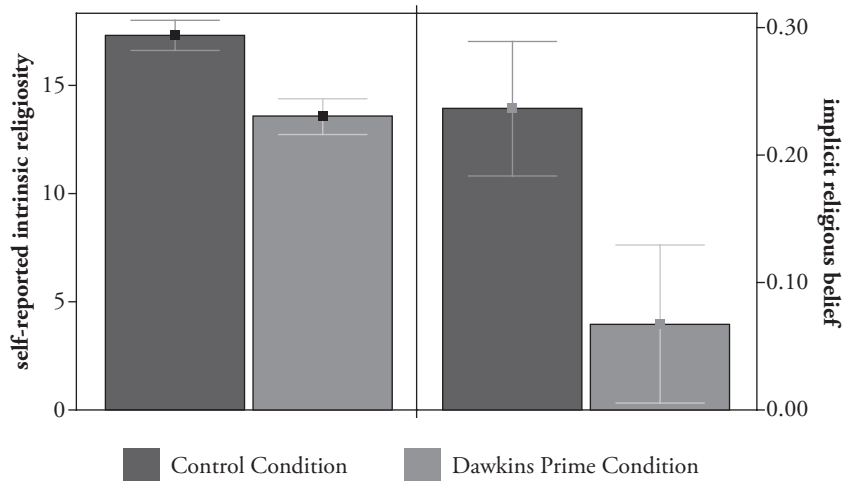


Figure 1. Means, by condition, for explicit and implicit religiosity measures. The explicit religiosity measure aggregates responses over 6 items, with a maximum score of 30. The implicit measure is scored using the d-score effect size measure. This is computed by subtracting mean reaction times for trials wherein religious words and false attribute words are paired together, from trials wherein religious words and true attribute words are paired together, and then dividing the difference by the standard deviation over the two sets of trials. Error bars indicate standard error of the mean.

their religious belief or attendance. Alternatively, those reading the anti-religious passage may be presenting themselves to be more disbelieving as they actually are, in an attempt to fit with the context and the scientific opinion they believe to be shared by the experimenters. In either case, from the self-report today alone, the results could be explained by biases in responding, rather than actual belief reduction.

However, the corroborating evidence from the implicit belief measure suggests that such response biases do not tell the entire story. Based on mean reaction time differences in the 50 millisecond range, the IAT has been shown to be much less susceptible to faking or dishonest representation (Steffans, 2004). The convergence of both implicit and explicit approaches indicates a genuine change in religiousness – one that is surprising when considering the strength of conviction that people generally hold about religious beliefs.

It remains to be seen how long lasting the effects of arguments such as that of Professor Dawkins actually are. People's beliefs, both implicit and explicit, can be influenced by their immediate environments (Devine, 1989). The brief

exposures that people from religious backgrounds have with secular arguments may be rapidly overwhelmed by more pervasive exposure to their religiously saturated communities. Nonetheless, the current results do demonstrate the effectiveness of pro-evolutionary, anti-religion arguments, as well as the existence of a certain fluidity in people's religious convictions.

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