

# *Why Religion Is Natural and Science Is Not: A Conversation with Robert McCauley*

with James A. Van Slyke, "Religion Is Easy, but Science Is Hard . . . Understanding McCauley's Thesis"; Andrew Ali Aghapour, "Defining 'Religion' as Natural: A Critical Invitation to Robert McCauley"; Gregory R. Peterson, "On McCauley's Why Religion Is Natural and Science Is Not: Some Further Observations"; and Robert N. McCauley, "Explanatory Modesty."

## RELIGION IS EASY, BUT SCIENCE IS HARD . . . UNDERSTANDING MCCAULEY'S THESIS

by James A. Van Slyke

*Abstract.* Robert N. McCauley's new book *Why Religion Is Natural and Science Is Not* (2011) presents a new paradigm for investigating the relationship between science and religion by exploring the cognitive foundations of religious belief and scientific knowledge. McCauley's contention is that many of the differences and disagreements regarding religion and science are the product of distinct features of human cognition that process these two domains of knowledge very differently. McCauley's thesis provides valuable insights into this relationship while not necessarily leading to a dismissive view of theology or religious belief. His paradigm allows the research lens to focus on cognitive differences in processing scientific versus religious information and the important role of automatic, unconscious, and intuitive cognitive processes in understanding both the natural and supernatural worlds.

*Keywords:* cognitive science; cognitive science of religion; philosophy of religion; philosophy of science; psychology of religion

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Robert N. McCauley's new book *Why Religion Is Natural and Science Is Not* (2011) presents a cognitive thesis regarding the relationship between science and religion. McCauley's contention is that many of the differences and disagreements regarding these two subjects are the product of distinct features of human cognition that process these two domains of knowledge differently. Religion is natural in the sense that it fits many of the evolved

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cognitive defaults of the human brain (*maturationally natural cognition*) whereas science often directly or indirectly contradicts or conflicts with these same defaults. McCauley offers a unique perspective on the traditional science and religion debate by focusing on the cognitive features that influence this discussion rather than on metaphysical or philosophical issues.

Humans process informational content from their environments in distinct ways; not everything that is perceived is treated the same. Humans focus on, ignore, enjoy, dislike, and become aroused by, or bored by a variety of different forms of stimuli. Part of human evolution involved the formation of different features of cognition that serve adaptive purposes for a variety of different domains (Cosmides and Tooby 1995; Dunbar and Barrett 2007). Human cognition contains intuitions and biases about particular domains of knowledge such as social, physical, and sexual information. Intuitions produce initial assessments regarding perceptual content that influence later processing of that information and biases produce initial judgments or preferences that often constrain how information is used and perceived. Most of these biases and intuitions occur automatically and unconsciously in that their adaptive value was based on the speed and efficiency in which they could process environmental stimuli and influence quick action responses.

For example, the implicit association task (IAT), which has been taken by over 2.5 million participants regarding 17 different topics, has identified numerous types of biases (both negative and positive) in a number of different domains such as race, age, gender, religion, disability, weight, and nationality (Nosek et al. 2007). For example, white participants show a strong implicit pro-white preference demonstrated through quicker response times on pairings between *black/dark skin* and *bad* as well as *white/light skin* and *good*. This does not mean that persons who demonstrate this bias are necessarily racist; implicit judgments do not determine final judgments or behavior, but they do influence and constrain decision making especially in the social domain. Racism is not a universal cognitive bias (different races respond differently to the test based on their own racial preferences), but human cognition contains certain mechanisms that make it very easy to process social information very quickly and produce initial judgments outside of conscious awareness. Similarly, certain default features of human cognition produce similarities and re-occurring properties in religious phenomena.

#### RELIGION IS EASY

Another way to understand McCauley's thesis that "religion is natural" is to modify it slightly by stating that "religion is easy." Religion is easy to the extent that certain features of religious concepts match cognitive biases and

intuitions so well that those religious concepts show a quantifiable advantage in terms of memorization, retention, and transmission among cultural representations. Religious concepts are easier to learn and retain among the numerous possible cultural products in different human populations. This does not necessarily trivialize or negate the important role of cultural differences and transmission; rather it simply focuses the investigative lens on re-occurring features of cognition in the human species that promote or obstruct different types of religious concepts.

For example, one of the basic cognitive mechanisms of social exchange is theory of mind, which produces intuitions regarding the intentions and thoughts of other persons. Processing agency is a natural part of human cognition demonstrated in the classic psychological experiment by Fritz Heider and Mary-Ann Simmel (1944) where intentionality is attributed to geometrical shapes based on intuitions about their feelings, thoughts, and concerns during an animated movie. Children attribute human-like agency pervasively and ubiquitously to a variety of different objects such as trains, sponges, forks, and spoons with relative ease and little training. Thus, processing concepts regarding agency seems to be a cognitive default of human social cognition, which influences the processing of different features of religious phenomena.

Children very easily process the intentions and actions of supernatural agents in a variety of different religious contexts. Several studies suggest that children have a very easy time understanding omniscience in supernatural agents, which may be a cognitive starting point for parsing out the differences in cognitive capacities between parents and gods (Barrett, Richert, and Driesenga 2001). Children are able to interpret ambiguous stimuli regarding the presence of an imaginary agent as relevant in current decision-making tasks (Bering and Parker 2006). College students modify their cheating behaviors based on the assumed presence of a ghost in the classroom (Bering, McLeod, and Shakelford 2005). Each of these studies demonstrates the relative ease with which the human species understands and interprets information regarding supernatural agency and its relevance for future actions. Several other cognitive mechanisms have been identified that make religious beliefs relatively easy to learn and acquire such as intuitive ontology and promiscuous teleology (Boyer 2003; Barrett 2004; Kelemen 2004).

Consumer psychology provides a helpful analogy for McCauley's thesis. Traditionally, consumer choices were thought to be the product of information processing and conscious deliberation over various choices; persons assess the relative pros and cons of various products and then make a conscious decision about what to buy. Certainly, conscious choice plays an important role in consumer behavior, but several studies demonstrate that this role may be overestimated. Instead, many choices regarding consumer products are made unconsciously and automatically (Bargh 2002); many

persons have the experience of leaving the grocery store with a cart full of items wondering, “Why did I buy all these things?” There is a strong link between perceptions and actions, such that unconscious activation of certain perceptions (valuation of a certain consumer product) can instantly activate certain types of consumer behavior and environmental cues can automatically activate goal-oriented behaviors (Dijksterhuis et al. 2005).

For example, some advertising works according to the scarcity principle, where the scarcity of a product “sale today only!” increases its perceived value. The power of authority also can help to sell certain products if “four out of five doctors” recommend it (Cialdini 2001). The presence of particular objects automatically activates different attitudes associated with those objects as a form of priming (Fazio, Sanbonmatsu, and Powell 1986). Thus, when persons go grocery shopping, many choices are made simply by the associations between particular brands and attitudes about their perceived value, not through a conscious deliberation over the relative merits of a particular product. Impulse choices are often subject to subtle cues in the environment such as playing French music in the background increases the sales of French wine, while playing German music in the background increases the sales of German wine (North, Hargreaves, and McKendrick 1997).

Similarly, many religious concepts fit different biases and intuitions of maturationally natural cognition so well that they are highly competitive in the marketplace of ideas. Consumer psychologists are interested in what makes different products turn into fads and create memorable impressions on consumers. Religion has been doing this since the dawn of the human species in that the types of religious phenomena that have stood the test of time are those concepts that fit the expectations and schemas of maturationally natural cognition, which makes them very easy to learn and distribute among large populations. They also play a unique role in determining behavior and social affiliation.

#### SCIENCE IS HARD

The methodology and representations associated with scientific knowledge often contradict the products of cognitive intuitions and biases that play such a ubiquitous role in the everyday accumulation of knowledge. *Science is hard* in the sense that it takes considerable cognitive resources and training to overcome these cognitive tendencies, which is why it takes so many years of graduate training and a group of like-minded peers to accomplish the goals of science. Science is primarily characterized by the hypothetico-deductive method of hypothesis testing, originally developed by philosopher of science Carl Hempel, where hypotheses are subjected to experimental evaluation to determine the legitimacy of the hypothesis (Hempel and Oppenheim 1948). Karl Popper (1959) conceived scientific

inquiry as a quest to *falsify* specific claims, which were vindicated based on their ability to stand up to the scrutiny of experimental manipulation. Popper's conception of science is directly contradictory to our natural cognitive inclination to seek to confirm hypotheses believed to be true (Wason 1960).

A primary characteristic of scientific methodology is that it is *open* (McCauley 2011). The methods, materials, statistical analysis, and experimental manipulation used in any scientific experiment are freely available to anyone who wishes to replicate the initial findings of the scientist. The possibility of replication is one of the chief prerequisites of good science in that it is possible to replicate some manipulation of a natural phenomenon in both the same and novel applications of the initial hypothesis. Thus, science requires substantial social supports in the form of academic organizations, institutions, and laboratories to allow for the type of collaboration, peer review, and other forms of assessment necessary for the advancement of scientific knowledge.

Thus, in the same way that science is *not* natural it can also be described as *hard* to learn and implement. A helpful example of the difficulty of learning science is to look at how hard it is for many students to understand even a relatively easy statistical concept such as  $z$  scores. Statistical analysis is foundational for many areas of science, especially the social sciences, but most students exhibit extreme difficulty in learning this skill. "The experience of most college faculty members in education and the social sciences is that a large proportion of university students in introductory statistics courses do not understand many of the concepts they are studying" (Garfield and Ahlgren 1988, 46). The edited collection of Kahneman, Slovic, and Tversky (1982) originally identified several different types of cognitive errors often seen in statistical reasoning. For example, the representative heuristic often causes persons to assume that small sample sizes are just as representative of populations as larger ones and the conjunction fallacy often causes persons to assume that two events that are correlated are more likely to occur than the individual events themselves.

College students demonstrate difficulties with understanding both descriptive and probabilistic statistics, and a review of 40 articles that attempted to overcome mistaken intuitions demonstrated relatively little success (Fischhoff 1982). A common problem in statistics is the difference between a conceptual understanding and a procedural one. Students can often memorize the procedure involved in the computation of a statistic (either by using a calculator or a computer), but very often fail to understand the concept behind it. Even for something as relatively easy as the mean, most students demonstrate a functional understanding of the mean rather than a conceptual one (Pollatsek, Lima, and Well 1981). Several studies demonstrate that persons are unable to correctly use statistical concepts even after formal instruction (Zieffler et al. 2008).

## IMPLICATIONS FOR RELIGION AND SCIENCE

Understanding that *religion is easy* while *science is hard* presents unique contributions to the dialogue on religion and science, most importantly the recognition that some of the differences/disagreements that occur in this dialogue are the result of cognitive factors rather than epistemic or metaphysical factors. Thus, the apparent warfare between science and religion on issues such as creationism versus evolution is the result of differences in the cognitive schemas at work in processing the information rather than rational discourse. This is also true in the fields of morality, politics, and human sexuality in that different aspects of evolved human psychology affect the types of decisions and actions in a number of domains (Miller 2001; Haidt 2013; Tuschman 2013). In many ways this makes the disagreement over creationism versus evolution unsolvable because there is not just a culture war at work, but also different cognitive biases produce intuitions about the natural world that makes it difficult to comprehend creation in evolutionary terms.

For example, promiscuous teleology is the cognitive tendency to attribute agency and purpose to different types of natural phenomena rather than blind natural causes (Kelemen 2004). Among 6- to 7-year-old British children, participants favored explanations for natural phenomena that involved anthropomorphism and agency, which was especially true for animate versus inanimate objects such as chimpanzees versus mountains (Kelemen and DiYanni 2005). Children often demonstrate a preference for creationist accounts of the formation of different species in contrast to evolutionary accounts, even when the parents explicitly endorse an evolutionary perspective (Evans 2001). This teleological bias continues in adulthood, even for trained scientists. Under time constraints, scientists revert to automatic and intuitive teleological explanations for natural phenomena at a similar rate as paired undergraduate and adult control samples (Kelemen, Rottman, and Seston 2013). Thus, part of the intractableness of the current debate may be due to the fact that the combatants are using different cognitive schemas to interpret natural phenomena, leading to inevitable disagreements about the role of divine agency in natural phenomena.

Additionally, according to coalitional psychology, unconscious and automatic cognitive adaptations for: (1) analyzing potential alliances and social relationships, (2) measuring affiliations both within and between different groups, and (3) analyzing expectations of group reactions may be affecting this debate (Pietraszewski 2013). As Nosek et al. (2007) demonstrated earlier, several forms of automatic implicit cognition differentiate group membership in several different categories. Beliefs about evolution (both for and against) may also serve as proxies for group membership and alliances; public displays of beliefs reaffirm or strengthen ties among

members and demonstrate loyalty. In many religious groups, there may be both social and financial costs for not affirming particular beliefs regarding creationism. Thus, the creationism versus evolution debate might not be a “debate,” but rather a chance for both sides to demonstrate allegiance to a particular worldview.

The recent debate between the “science-guy” Bill Nye and the leader of the creationism movement Ken Hamm illustrates this nicely. Although a public debate was conducted, little constructive criticism and dialogue actually occurred and no one actually won the debate. However, Ken Hamm raised a considerable amount of money as a consequence of the debate and will now be able to afford to build a Noah’s Ark theme park that he had wanted to build for several years (Nicks 2014). Thus, the debate functioned as a public display of Hamm’s convictions by standing up to the secular scientists, which solidified his membership in the group and caused others to rally behind his cause by giving financially. The financial investment did not occur because he won the debate or convinced Bill Nye of the scientific credentials of creationism, but simply by reaffirming his creationist beliefs in the public square.

#### IMPLICATIONS AND CAUTIONS

One important distinction to make is between the cognitive foundations of McCauley’s thesis, which is based on extensive empirical research in the cognitive sciences, and normative claims regarding the relative value of science and religion. Just because something is cognitively easy does not necessarily diminish its value and worth for society. There are many domains of human existence that are “easy” for human beings to cognitively process including sex, love, friendship, romance, play, nature, beauty, and so on. None of these aspects of human existence is of lesser value because it comes naturally to human minds; rather, the particularities of assigning value to these different areas is evaluated by several additional layers of philosophical, cultural, and personal argumentation. The primary achievement of science is its epistemic status as a reliable producer of knowledge and its advancements in approximations of objectivity and openness to scrutiny. The ability of science to produce value and meaning for individual persons and society at large is a more complicated issue.

The second issue of note is scale. McCauley’s cognitive thesis and the broader empirical enterprise of the cognitive science of religion are primarily applicable to large-scale religious phenomena at the macro level. It applies to the memorization, retention, transmission, and spread of various facets of religion among thousands, if not millions, of group members and recurring themes in religion that continually materialize across historical and cultural boundaries. McCauley’s cognitive thesis describes how well religious representations will be received and passed on to others based

on the cognitive features employed in their distribution, with individual differences in those representations set aside to understand particular properties of religious representations used in wider disseminations of religious information.

At the individual or micro level, it is better to understand McCauley's cognitive thesis applying to constraints on the formation of religious beliefs in individuals without necessarily determining their content or their use in action (Van Slyke 2011). The cognitive science of religion has produced a considerable amount of research investigating the cognitive ingredients involved in the formation of religious beliefs in the form of different cognitive programs, schemas, biases, and inference machines that are at work in the formation of religious beliefs. However, cognitive science has also demonstrated that different forms of top-down cognitive constraints also play an important role in limiting actions and perceptions and cultural scaffolding also affects the implementation of representations (Clark 1997; Murphy and Brown 2007). More research is necessary to help delineate the relative contributions of personal religious beliefs to actions (also an important general debate in philosophy of mind), as well to try to determine the relationship between individual beliefs and actions (Dretske 1995).

#### THEOLOGY IN RELATION TO SCIENCE

McCauley argues that theology and popular religion are not the same. According to his cognitive thesis, the largest difference between domains of knowledge is between popular religious beliefs (which are highly influenced by maturationally natural cognition and appeals to agency) and science (which is the farthest removed from maturationally natural cognition and highly restricts agency explanations). Theology, however, is similar to science in that it is based primarily on reflective thought and requires extensive educational training to master the abstract theories and concepts associated with the field of study. It is dissimilar to science in that hypotheses generated about God or religion are not directly testable in the same way as scientific hypotheses. Theological theories such as the trinity are not open to direct observation or confirmation using empirical testing; in fact many aspects of theology are highly counterintuitive and difficult for lay persons to understand.

However, this does not mean that theology or religion is completely outside the realm of empirical or scientific investigation. The effects of religious behavior and beliefs are empirically testable in that the relationship between religious variables and various social outcomes can be tested. For example, religiosity has been shown to have a positive impact on marriage satisfaction, decreases risky sexual behaviors associated with HIV infection, lowers levels of crime and drug abuse, and improves self-regulation and self-control (Mahoney et al. 1999; Baier and Wright 2001; McCullough

and Willoughby 2009; Kagimu et al. 2012). Deciphering how religion promotes these types of positive effects is still a very contentious issue; it is difficult to parse the positive from the negative effects and the difference between a religious variable and a psychological one. Galen (2012) recently argued that most of the effects of religiosity can be explained by using psychological variables and these effects are often misrepresented or exaggerated. Conversely, Myers (2012) maintains that you remove key ingredients of the motivation for certain types of prosocial behaviors when you remove the religious dimension, and even when you minimize the religious effect in certain studies, there is still overwhelming evidence in several other studies demonstrating that religious motivation for charitable giving and religiosity are associated with longer life expectancy and increased emotional well-being.

Theology also differs from science based on its appeals to agency explanations; as much as it attempts to provide logical and rational arguments it does not fully separate itself from its connections to maturationally natural cognition. “Theology, like Lot’s wife, cannot avoid the persistent temptation to look back – to look back to popular religious forms” (McCauley 2011, 228). The difficulty for the theologian is trying to assess how much “looking back” at agent concepts affects the substance of theological arguments and whether “looking back” is detrimental in terms of assessing values, moral judgments, and ways to live. Church doctrines are made in the context of a particular narrative, a story that places humanity in a particular relationship to the world and God (Hauerwas 1991; McClendon 1994). The narrative definitely includes agency concepts and the reason for using narratives is partly the result of the fact that concepts and values are easier to transmit in stories rather than in an abstract, formalized, didactic manner. From here, the theologian is free to use (and often does use) content from a variety of sources, including science, psychology, philosophy, culture, and current events, in the development of his or her theological stances and then presents those arguments in ways that are persuasive and compelling for the public. Certainly, the mere appeal to agents (“God told me so”), especially in the age of science, is not going to be a very valid claim, but using agency and Gods as a starting point for reflection on ways to live and determining ultimate value is not necessarily worse than other starting points for that type of reflection. As a starting point for science it does not work, but as a starting point for reflecting on ultimate questions of morality and existence it certainly seems plausible.

For example, Miroslav Volf (1996) uses three contemporary volatile social and political situations to begin his exploration of theology: the racial tensions and riots of Los Angeles, the military violence occurring among average citizens in Sarajevo, and the continued tensions perpetuated by Neo-Nazis in the aftermath of the fall of the Berlin Wall. Volf makes the claim that the primary purpose of Christian practices and theology is to

embrace the other and overcome the tendency to marginalize and exclude persons who are different and that this was Christ's primary purpose in the Gospels as well. Paraphrasing Wolterstorff, Volf argues that theologians should focus on "fostering the kind of social agents capable of envisioning and creating just, truthful, and peaceful societies, and on shaping a cultural climate in which such agents will thrive" (Volf 1996, 21). Volf embraces using the Gospel as a source and motivation for social change, which in many ways came about based on the work of John Howard Yoder who argued that Jesus' life should be interpreted in terms of the political consequences associated with Jesus' death on the cross (1994 [1972]).

However, the more complex and analytical the theological argument, the more difficult it will be to transmit that argument to congregations. But this is also true of any academic argument or scientific discovery. The problem then becomes one of dissemination. How do we make information that is difficult to comprehend using maturationally natural cognition freely available to the general public without diluting the substance of the information to a point where it becomes unrelated to the initial findings? This is a common problem in popular news reports on various scientific findings; report headlines can often focus on what is going to garner attention rather than accurately describing results. Theologians, just like scientists, will have to continually monitor and correct the transmission of their theories and findings for the general public and try to ensure accuracy as best they are able. Also, both theologians and scientists will need to become directly involved in developing creative ways to help the general public understand their theories and findings (and may need to learn some cognitive science as well).

## CONCLUSION

*Why Religion Is Natural but Science Is Not* presents several distinctive perspectives on the study of religion and science. Most importantly, McCauley lends a cognitive perspective to this study that is sorely needed, by illuminating the different types of cognitive mechanisms that play such a ubiquitous role in religion, theology, and science. The cognitive portion of McCauley's thesis does not necessarily have to lead to a dismissive view of theology or religious belief, but allows the research lens to exclusively focus on cognitive differences in processing scientific versus religious information and the important role of automatic, unconscious, and intuitive cognitive processes in understanding both the natural and supernatural world.

## NOTE

This article is based on a panel presentation sponsored by the Cognitive Science of Religion Group and the Science, Technology, and Religion Group at the annual meeting of the American Academy of Religion, Baltimore, MD, November 23, 2013. The panel discussion focused on Robert McCauley's book *Why Religion Is Natural and Science Is Not*.

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