How Are Science and Religion Getting Along? An Evolutionary Perspective

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We are delighted to present this special issue of *Religion, Brain & Behavior*, featuring a collection of work arising from a re-granting program, funded by the Templeton Religion Trust and the Issachar Fund, which we had the opportunity to lead from 2019 to 2023.[1] We were one of three groups in this effort—one focused on sociology, one on psychology, and ours, which focused on evolutionary approaches and was entitled "The Evolution of Science and Religion as Meaning-Making Systems."[2]

The Missing Disciplines: Background to the Overall Granting Program

The background to the grant was to stimulate the *social scientific* study of science and religion (dubbed SSSSR). In short, how is it that people and communities gravitate to the beliefs they hold? A considerable body of work—much of it funded by the Templeton Foundations—had tended to focus on the often seemingly thorny relationship between science and religion from the perspective of scientists, theologians, and philosophers. This highlighted theory, doctrine, and fundamentals of epistemology. But what do non-specialists, outside of the ivory tower, tend to think about the relationship between science and religion, and why? These are questions for the social sciences.

The object of this funding program, in contrast to previous work, was to bring to bear social science disciplines, and their unique approaches and methods, to explore the *narratives* surrounding people's understanding of science and religion. Whatever the reality, and whatever the theory, how do people actually *perceive* these systems of knowledge and their relationship to each other, especially outside the academy and outside the West? How and why do people adopt particular beliefs, or come to change them? To what extent do they entertain different kinds of beliefs at the same time? And how do these different and overlapping belief systems, irrespective of their validity, help people in everyday life?

An Evolutionary Perspective: New Questions

Our particular focus was to take an *evolutionary* angle on these questions. This brought added value to the overall project because it posed novel kinds of hypotheses. In

[1] TRT grant 0207 "Science and Religion: An Evolutionary Perspective" https://templetonreligiontrust.org/explore/an-evolutionary-perspective/

[2] See our project website, researchers, and outputs here: https://evolutionofscienceandreligion.org/

particular, an evolutionary perspective asks how certain beliefs help people solve the local adaptive challenges they face, and how those beliefs emerged and spread from one generation to the next. Our goal was to explore why and how particular forms of scientific or religious meaning-making systems may prove adaptive in certain kinds of environments, and thus how they tend to emerge, grow, compete, and decline in (and across) their respective domains.

A key guiding puzzle for our group was why it is that all human cultures gravitate so strongly towards adopting *meaning-making systems*, of one sort or another, in the first place. To answer this, we needed to explore how diverse belief systems actually are, especially beyond the West where most of the research has previously been done. Then, looking at variation within and across cultures, we could explore how meaning-making systems vary in divergent contexts, as well as features that remain universal. Additionally, and crucially, we could ask to what extent different belief systems overlap, such that individuals entertain both scientific and religious beliefs at the same time, and how this may be advantageous.

Adaptation: An Emerging Theme

Despite the inclusion of "evolution" in the re-grant program title, we were not heavy-handed in insisting that projects take an explicitly evolutionary approach. The original Request for Proposals, for example, stated only that projects should "utilize the tools and insights of evolutionary and behavioral science to explore… conflict and complementarity in the science-religion relationship." A more bluntly evolutionary RFP might have requested projects to conduct explicitly *adaptationist* analyses of religious and scientific meaning-making systems—analyses, that is, to help distinguish between the adaptive and non-adaptive aspects of these systems. However, an important role for adaptation emerged organically in the discussions and empirical findings of the grant, suggesting converging support for viewing belief systems, far from cultural epiphenomena, as functional aspects of human endeavor. We therefore focus in this editorial on thematically exploring an adaptationist perspective on meaning-making systems, and how it can help to reframe and resolve old questions about science and religion.

Although adaptationism does not capture the conceptual approaches or analyses of all sub-grants, including some of those represented in this special issue, we think it provides a helpful framework for integrating and appreciating the important contributions that this collection of papers makes. This is because they collectively illuminate religion and science not just as meaning-making systems, but as *problem-solving* systems. Simply put, these systems exist for a reason. Why do people use science and religion to make sense of the events and experiences which punctuate their lives? Because they help to solve problems of everyday existence, such as those related to threat mitigation and disease prevention, as illustrated by several of the papers in this volume (Hong & Henrich, 2024; Jackson et al., 2024; Samore et al., 2024; Willard et al., 2024). And "problem-solving system" is, in essence, the definition of "adaptation": an adaptation evolves only if it can, on average, successfully solve some problem that represents a specific threat to its own continued existence and reproduction. The studies described herein highlight the kinds of adaptive problems that religious and scientific systems are most often used to solve, as well as the different, generally complementary functions each system seems to fulfil when applied to these problems. Several of the studies involve non-Western populations (Hong & Henrich, 2024;

Price & Johnson, 2024; Samore et al., 2024; White & Billet, 2024; Willard et al., 2024), and the studies collectively utilize a large and culturally diverse set of samples, drawn from a total of 59 countries (Figure 1). This broad cross-cultural perspective enhances our ability to assess whether aspects of these meaning-making systems may be best understood as the species-typical result of biological evolution, a population-specific aspect of cultural evolution, or—as is probably most often the case—the hybrid product of both, as the outcome of biocultural evolution.

While none of the papers explicitly pit the adaptive utility of scientific *versus* religious belief systems against each other, the papers do, collectively and implicitly, cast new light on the function of *religious* belief. Before we elaborate on that proposition, however, let us clarify why we *don't* think they necessarily alter our understanding of the function of *scientific* belief.

Objective Knowledge: The Straightforward Utility of Scientific Beliefs

As the primary function of science does not seem to have been particularly obscure in the first place, we do not regard it as something that required much illumination. If we define science as a formal method for attempting to falsify hypotheses about the world, then it seems fairly uncontroversial to assert that its primary function is the generation of objective knowledge (as articulated, for example, in Pinker [2018]). Aspects of the scientific method and scientific institutions could be considered a cultural adaptation, having taken shape as a formal set of rules and practices over the past several centuries in various cultures around the world, and having provided diverse benefits—all derived from the extraordinarily advantageous power of objective knowledge—to those cultures which embraced it. As a tool for generating knowledge, about issues for which empirical evidence can be produced or gathered, the scientific method is the undisputed champion of the world. One of the domains in which it has proven itself to be fantastically useful is medicine, so it is not surprising that papers in this volume repeatedly observe it being leveraged to solve problems in that domain—even among staunch religious believers and communities who perceive other, supernatural options to be available to them as well—for instance as a tool for warding off COVID (Jackson et al., 2024; Samore et al., 2024).

Figure 1: Countries from which study samples were drawn. The studies described in this special issue utilized samples from a combined total of 59 countries on all populated continents.

Functions of Religious Belief: Cooperation or Threat Mitigation?

Whereas the function of "science" seems relatively clear, the function of religious belief and behavior is often more opaque, including in these studies. At least, the consequences of religion often tend to be more indirect or complex. A large amount of previous research has suggested that the core function of religiosity, at the individual biological level and/or the group cultural level, is to enable and enhance cooperative behavior and collective action (Johnson, 2005, 2016; Johnson & Bering, 2006; Norenzayan & Shariff, 2008; Norenzayan et al., 2016; Sosis, 2000, 2019; Wilson, 2005). In the studies for this special issue, however, we see religious beliefs and behavior being deployed for problems that seem more directly related to *individual threat mitigation*—for example, efforts to understand the causes of threats (again, especially in the form of illness), and to avoid the consequences that might have for individual welfare (Hong & Henrich, 2024; Willard et al., 2024; see also Jackson et al., 2023). Adaptations can have more than one function, and we do not dispute a functional role for religious beliefs in the domain of cooperation; however, it is not a domain that suggests itself here as being *essential* to the deployment of these beliefs. Evolutionary research on religion has greatly accelerated in the context of more general work on the evolution of cooperation (e.g., Nowak & Coakley, 2013), but in the light of contemporary events, evolutionary research on religion has been attracted to new challenges such as pandemics, natural disasters, and climate change. As the problems of the day change, religion can be seen to be salient in working towards a variety of different ends. But it may also be that the meaning-making element under study here, especially when contrasted with science, helps to refocus attention on some understudied aspects of the adaptive logic of religious belief itself.

Non-Functionality: Religion as a By-product

Another common evolutionary perspective on religiosity is that is has no adaptive function per se, and is instead best understood as the non-adaptive by-product of adaptations that were selected to perform other functions, mostly related to social cognition (Atran, 2004; Atran & Norenzayan, 2004; Banerjee & Bloom, 2014, 2015, 2017; Barrett, 1998; Barrett & Keil, 1996; Boyer, 2001; Guthrie, 1993; Keleman, 2004). From this point of view, religiosity would emerge in the context of threat mitigation efforts because the human mind—being so thoroughly and deeply wired for social interaction—cannot help but attribute these threats to some purposeful agent, regardless of whether that agent truly exists. This perspective seems plausible, but like any theory, one must specify how it could be tested. By-product theories are sometimes treated as if they should be exempt from such testing (Sosis, 2009), perhaps because they are seen as being less speculative and extravagant alternatives to the notoriously "onerous" (Williams, 1966) claims that a trait is an adaptation.

One reasonable test of the by-product claim might be to assess whether religiosity is associated with any costs or benefits that could be construed as adaptively relevant. By-product or not, if religiosity were costly on balance—that is, if it entailed costs that were not recouped by benefits which it also entailed—then it should have been selected against over evolutionary time. As Richard Dawkins wrote in *The God Delusion* (2006, p. 191), "because Darwinian natural selection abhors waste, any ubiquitous feature of a species—such as religion—must have conferred some advantage or it wouldn't have survived." He was not convinced by the evidence that those advantages redound to individuals or genes, but rather to memes—ideas themselves that, beneficial or not, replicate across minds. The idea that he seemed to overlook, however, was that religiosity could be advantageous to adherents, and if this were the case on average over time, then it could indeed have been adaptively shaped by the process of selection—even if it emerged initially as a by-product (and was then "co-opted" as an adaptation). This hypothesis has actually been tested many times, and results have consistently suggested that religiosity does entail seemingly adaptive benefits, such as increased trust and cooperation (leading to higher payoffs; Norenzayan, 2013; Norenzayan & Shariff, 2008; Purzycki et al., 2016; Whitehouse, 2021), and significant advantages in mental and physical health—the former being a primary cause of the latter—and overall survival (Balboni et al., 2022; Chen, Kim, & VanderWeele, 2020; Diener et al., 2011; Hoogeveen et al., 2023; Koenig, 2015; McCullough et al., 2000). Our own paper in this volume (Price & Johnson, 2024) in fact supports this case further, by indicating a positive relationship between religiosity and wellbeing, as indexed by key aspects of mental/physical health, across diverse global regions and the major world religions.

Complementary Tools: Using Both Scientific and Religious Systems Simultaneously

Another interesting pattern observed in several of the papers in this special issue, besides that of religiosity emerging in the context of threat mitigation, is people's tendency to *simultaneously utilize both scientific and religious ways of thinking*. Some studies report the same people utilizing both kinds of meaning-making systems, although without differentiating or specifying exactly what kind of problems each system is being used to solve

(Park et al., 2024; Price & Johnson, 2024). Other studies report people utilizing both systems to solve the same general problem, such as avoiding COVID infection (Samore et al., 2024), or various aspects of the same kind of problem, such as explaining different causes of illness (Willard et al., 2024). Regardless, all of these studies suggest that people utilize both types of systems because they perceive their relationship and uses to be complementary, as opposed to zero-sum. The common experience of people "out there" in the real world is not so much a contradiction between science and religion, but a convergence of science and religion. This complementariness may seem surprising to some, especially in Western societies, whose members are relatively more likely to perceive religion and science as being in conflict (Ecklund & Park, 2009; Evans & Evans, 2008; Leicht et al., 2022). Results presented herein, however, suggest that many people around the world derive utility from perceiving that religion and science are essentially compatible. This is certainly true of our own study (Price & Johnson, 2024), which found that on a global cross-cultural scale, in cultures in which religion and science are perceived as being relatively more compatible, both religious belief and scientific belief are each respectively more strongly associated with increased individual well-being. The science and religion "debate," which has been centered in the West and among theologians and philosophers, may have missed something important from the *social* scientific study of religion: despite sometimes entailing theoretical incoherence from a technical point of view, most ordinary people are comfortable with holding both (or multiple) belief systems, and use them in overlapping and mutually complementary ways every day. Different belief systems can be seen as tools in a toolbox, each designed for distinct jobs, but both useful for getting by in life.

Conclusions and Outstanding Questions

In summary, the studies in this special issue provide compelling evidence that religious belief possesses an adaptive function related to *threat mitigation*, that has not been fully recognized by previous evolutionary analyses (although see, for example, Fincher and Thornhill, 2008). In particular, it appears to bring something to this adaptive challenge (among others) over and above that which science can provide, or is perceived to provide. This is not an appropriate occasion for more detailed speculation about the precise nature of this function, but we think that one of the most important contributions of this special issue may be to draw attention to this seemingly important gap in our evolutionary understanding of religion. Further, if we grant that this function of religion is different than the main function of science—that is, that this function is *not* to generate objective knowledge based on empirical evidence—then we can better understand other patterns that emerge from the studies described in this volume. Namely, it becomes clear why religion and science seem so capable of complementary coexistence within the minds of so many people. Although the scientific method is a crowning achievement of human culture, life continues to entail many problems, and humans continue to harbor many concerns, that science simply cannot address. As long as this remains the case, we suspect that there will always be scope for compatibility, or even synergy, between these two kinds of meaning-making systems. One analogy is parallel processing (from computing), whereby we are able to use our science/rationality chip to solve certain problems, and our religious/spiritual chip to solve other problems, or to draw on the power of both chips simultaneously to solve the same problems more effectively or efficiently. Ironically, it seems that this is most difficult for people to see in the West—where

most prior work on science and religion has focused and dominated the literature—whereas non-Westerners demonstrate much more cognitive flexibility in this regard. This could potentially make those societies more resilient to some of the existential challenges we face (whether social, environmental, or technological), which require optimism, wisdom, motivation, sense of purpose, and cohesion as well as scientific knowledge. A rational actor might despair at trying to solve some difficult challenge to humanity, whereas a religiously inspired actor might see the fight as the goal.

A key outcome of sustained research programs such as this is the realization that there are important outstanding, or hard to study, questions that warrant further work and funding. Here are the top five in our list:

1. Science and religion are often the two contrasted belief systems, but if we zoom out from this dichotomy, what *other kinds of meaning-making systems* may share key characteristics or fulfill similar adaptive functions? (For example, ideology, patriotism, social identity).
2. How do we *explain the enormous cross-cultural variation* in both religion and science beliefs, and in particular the level of perceived compatibility or incompatibility between them? What are the consequences and future of this variation?
3. How, when, and under what circumstances do people *change* their commitments to different belief systems? (Adopting or abandoning faith in religion or science, or allowing them to accommodate each other better).
4. *What sources are most influential* to people in adopting, maintaining, and changing their beliefs, and how does this play out within and across various segments of society and countries? (Family, peers, communities, leaders, media, experiences, etc.).
5. What are the *social consequences of different belief systems* (and their perceived compatibility) for key challenges we are facing now and in the near future? (Such as climate change, water and food availability, technical and scientific innovations, AI, and political conflict).

To end, we would like to express our sincere gratitude to all of the researchers involved in the grant, who brought amazing energy, ideas, and hard work to make some great strides in disentangling the relationship between science and religion in people's minds and behavior; to the Templeton Religion Trust and Issachar Fund, whose support made all of this research possible; and to the fantastic editorial team at *RBB*, for the opportunity to publish some key fruits of this labor in this special issue.

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