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What is natural and unnatural about religion and science?

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What is natural and unnatural about religion and science?

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Judging by its title, unsuspecting readers, unfamiliar with the scientific study of religion, might expect *Why Religion is Natural and Science is Not* to be advancing some creationist argument. If anyone bought this book based on that expectation, they would be disappointed. Instead, McCauley's book offers, among other things, one of creationists' greatest anathemas: a naturalistic account of religion. However, its primary goal is not to explain religion, nor to explain it away. As the author warns on the first page, "this book compares science and religion in a way that has never been done before. And it has a surprise ending." Both those claims are warranted: the comparison is novel, and the conclusion surprising. In this commentary, I will raise some concerns about each one of these two aspects.

Most books on religion and science either advocate for the epistemological or metaphysical supremacy of one over the other or discuss whether the two are compatible, complementary, or mutually exclusive. Instead, McCauley's book is the first one to examine these two systems in terms of their cognitive foundations. In other words, the author is interested in how, why, and to what extent people are predisposed to create and acquire scientific and religious forms of knowledge. In his exploration of these questions, McCauley does a very thorough job of reviewing the available evidence on the cognitive underpinnings of the two systems. In doing so, he meticulously discusses folk and formal forms of both religion and science. This distinction is best exemplified in the matrix on page 231, (see figure 1) with the preferred type of cognitive processing at the *y*-axis (reflective–maturationally natural) and appeals to agent causality at the *x*-axis (restricted–unrestricted). The resulting quadrants are popular religion and theology, on the one hand, and common-sense explanations of the world and science on the other. The problem is that, in holding these two baskets of fruit, the author chooses to compare the apples in one basket with the oranges in the other.

McCauley puts his cards on the table from the outset, admitting to a particularly restricted operational view of "science" as a recent, institutionalized, large-scale, Western enterprise. On the other hand, he uses the term "religion" more loosely to mean not institutionalized religion but popular religiosity. Having set the rules this

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way, religion is a sure winner in the race of naturalness against science: “science is costly, difficult, and rare, whereas religion is cheap, easy, and inevitable” (p. 251). However, if we look at this matrix from a more symmetrical viewpoint, comparing science with theology and popular religiosity with common-sense scientific thought, the differences readily go away. Theology is often just as counterintuitive as science, while folk scientific thought is just as natural as folk religious thought (the latter often being a by-product of the former). McCauley concedes that “a couple of features of science *are* cognitively natural” (p. 7, original emphasis), but chooses to “take up the features of scientific cognition that do not come at all naturally to human beings” (p. 7). However, the literature reviewed in the book already suggests that scientific cognition might not be as trivial as implied.

Humans intuitively and from a very early age have hypotheses about their surrounding world; in fact, they do more than that—they spontaneously evaluate these hypotheses in relation to the available evidence and devise rigorous and methodic ways of testing them (Koenig & Harris, 2005). When our remote control stops working, we typically assume that the battery is flat and we install a new battery. If it still does not work, we might test the battery by using it in a different device. If we find that there is no problem with the battery, we conclude that we need to buy a new remote or try to fix the old one (usually without much success). This

		appeals to agent explanation/causality	
		unrestricted	restricted
preferred type of cognitive processing	reflective	theology	science
	maturationally natural	popular religion	commonsense explanations and understandings of the non-social world

Figure 1. Cognitive asymmetries.

basic application of the experimental method comes naturally and effortlessly even to young children. In one experiment, for example, when children between five and nine years of age were told of the presence of an invisible person called Princess Alice, they spontaneously devised ways of testing this claim, such as waving their hand over the chair where Alice was said to be seated (Piazza, Bering, & Ingram, 2011). More generally, there is compelling evidence that children at a very early age understand causation and covariation, formulate hypotheses, devise ways of testing them, and revise their knowledge about the world in light of new evidence (Gopnik, Meltzoff, & Kuhl, 1999; Koerber, Sodian, Thoermer, & Nett, 2005). To that McCauley replies that such proclivities are “necessary but not sufficient for some activity to count as scientific” (p. 104). But then again, the same is true of the cognitive proclivities that facilitate religious thought, such as teleological thinking, agency detection, contamination avoidance, etc.: they are necessary but not sufficient for some activity to count as religious.

On the other hand, organized religion and theology are just as complicated and hard to grasp as theoretical science. Thus, to the claim that “science is costly, difficult, and rare, whereas [popular] religion is cheap, easy, and inevitable” (p. 251), one might reply: yes, but on the other hand, common-sense scientific thought is cheap, easy, and ubiquitous, while institutionalized religions and their associated theologies are expensive, complex, and relatively recent inventions. All of the above are fully acknowledged and thoroughly documented by McCauley, who nonetheless prefers to focus on the diagonal relationships between two of the quadrants, juxtaposing popular (not formal) religion on the one hand and formal (not common-sensical) science on the other. This, of course, is the author’s prerogative. After all, he correctly notes that “anything can be compared with anything” (p. 230). This choice, however, directly leads to the promised surprising conclusion that “science’s continued existence is fragile.” And once again, this conclusion might be very different if the comparison were more symmetrical.

McCauley offers a series of arguments for the fragility of science relative to religion, for example that science often conflicts with established powerful interests. “The Catholic Church’s response to Galileo’s discoveries is the most famous example, but the more science has expanded in the modern era, the more such tensions arise” (p. 279). Although institutionalized religion is just as likely to clash with established interests (most often other religions), the claim that opposition to science is ever increasing is simply not true. Ever since the Middle Ages, the position of science is becoming increasingly secure and is today in an extremely dominant position, at least in the Western world. The very examples of modern attempts to suppress or distort science that the author provides confirm this dominance. Despite the (often coordinated) efforts of some of the most powerful institutions on the planet (oil and tobacco companies, the Vatican, and even the occasional president of the United States), stem cell research still takes place and evolutionary theory still forms the basis of all biology, while few sane people and practically no scientist doubts the detrimental effects of smoking or global warming. It is also important to note that science is global, and any local suppression (even in countries as large as China) would have overall negligible effects on its survival.

Another repeatedly stated argument for the fragility of science is that it is costly. Institutionalized science is very expensive to maintain, as it relies on a

gigantic network of people, structures and equipment. Although the Vatican is probably more expensive to run than the European Organization for Nuclear Research (CERN), the point at hand here is that rather than consuming, science actually *generates* financial resources, and it does so abundantly. In fact, science is today responsible for virtually *all* of the planet's wealth (while institutionalized religion only for its own).

Finally, one more stated reason for the fragility of science is that its “radical counterintuitiveness makes it cognitively unnatural in the extreme” (p. 286). Again, theology is equally counterintuitive: a theory about an eternal, omnipresent, omniscient, immaterial, and invisible being in the sky, who is three in one, who gave birth to himself via a virgin woman and then killed his son/himself (making him immortal in the process) in order to save humans from a sin some other humans committed in the distant past may well be the most counterintuitive idea that has ever existed. In fact, this idea is impossible to fully grasp, as opposed to the most abstract scientific theories (perhaps with a few exceptions such as string theory), which *can* be comprehended given enough (laborious) training. In addition, science is cumulative and increasingly collaborative, which means that the cognitive burden is being divided both synchronically and diachronically between humans and recently with machines, which have taken up an enormous part of that burden. Although this does not make science any more intuitive, it does make it more secure.

McCauley's book is about the cognitive foundations of religion and science. It is the most precise and comprehensive exposition that I have come across on both accounts. The author chose to see these accounts from one possible perspective; in this commentary, I chose another. The two are not mutually exclusive, but the choice of perspective does influence the overall implications, and I have chosen to present a more optimistic conclusion. In my view, science is more secure than it has ever been and its position will only become stronger. While the cognitive proclivities for scientific thought are just as strong as those for religious thought, institutionalized science today plays a more central role in global economy and politics than institutionalized religion. Furthermore, science is growing exponentially; religion is not growing at all—religiosity has been and still is ubiquitous, although institutionalized religion with all its might has never been less influential on the global sociopolitical arena. Science has—more than anything else—immense direct impact on the quality of our lives and increasingly on our very existence. Although McCauley's claim that “nothing about human nature would ever prevent the loss of science again” (p. 286) is logically sound, I am convinced that science will only go away, along with religion, with the end of our species.

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