

# Book Reviews

**Pascal Boyer** (2001). *Religion Explained: The Evolutionary Origins of Religious Thought*. New York: Basic Books. ISBN: 0-465-00695-7. 375 pages.

A large portion of human thought, feeling, and action can, at least in principle, be explained by the view that our psychological architecture was shaped by natural selection acting in ancestral environments. To a crude first approximation, one might expect common human activities and appetites to be heavily organized in ways that reflect ties to ancestral evolutionary utility: foraging, mating, evading predators, forming coalitions, engaging in exchange, avoiding contagion, preventing harm, helping kin, raising children. And yet, every day, in every corner of the world, people engage in activities that seem anything but utilitarian. They might talk to an invisible person who is everywhere and knows everything; ask a statue for help; feed a hungry mountain; sacrifice a goat (just the skin and bones) to appease an angry – yet dead – ancestor; purify themselves after having touched a blacksmith; stare down a witch to remove her power to destroy. True, when measured in the currency of fitness, such beliefs and practices are occasionally cost-free. But not always. Killing yourself and thousands of other human beings by crashing an airplane into a tall building is extravagantly nonutilitarian – especially when the payoffs are the (prospective) satisfaction of having punished strangers whose beliefs about the wishes of invisible agents are different from your own plus, as a bonus reward, sex with virgins *after* death.

Religious ideas are ubiquitous. But from a functional or evolutionary point of view, it is not clear why they should exist at all. In *Religion Explained*, Pascal Boyer addresses these issues head on. This book goes far beyond Boyer's earlier work on what makes religious ideas contagious. Boyer delves into why gods and spirits matter to people; why religious ideas are so often concerned with morality, death, and pollution; why religious ideas often (though not always) give rise to rituals; the economic and historical factors that gave rise to guilds of religious specialists and why their political circumstances led to the creation of written theological doctrines; and why religious doctrines sometimes give rise to prejudice, exclusion and even violence. Boyer's explanations are grounded in up-to-the-minute data and theories about the evolved architecture of the human mind. So in the course of explaining religion, he also provides an excellent tour

of the cognitive sciences. At the same time, Boyer's book is a glimpse into the future of cultural studies. While showing how the human cognitive architecture plays a crucial causal role in the generation, spread, and stabilization of ideas and customs, Boyer demonstrates how knowledge of mental mechanisms must be carefully integrated with history, economics, politics and other factors to produce satisfactory causal explanations for the cultural phenomena that anthropology has traditionally sought to understand.

*Cultural epidemiology.* Boyer's approach to cultural transmission, like that of Sperber, Hirschfeld, and Atran, is epidemiological. That is, it focuses on understanding why some ideas spread very quickly from person to person whereas other ideas do not. The analogy is as follows: To understand the epidemiology of pathogens, one needs to understand the properties of the host organisms, because these properties determine whether that host will be a fertile environment for a particular pathogen to take hold, reproduce and spread itself. Similarly, to understand which ideas will be contagious, one needs to understand properties of the "host" mind, because features of the human cognitive architecture determine, in part, whether an idea will be memorable, interesting, inferentially rich, compelling to retell, and so on.

*Evolved intuitions.* Boyer therefore starts by examining the properties of the mind that make *any* concept – religious or not – easy to learn, inferentially rich, and memorable. In so doing, he presents the view emerging from a convergence of research in cognitive development, neuropsychology, and evolutionary psychology, suggesting that the human cognitive architecture is populated with a number of highly specialized inference systems, each designed for producing intuitions about different aspects of the world. For understanding basic human behavior, there are systems for making inferences about agency, goals, beliefs, desires, and intentions (the cluster of adaptations usually known as "theory of mind"). For social interaction, there are systems for understanding social exchange, coalitions (ingroups and outgroups), mating, and parenting. To negotiate danger, there are systems for avoiding contagion and toxins, systems for understanding predators and prey as agents (and death as the cessation of agency), systems for taking precautions against hazards. Other systems produce inferences about object mechanics and artifact function. These *evolved intuitive ontologies* cause people to have strong expectations about what kinds of things exist in the world (e.g., animals, plants, artifacts, people), and compelling intuitions about how those things work (e.g., animals have "essences" that cause their surface properties but tools do not; rocks move only when acted on by external forces, but people move because of their beliefs, desires, and emotions). Instead of being bewildered blank slates,

this computational machinery provides frameworks by which we make sense of our experiences and the culture into which we are born. As Boyer shows, these ontologies are apparent in the thinking of young children, and in the kinds of ways the mind breaks down given various types of brain damage. They guide how children learn about their world, and how they interpret what is communicated to them by their culture.

The proper domain of these inference systems – that is, the domain for which they evolved – will in each case be one for which the intuitions produced had evolutionarily functional consequences. For this to happen, the design of each system had to include conditions for its activation: input conditions that were correlated with the inference system's proper domain. But correlations are never perfect: you duck when a ball flies at your head, but also when you see a fast looming shadow, because the psychophysical properties of the shadow satisfy the input conditions for the duck response. So, however well-designed each system is for producing adaptive inferences under evolutionarily ancestral conditions, it will necessarily produce nonadaptive side-effects. If people around you are talking about Isa, whom you have never met, your mind is designed to open person file for him, and start making inferences about his personality and motivations based on what you hear – especially if his reported activities seem to have large consequences for you and the people around you. If you later learn that Isa died years ago, is invisible under normal circumstances and can walk through walls . . . well, this will certainly grab your attention. But why?

*Intuitive and counterintuitive.* Boyer argues that, when one takes a close look at the kinds of religious concepts that are most recurrent, one can see that the most contagious ones have two properties: (1) they activate an evolved intuitive ontology, which generates many inferences, yet (2) they also violate at least one deep ontological assumption, making them attention-grabbing and memorable. Isa, for example, is a kind of *person*, so he has beliefs, desires, emotions, and goals; as a social being, he might wish to punish transgressions, engage in social exchange, or help your coalition. So knowing Isa is a *person* supports many inferences (condition 1). Yet Isa is dead. If death is the cessation of agency, how can he want and do? And people are made of solid matter, so they are visible and, as even a 3 month old infant knows, two solid things cannot pass through one another. So what is up with Isa? Isa is not merely odd, he has properties that are counter-intuitive – that contradict an intuition generated by an evolved inference system (condition 2). In carefully controlled memory experiments, Boyer has shown that concepts that meet both conditions (e.g., talking tables) are remembered far better than concepts that are merely odd, but violate no deep intuitions (e.g., chocolate tables).

But if Isa has counter-intuitive properties, why not reject anything you hear about him as false? That would certainly prevent your mental database from being corrupted by false information, but it would also prevent children (and adults) from learning many things that at first appear anomalous but are nevertheless true (clouds look solid but are not; the earth turns, plants have sex, invisible things exist and can make you sick, etc.). As suggested by the literature on metarepresentation, decoupling, and offline cognition, anomalous information should be neither rejected right away nor retired to semantic memory as true. Instead it should be stored in representations that are decoupled from our mental encyclopedia, and should compel attention, causing us to learn more about them until they can be either reconciled with our other knowledge or rejected as false. This would be a good feature for a system designed to learn from other people to have. But it has a side-effect. Decoupled representations of talking tables and spirits like Isa will hang around in the mind, recruiting attention and activating inferences.

*Socializing with the supernatural.* So far, the account will be familiar to those who have been following Boyer's work. But in *Religion Explained*, Boyer argues that there has to be more to the story than this if one is to explain why some ideas that meet conditions 1 and 2 are more common across cultures than others. First, religious ideas where dead, inanimate, or nonhuman entities are endowed with counter-intuitive psychological properties (e.g., ghosts, gods, spirits; statues that hear your thoughts, jaguars that know you have transgressed) are far more common than, say, persons who lack psychological properties (e.g., zombies). Second, not just any special psychological property will do: the most contagious supernatural agents are ones who have special access to information relevant to social life – what Boyer calls “strategic information.” If Isa is invisible and can walk through walls, then . . . he can hear private conversations . . . he might know whether my spouse is having an affair . . . he might have seen me violate a taboo and want to punish me. . . Strategic information is precisely that information that generates frenzies of inferences crucial to social interaction. So an agent like Isa is sure to activate many relevant thoughts and concerns. Third, I might make better decisions by considering Isa's perspective. How will my actions look to someone who knows all the relevant facts? Secrets are hard to keep in the real world, and one might profit by making choices that can stand the light of public scrutiny. This may be especially important when branches on one's decision tree may include cheating, disloyalty, infidelity, creating filth, or other actions that activate other people's moral intuitions and, possibly, their punitive sentiments. Fourth, the conditions that activate the agent concept persist in the environment; others around you keep talking about gods, ghosts and spirits as if they exist, attributing

misfortunes to them, trying to appease them, offering to trade with them. Indeed, as Boyer points out, people have complex social relationships with these agents; they become woven into the fabric of everyday life.

*Mind and belief.* *Religion Explained* is so rich that a short review cannot really do it justice. Theories of the origin of religion are gently, yet inexorably, punctured with logic and evidence. A theory of “cultural gadgets” is developed – a framework for explaining why certain practices, such as marriage ceremonies and funerals, are common and often associated with religious ideas. Death is dissected. When activated by the sight and smell of corpses, certain inference systems (ones for understanding personality, agency, contagion, and predation) will create clashing intuitions within a single mind, generating contradictory, disturbing, and guilty thoughts.

In one of the most revealing sections, Boyer discusses why some people come to believe in particular supernatural agents whereas others do not. Theories invoking cognitive biases, limitations, and illusions do not do the trick, he shows, nor do ones based on transcendent experience and other factors. As Boyer pierces account after account, one slowly begins to recognize that he is making an even deeper point: cognitive psychology has yet to develop a convincing account of how *any* belief – religious or mundane – becomes fixed in an individual mind. The realization that one’s own field has failed to address one of its most fundamental questions is always disquieting, but such insights are the creative destruction from which good science grows. The approach to cognition and belief developed in *Religion Explained* applies to all domains, not just religion. The subtle process Boyer outlines, whereby our spontaneous intuitions provide fodder for decoupled, offline cognition, can resolve many paradoxes in cognitive psychology, and deserves to be incorporated into basic research in the field.

Center for Evolutionary Psychology  
University of California, Santa Barbara  
Cosmides@psych.ucsb.edu

Leda Cosmides and John Tooby