

# ESSAY

## Religion: Bound to believe?

Atheism will always be a harder sell than religion, **Pascal Boyer** explains, because a slew of cognitive traits predispose us to faith.

Is religion a product of our evolution? The very question makes many people, religious or otherwise, cringe, although for different reasons. Some people of faith fear that an understanding of the processes underlying belief could undermine it. Others worry that what is shown to be part of our evolutionary heritage will be interpreted as good, true, necessary or inevitable. Still others, many scientists included, simply dismiss the whole issue, seeing religion as childish, dangerous nonsense.

Such responses make it difficult to establish why and how religious thought is so pervasive in human societies — an understanding that is especially relevant in the current climate of religious fundamentalism. In asking whether religion is one of the many consequences of having the type of brains we come equipped with, we can shed light on what kinds of religion 'come naturally' to human minds. We can probe the shared assumptions that religions are built on, however disparate, and examine the connection between religion and ethnic conflict. Lastly, we can hazard a guess at what the realistic prospects are for atheism.

In the past ten years, the evolutionary and cognitive study of religion has begun to mature. It does not try to identify the gene or genes for religious thinking. Nor does it simply dream up evolutionary scenarios that might have led to religion as we know it. It does much better than that. It puts forward new hypotheses and testable predictions. It asks what in the human make-up renders religion possible and successful. Religious thought and behaviour can be considered part of the natural human capacities, such as music, political systems, family

relations or ethnic coalitions. Findings from cognitive psychology, neuroscience, cultural anthropology and archaeology promise to change our view of religion.

### Based on assumption

One important finding is that people are only aware of some of their religious ideas. True, they can describe their beliefs, such as that there is an omnipotent God who created the world, or that spirits are hiding in the forest. But cognitive psychology shows that explicitly accessible beliefs of this sort are always accompanied by a host of tacit assumptions that are generally not available to conscious inspection.

For instance, experiments reveal that most people entertain highly anthropomorphic expectations about gods, whatever their explicit beliefs. When they are told a story in which a god attends to several problems at once, they find the concept quite plausible, as gods are generally described as having unlimited cognitive powers. Recalling the story a moment later, most people say that the god attended to one situation before turning his attention to the next. People also implicitly expect their gods' minds to work much like human minds, displaying the same processes of perception, memory, reasoning and motivation. Such expectations are not conscious, and are often at odds with their explicit beliefs.

Research has shown that unlike conscious beliefs, which differ widely from one tradition to another, tacit assumptions are extremely similar in different cultures and religions. These similarities may stem from the peculiarities of human memory. Experiments suggest

that people best remember stories that include a combination of counterintuitive physical feats (in which characters go through walls or move instantaneously) and plausibly human psychological features (perceptions, thoughts, intentions). Perhaps the cultural success of gods and spirits stems from this memory bias.

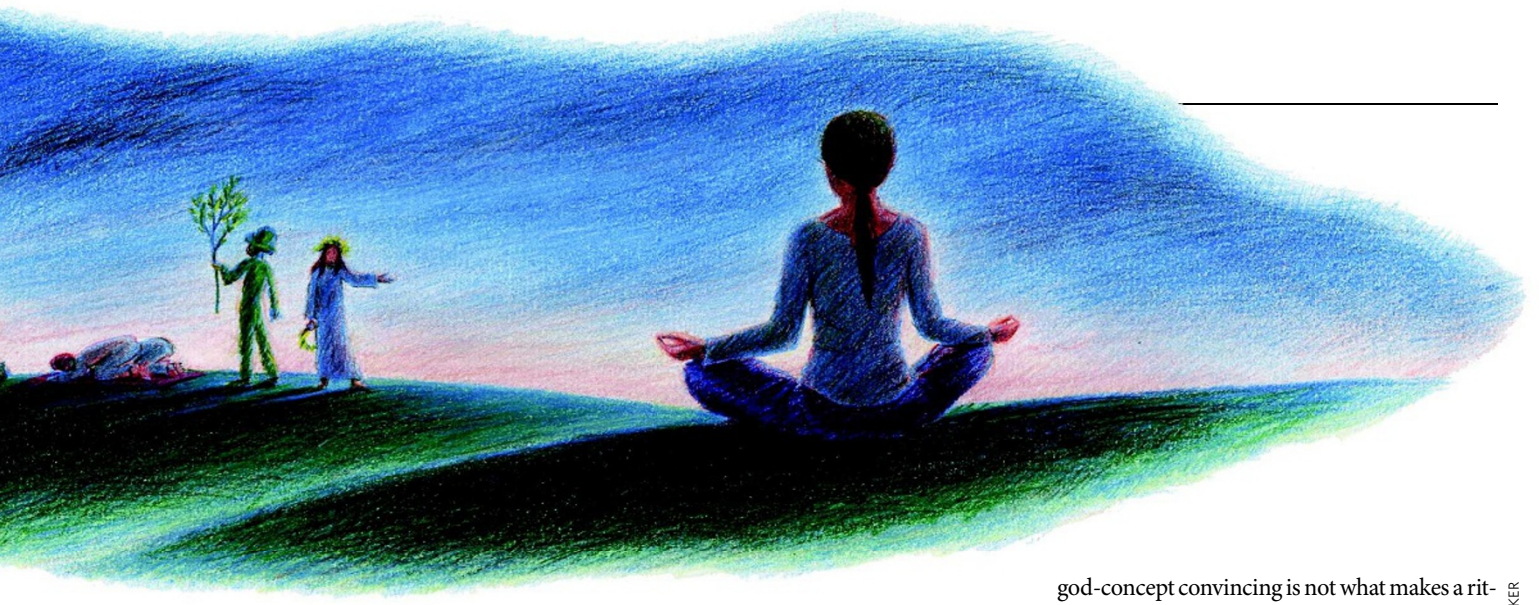
Humans also tend to entertain social relations with these and other non-physical agents, even from a very young age. Unlike other social animals, humans are very good at establishing and maintaining relations with agents beyond their physical presence; social hierarchies and coalitions, for instance, include temporarily absent members. This goes even further. From childhood, humans form enduring, stable and important social relationships with fictional characters, imaginary friends, deceased relatives, unseen heroes and fantasized mates. Indeed, the extraordinary social skills of humans, compared with other primates, may be honed by constant practice with imagined or absent partners.

It is a small step from having this capacity to bond with non-physical agents to conceptualizing spirits, dead ancestors and gods, who are neither visible nor tangible, yet are socially involved. This may explain why, in most cultures, at least some of the superhuman agents that people believe in have moral concerns. Those agents are often described as having complete access only to morally relevant actions. Experiments show that it is much more natural to think "the gods know that I stole this money" than "the gods know that I had porridge for breakfast".

In addition, the neurophysiology of compulsive behaviour in humans and other animals







is beginning to shed light on religious rituals. These behaviours include stereotyped, highly repetitive actions that participants feel they must do, even though most have no clear, observable results, such as striking the chest three times while repeating a set formula. Ritualized behaviour is also seen in patients with obsessive-compulsive disorders and in the routines of young children. In these contexts, rituals are generally associated with thoughts about pollution and purification, danger and protection, the required use of particular colours or numbers or the need to construct a safe and ordered environment.

We now know that human brains have a set of security and precaution networks dedicated to preventing potential hazards such as predation or contamination. These networks trigger specific behaviours such as washing and checking one's environment. When the systems go into overdrive they produce obsessive-compulsive pathology. Religious statements about purity, pollution, the hidden danger of lurking devils, may also activate these networks and make ritual precautions (cleansing, checking, delimiting a sacred space) intuitively appealing.

Finally, studies of social and evolutionary psychology demonstrate a specifically human coalitional capacity, which has an impact on religion. Humans are unique among animals in maintaining large, stable coalitions of unrelated individuals, strongly bonded by mutual trust. Humans evolved the cognitive tools to achieve this. They know how to gauge others' reliability. They can recall episodes of interaction and infer what people's characters are like. They can emit and detect costly, hard-to-fake signals of commitment.

This coalitional psychology is involved in the dynamics of public religious commitment. When people proclaim their adherence to a particular faith, they subscribe to claims for which there is no evidence, and

that would be taken as obviously wrong or ridiculous in other religious groups. This signals a willingness to embrace the group's particular norm for no other reason than that it is, precisely, the group's norm.

### Cognitive cache

So is religion an adaptation or a by-product of our evolution? Perhaps one day we will find compelling evidence that a capacity for religious thoughts, rather than 'religion' in the modern form of socio-political institutions, contributed to fitness in ancestral times. For the time being, the data support a more modest conclusion: religious thoughts seem to be an emergent property of our standard cognitive capacities.

Religious concepts and activities hijack our cognitive resources, as do music, visual art, cuisine, politics, economic institutions and fashion. This hijacking occurs simply because religion provides some form of what psychologists would call super stimuli. Just as visual art is more symmetrical and its colours more saturated than what is generally found in nature, religious agents are highly simplified versions of absent human agents, and religious rituals are highly stylized versions of precautionary procedures. Hijacking also occurs because religions facilitate the expression of certain behaviours. This is the case for commitment to a group, which is made all the more credible when it is phrased as the acceptance of bizarre or non-obvious beliefs.

We should not try to pinpoint the unique origin of religious belief, because there is no unique domain for religion in human minds. Different cognitive systems handle representations of supernatural agents, of ritualized behaviours, of group commitment and so on, just as colour and shape are handled by different parts of the visual system. In other words, what makes a

god-concept convincing is not what makes a ritual intuitively compelling or what makes a moral norm self-evident. Most modern, organized religions present themselves as a package that integrates all these disparate elements (ritual, morality, metaphysics, social identity) into one consistent doctrine and practice. But this is pure advertising. These domains remain separated in human cognition. The evidence shows that the mind has no single belief network, but myriad distinct networks that contribute to making religious claims quite natural to many people.

The findings emerging from this cognitive-evolutionary approach challenge two central tenets of most established religions. First, the notion that their particular creed differs from all other (supposedly misguided) faiths; second, that it is only because of extraordinary events or the actual presence of supernatural agents that religious ideas have taken shape. On the contrary, we now know that all versions of religion are based on very similar tacit assumptions, and that all it takes to imagine supernatural agents are normal human minds processing information in the most natural way.

Knowing, even accepting these conclusions is unlikely to undermine religious commitment. Some form of religious thinking seems to be

the path of least resistance for our cognitive systems. By contrast, disbelief is generally the result of deliberate, effortful work against our natural cognitive dispositions — hardly the easiest ideology to propagate. ■

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See <http://tinyurl.com/4f84wm> for further reading and Editorial, page 1007. For more on Being Human, see [www.nature.com/nature/focus/beinghuman](http://www.nature.com/nature/focus/beinghuman).