THE NEW SCIENCE OF RELIGION AND WHAT IT MIGHT MEAN FOR FAITH

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Incorrigible religiosity

Human beings are incorrigibly and promiscuously religious. The belief in supernatural agents—gods, angels, demons, souls, spirits, and their ilk—is cross-culturally and historically ubiquitous. As far as we know, in all times and in all places, people have believed in such beings; they have worshipped them, often at great cost, sometimes perversely and perplexingly so. Gods are evidently terribly inconvenient things in which to believe. They often require risky rituals, including onerous pilgrimages and ecstatic acts of self-mutilation; they often mandate material sacrifices, from tithes and taxes to the mass slaughtering of livestock; they often demand deprivative devotion, such as abstinence from food and sex. Furthermore, such costs are neither phenomena of a primitive past, nor statistically abnormal aberrations.

Every 12 years, millions of Hindus from all over the world gather in India for the Maha Kumbh Mela pilgrimage. In 2001, 70 million people showed up, purportedly making it the largest gathering of people in history. Every year, three million Muslims undertake the annual Hajj pilgrimage to Mecca. These great pilgrimages come at proportionally great individual and institutional cost and risk. Even with the availability of commercial travel options, they are heavily energy- and resource-intensive endeavours. Furthermore, they pose enormous health risks, especially from bacterial and viral infection; some pilgrims even get trampled to death by fellow worshippers. Striking closer to home, Christians, too, undertake such pilgrimages, albeit at smaller scales and to multiple locations—travelling around the world, visiting the Vatican and Lourdes and the Holy Land, Israel. Granted, the life of the urban Western Christian seems respectably bourgeois, and if so, they are the anomalies; but not even we are exempt from seemingly senseless sacrifices. We too give up our material resources, with our weekly tithes and regular trips to Christian bookstores. Besides money, we give up our time and effort, attending church services and seemingly endless and interminable committee meetings. We give up reproductive opportunities—particularly perplexing from an evolutionary perspective—by abstaining temporarily and, in some cases, even remaining permanently celibate. Of course, our sacrifices may seem mundane to us, but our attempts to please or appease our god would appear peculiar to outsiders looking in, just as we find incorrigibly religious? Why is religion so pervasive, given the internally incurred and externally-imposed costs associated with it? Everyone—lay people and scholars alike—seems to have pet theories about this; the history of ideas is replete with attempted explanations of religion. But these ideas have largely remained speculative and untested until the last decade and a half. More recently, there have been concerted inter-disciplinary attempts—among psychologists, anthropologists, biologists, historians, religious studies scholars, and philosophers—to formulate testable theories about the psychological and evolutionary

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underpinnings of religious affect, belief, and behaviour. As it is the job of science to bring order to oddity, the aim of this nascent ‘cognitive science of religion’ (CSR) is to explain the puzzling set of phenomena we call ‘religion’. Of course, talk of ‘explaining religion’ is presumptuous hyperbole. Despite the publication of such books as Religion Explained, How Religion Works, and Why Would Anyone Believe in God?, the CSR research programme is far from over. There are still fundamental disagreements among scholars over, for example, whether religion is an evolutionary adaptation or a by-product of evolutionary adaptations. At a more proximate level of analysis, we are only now beginning to uncover the psychological processes behind religious belief and behaviour. However, the last decade or so of inter-disciplinary, piecemeal, and theoretically and methodologically pluralistic research has led to some valuable insights toward this goal of explaining religion. Different researchers are bound to diverge somewhat over what these key insights of the field are, but in my estimation four inter-related ideas stand out: hypersensitive agency detection, theory of mind, minimal counterintuitiveness, and inferential richness.

Seeing agents everywhere
We see faces in clouds, and hear voices in the wind; we believe that our pets have rich mental and emotional lives and behave as though our computers and vending machines are sentient, even accusing them of malice and incompetence. We are, in the jargon, hypersensitive detectors of agents. This simply refers to our ability and tendency—which we share with many, many other species—to quickly infer the presence of self-directed, volitional beings in our proximity. This tendency is thought to be ‘hypersensitive’ because it doesn’t take much for us to think that there’s some living thing—a person or animal, perhaps—nearby; the creaking of a house, the snapping of a twig, the rustling of a boulder for a bear than a bear for a boulder; the former error merely leads to the unnecessary expenditure of energy as one runs away from a harmless rock, but the latter may lead to death by mauling and mastication. And so, we readily infer agency from sparse information. But that’s not all, we also readily attribute mental states to the agents we detect. We make sense of their behaviours by reasoning—consciously or otherwise—about their beliefs and desires. Again, that this tendency to infer mental states from little bits of behavioural information—such as facial expressions, tone of voice, and words and actions of various other kinds—is supremely useful is undeniable, as anyone familiar with autism can attest. To have, as we certainly do, a theory of mind enables us to engage in such crucial human activities as conversation, commerce, and courtship.

So, we see agents everywhere, and as a by-product, we see supernatural agents everywhere. It is not difficult to see how this works. Gods are born—in our interaction; that lead us to see faces in clouds and hear voices in the wind; that lead us to believe that our pets have rich emotional lives and that our computers are out to get us; these cognitive tendencies are also responsible for generating supernatural agent concepts. Put another way, the same tendency that leads us to see art and artefacts as products of a human agent’s beliefs and desires (as opposed to, say, the mindless spashing on of paint by a machine) lead us also to see (rightly or wrongly) crop circles, bacterial flagella, and rainbows as products of supernatural agents’ beliefs and desires. But just having a supernatural agent concept—an invisible person, for example—is a long way from a deity to which we would sacrifice our possessions and even our lives. Individual people hearing voices in the wind, does not a religion make. Time and time again, stories about gods have spread to dozens, hundreds, thousands, and even millions of people, but what makes these stories so memorable and transmissible?
Spreading the word
For starters, these stories are interesting (and we will look closer at what being ‘interesting’ means in a moment), without being bizarre. The technical term for this is that they are ‘minimally counterintuitive’. Cross-cultural anthropological and psychological research strongly suggests that all human beings share some basic, unreflective, intuitive ‘beliefs’ about different classes of things like physical objects and animals and persons. I say ‘beliefs’ in scare quotes, because these are not necessarily beliefs that are consciously held or propositionally formulated in the way that we usually suppose. We ‘believe’, for example, that multiple physical objects cannot share space; ergo, even very young children are surprised to see physical objects passing through one another. That violates our folk physics. Similarly, we ‘believe’ that animals produce like offspring; we ‘believe’ this even when it comes to animals we know very little about. So, as cross-cultural research has consistently found, even very young children readily infer information about an animal’s parents from facts about their offspring and vice versa. In other words, we would be surprised to see puppies hatching out of chickens’ eggs. Now, such violations are what make a concept counterintuitive.

A minimally counterintuitive concept, therefore, is just one that minimally violates our basic intuitions. This implies, of course, that something can be more or less counterintuitive. A chicken that lays eggs with puppies in them, but is otherwise normal, violates a single categorical expectation; a chicken that can walk through walls and also happens to lay eggs with puppies in them (but is otherwise normal) violates two, and is thus more counterintuitive. Taking it a few steps further, a chicken that is made of metal, walks through walls, speaks fluent Dutch, grants wishes, turns into a werewolf during full moons, and lays eggs with puppies in them (but is otherwise normal) violates many expectations, and is very counterintuitive indeed. Perhaps unsurprisingly, even if such maximally counterintuitive beings were just as plausible, they are far less memorable (and therefore transmissible, for we have to be able to remember a story in order to retell it) than so-called minimally or optimally counterintuitive beings that only violate a few expectations.

More interestingly, recent research suggests that minimally counterintuitive concepts are also more memorable than simply intuitive concepts. This might seem obvious, but the consensus from the psychological research used to be that familiarity conferred massive memory advantages, and since intuitive concepts are more familiar than minimally counterintuitive ones, they should be more memorable. As it turns out, the interestingness derived from violations of our basic intuitions confer even greater memory hooks. But what has this got to do with gods?

Gods, or at least culturally successful gods, are often—so it is claimed—minimally counterintuitive agents. Ghosts and other spirits, for instance, are just like regular persons, except that they are often invisible and immaterial in a way that would allow them to walk through walls. And the gods of the world religions are just powerful spirits. Now, this may not be true if you ask theologians in their ivory towers, but there is now increasing evidence that even religious intellectuals constantly fall back on crude, anthropomorphic conceptions of God.

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Relevance: From memory to belief
Minimal counterintuitiveness is one aspect of what it means for a concept to be interesting (but not bizarre). The fact
that gods are minimally countertouitive agents might help to explain why they are
so memorable and transmissible, but not
why they’re believed in and worshipped.
After all, there are many conceivable
minimally countertouitive agents that
do not occur in religious traditions.
Sentient, talking trees occur in religious
mythologies, but rarely do we get silent,
inanimate humans (except insofar as
they are made thus by angry gods).
Disinterested deities have been speculated
about in religious philosophies and
systematic theologies (e.g. Enlightenment-
style deism), but have never really caught
on. And there’s never been a religion
based around a god who lives in an
alternate reality, who has never had and

existential concerns—for example, the
need for meaning⁶ and the fear of death⁷
—can increase religious belief, at least at
an implicit level, even among those who
purport to be non- or anti-religious.
Indeed, such concerns even increase
religious belief in foreign gods.⁸ To wit,
humans readily believe in gods partly
because we find inferentially rich concepts
plausible, and god concepts are
inferentially rich concepts.
All together, these tendencies—to
detect agents and infer mentation, to
remember and transmit minimally
countertouitive concepts, and to believe
in inferentially rich ideas—go quite a
long way to explaining the ubiquity and
nature of religion.¹⁹

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never will have anything to do with
anything in our own world. Irrelevant
beings don’t become gods, only relevantly
interesting ones do.
This aspect of what it means for gods
to be interesting is captured by what
researchers call ‘inferential richness’,
which not only makes concepts more
memorable for transmission, but also
makes them more believable.¹⁵ A concept
is inferentially rich if it can be invoked
usefully in many different domains, and
especially if these domains are subjectively
emotionally significant to us. Sex, death,
and morality are clear examples of such
existentially significant domains, and so
it is no surprise that gods are often deeply
concerned with such matters. The
concept of an invisible person (e.g., an
ancestral spirit), for example, can easily
be invoked as a moral policing agent;
the concept of a powerful invisible
person (e.g. a god) can additionally be
invoked to explain natural phenomena
and appealed to for help against aversive
events, such as crop failure and illness.

So, relevance matters; relevance
motivates belief. Recent research in
experimental psychology has shown that

Is religion (un)reasonable?
The scientific investigation of religious
belief is still considered, in some circles,
to be taboo, and it is not difficult to see
why. Attempts to explain religion look
suspiciously like attempts to explain
religion away. They seem to compete with
and contradict traditional accounts of
religious belief, in which Yahweh speaks
directly to Moses or Allah speaks through
the angel Jibrel to Muhammad. But we
should not be too quick to leap to such
conclusions.

We should be careful not to confuse
explanation with refutation.
It is uncontroversial that a
successful explanation of
how visual perception works
does not call into question
the accuracy of our visual
experiences. To think
otherwise is clearly absurd.
This move, from ‘explaining’
directly to ‘explaining away’
is illegitimate regardless of
whether the phenomenon in
question is visual perception
or religious belief. So, that’s
the first and easiest step: to
explain is not, just by virtue of
explaining, to explain away.

That said, contemporary theories of
religious belief are interestingly different
from well-accepted theories of visual
perception: unlike theories of visual
perception, which refer to light bouncing
off the objects being perceived in our
eyes and so forth, contemporary
explanations of religious belief do not
refer at all to the objects of religious
belief: gods. The suggestion is that we
would believe in gods regardless of
whether they actually existed; to wit, the
existence of gods is not necessary for the
widespread worship of gods. Like Laplace,
the cognitive scientist of religion has no
need for the God hypothesis.²⁰

There are at least two ways of
responding to this charge of redundancy.
The first is to point out that while CSR
can explain why we have a predisposition
to believe in gods, it does not necessarily
explain any particular individual’s beliefs.
While this is a valid point, it is also trivial.
Scientific theories are rarely absolute
and exhaustive, and psychological
theories about religion are no exception.
It is universally acknowledged that to
explain any particular phenomenon—be
it a large scale natural disaster or a single
individual’s religious beliefs—requires
multiple theories that deal with various
different aspects of the phenomenon in
question. But this is beside the point.
Contemporary psychological science
shows us how religious beliefs can be
formed, maintained, and transmitted

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without special divine intervention just as contemporary meteorological science shows us how thunderstorms can occur without special divine intervention. Of course, perhaps some thunderstorms are special acts of divine intervention, but one would have to make one’s case that this was so. Similarly, if we accept that, all else being equal, religious beliefs can arise without divine intervention, then we have to provide positive arguments for the belief that in our case, our religious beliefs (or, perhaps more importantly, those of our prophetic forebears) are products of divine self-revelation. That is, we have to argue that things are not all equal, such that a miraculous explanation is required.

The second response is to argue that while the psychological and evolutionary explanations reveal the proximate mechanisms by which religious beliefs are formed, the ultimate cause of our religious beliefs—indeed, the ultimate cause of all things—is divine. This is, of course, consistent with Christian beliefs about creation: that it is utterly contingent and continuously reliant upon God. But consistency with Christian doctrine is insufficient if there is no reason to believe in them. So, this second response requires positive arguments for the belief in a God who is the ultimate cause of all things.

The cognitive science of religion does not ... have very much to say about the truth or falsity, reasonableness or irrationality of religious belief.

Watch this space

The cognitive science of religion is exciting, not just because its subject matter has been shrouded in taboo for centuries, but also because it is still in its infancy and there is still so much to discover. The theories retold here are severely underdetermined by data, and may well be proven false—overturned by other theories yet to be conceived. As is often the case, the challenges are proportional to the promise, not just because empirical research on people’s cherished beliefs is difficult (though it is!), but also because we are constantly faced with philosophical and theological issues. As such, interdisciplinary engagement and intellectual humility are necessary, if we are to avoid pitfalls in the road between science and religion.