

Religious Experience

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Introduction

Religious experiences seem to be universal and powerful. Even the neuroscientist Persinger, himself a skeptic, comments that “Reports of ... profound personal relationships with gods ... are extraordinarily frequent behaviors. One brief episode of the God Experience can change the life of an individual” (Persinger 1987, ix).

People from all walks of life still claim to feel God’s presence, or have an experience of unity with the Whole. People who have such mystical experiences may not be mystics, or members of religious organizations. Those experiences just come to them spontaneously, and either bring an awareness of their true selves and the meaning of life (see MEANING OF LIFE) or affirm their unique value. This religious awareness has led to the emergence of various religious cultures, which have been the backbone of different civilizations, providing society with its coherence and values.

On the one hand, religious awareness seems something natural to humanity. On the other hand, it has been regarded as a byproduct of evolution, or a virus of the mind. Especially in contemporary society, religious experience is viewed with suspicion, and subjected to various kinds of naturalistic explanation (see NATURALISM). How many kinds of religious experience are there? Can naturalistic explanations successfully account for them? Can religious experiences provide true insights into reality, or are they just illusions? There are a number of contemporary scholars who argue that we have good reasons to trust the veridicality of religious experiences (e.g. Gellman 1997), but we cannot consider this argument from religious experience in this entry. However, the discussions about naturalistic explanations below are relevant to the evaluation of alleged defeaters to this argument.

The concept of religious experience

In this entry *religious experience* refers to an experience which the subject takes to be an experience of God, or some supernatural being or state of affairs. (The word “God” roughly means the supremely perfect being who is all-powerful, all-loving, and the personal ground of being.) Such an experience is *veridical* if what the subject takes to be the object of his experience actually exists, is present, and causes him to have that experience in an appropriate way. The claim that “S has an experience of God” does not entail “God exists.”

The characteristic of being “noetic” or relating to the intellect is very important for religious experience. Many religious experiences convey a strong sense of reality. The Online Survey of Spiritual Experiences by Newberg and Waldman from 2005

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to 2007 received 300 detailed accounts of religious experience. “At the time of the experience, 63 percent said that it was more real than their normal experience of reality” (Newberg and Waldman 2009, 74).

Varieties of religious experience

The religious experiences of humankind are rich and multifarious. Scholars have produced many different typologies of religious experience, and the following is only one of them:

- 1 Theistic experience (TE): a noetic experience whose intentional object is God, the personal and supremely perfect creator of the world, e.g. numinous experience and theistic mysticism.
- 2 Ecstasy and peak experience (Abraham Maslow).
- 3 Encounter of the Light Being in a near-death experience.
- 4 Experience of contingency: a spontaneous feeling that the world is not ultimate and is somehow dependent on Something beyond.
- 5 Experience of design: experience of being struck by the beauty and intricacy of the natural order and the feeling that this order is ultimately due to Intelligence.
- 6 Nature mysticism, extrovertive mysticism, or cosmic consciousness: a spontaneous feeling that the universe and oneself are one, usually induced by contemplation of nature but sometimes induced by drugs, e.g. mescaline.
- 7 Pure consciousness event (PCE): a pure state of consciousness without *any* intentional object and uncontaminated by any concept. This event should be distinguished from the monistic mystical experience which may include a PCE as a part.
- 8 Monistic mysticism: e.g. the intuitive apprehension that *ātman* is *brahman* and that All is One.
- 9 Experience of *nirvāṇa*: experience of nothingness or no-self as the Ultimate.
- 10 Experience of evil spirit, angels, or departed saints.
- 11 Experience of minor deities: e.g. visions of Kālī, Buddha (see **BUDDHISM**), or Apollo.
- 12 Interpretive religious experience: more or less spontaneous interpretation of an event, say, as God’s action or message but the event can be clearly described without using religious concepts. Experiences of God through answered prayers, guidance, miracles, healing, tongues, synchronicity, etc. are examples.
- 13 Anomalous experiences like extra-sensory perception (ESP), near-death experience (NDE), and so on.

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The challenge of constructivism: Is religious experience *sui generis*?

Introduction to attribution theory of religious experience

Attribution theory is a psychological theory about emotional states. Proudfoot applies this theory to religious experience, and contends that religious experience

is nothing but an interpretation of some special bodily states by the subject. In general, “unmediated experience” is not possible (Proudfoot 1985, 217). “The force of the experience is due to judgments and assumptions” which “are *constitutive* of the experience” (Proudfoot 1985, 214; italics mine). So there is no such thing as religious experience per se, and religious experience has no essence (Proudfoot 1985, 179). “Any bodily changes or feelings may be accounted for in religious terms” (Proudfoot 1985, 107). Those who identify their experiences in religious terms “believe that the best explanation of what has happened to him is a religious one” (Proudfoot 1985, 108). This judgment is made in accordance with the subject’s prior religious framework.

It seems that attribution theory can explain *some* religious experiences, but not all of them. In Hay’s research, he asked the subjects of religious experiences “whether they themselves defined their experience religiously. About two-thirds of them said yes, and when I asked why, about half simply said it was self-evident; they *knew*. Most of the others said that it fitted with their understanding of religion, and *a small number deduced that it must be religious because they could not explain it in any other way*” (Hay 1990, 55–56; italics mine).

Critical assessment of Proudfoot’s attribution theory of religious experience

First, there is the problem of regress. Proudfoot thinks that the “cognitive value of a particular experience can be shown only by constructing the best theory to explain that experience, and not by appeal to its felt quality” (Proudfoot 1985, 63), and that no experience is unmediated. In other words, all experiences are theory-laden. So suppose the cognitive value of a certain experience (E1) is vindicated because it is the best explanation of another experience (E2). But this needs to assume that the cognitive value of E2 has already been vindicated – for this to be true, E2 should also be regarded as the best explanation of yet another experience E3, so on and so forth. So either there is an infinite regress, or we stop somewhere. If there is an infinite regress, it is not clear how the cognitive value of E1 can be vindicated. If we have a stopping point, this will either be some experience (E_n) or some given which is free from interpretations. Since E_n is also through and through interpretations, according to Proudfoot, its cognitive value cannot be vindicated if it is not the best explanation of something else. The alternative way of postulating a given is contrary to Proudfoot’s theory. So both horns seem to be unpalatable for Proudfoot. As a result, the problem of skepticism looms large in this line of reasoning.

In an example often used by Proudfoot, he claims that a religious experience (an experience of the Holy Spirit) is merely the best explanation of a state of arousal. But the state of arousal (the palpitating heart) cannot be the given – the access to the state of arousal is only possible through another experience, which should also be regarded as the best explanation available to the subject for yet another experience, and so on. But in practice, Proudfoot seems to take the experience of the palpitating

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heart as an unproblematic stopping point. However, even if we can assume the existence of some throbbing sensations, the idea of “a palpitating heart” is theoretical and derives from our prior framework of commonsense realism – we automatically attribute the cause of those sensations to a beating heart. But in Proudfoot’s theory of experience, it is not clear how we can justify it.

Second, the problem of phenomenological inadequacy. The attribution theory proposes that a religious experience is constituted by the best explanation of a separate state of arousal. So there is a kind of inferential process going on, but judging from the phenomenological reports of many religious experiences, there is no conscious inference involved. Proudfoot’s theory is contradicted by a lot of *prima facie* data. For example, William Barnard has criticized Proudfoot’s treatment of Ratisbonne’s vision of Virgin Mary as “a severe impoverishment, if not outright distortion of the experience’s phenomenology ... If we remain faithful to the phenomenology of the experience, it is clear that Ratisbonne’s experience is noetic ... that content comes with the experience itself; it is not added on by Ratisbonne” (Barnard 1997, 106–107).

Third, the problem of counter-examples. If religious experiences are entirely constructed out of previous beliefs, then religious experiences should not contradict subjects’ prior frameworks. However, many religious experiences are not like this:

- Religious experiences can cause changes of prior religious beliefs. According to the survey by Newberg and Waldman, “many people reported that their spiritual experiences altered their ... traditional ideas about God ... half of the people changed their religious orientation as a result of such experiences” (Newberg and Waldman 2009, 80).
- Religious conversions show repeatedly how the unexpected may happen, and the person is compelled to yield to the experience against his original belief.
- While religious experiences may seem very real to the subject, one can in fact remain skeptical about one’s experience. For Richard Jefferies, a kind of nature mysticism “*seemed* absolutely real *to him*, but in the sober light of rational reflection” he believed that the experiences did not correspond to realities disclosed by science (Zaehner 1972, 50–51; italics mine).
- According to a survey of religious experience in Britain (Hay and Morisy 1978), among self-classified agnostics and atheists, 23–24% of them claimed to have had religious experiences.

Conclusion

The attribution theory may be applicable to a certain percentage of religious experiences, mainly interpretive religious experiences, but does not seem to be an adequate comprehensive theory of religious experience.

Religious experience and human nature

Religious experience in the contemporary world

Religious experience in the West

Casanova points out that with the exception of former East Germany and the Czech Republic, “the majority of Europeans in every other country still affirm ‘belief in God.’” As for those who have religious experiences, the data are: Former East Germany (10%), Ireland (13%), Poland (16%), and Italy (31%) (Casanova 2009, 208–209). The above suggests a largely secular Europe with only pockets of spirituality. However, the research of Alister Hardy Research Centre (AHRC) suggests a different picture. They have used the Hardy question in surveys: “Do you feel that you have ever been aware of or influenced by a presence or a power, whether you call it God or not, which is different from your everyday self?” The statistics for the UK are as follow:

- David Hay and Ann Morisy in 1978: positive response rate to the Hardy question 36%.
- 1986: positive response rate rose to 48%. If one includes anomalous experiences like premonition, the total rises to two-thirds (Hay 1990, 57).
- For spiritual experience, the proportion is as high as 76%: the “BBC’s ‘Soul of Britain’ survey in 2000 found that 76% of the population ... had some kind of spiritual experience” (Hick 2006, 17).

We also need to consider the cultural taboo on admitting to religious experience. So the statistics show that even in a contemporary secular society like the UK, the proportion of people having religious experience is not low. Similar surveys in America confirm this picture:

- National Opinion Research Centre (NORC) survey in 1973: 35% of American adults claimed to have had a religious experience (Hay 1990, 69).
- 1990 Gallup poll: 54% answered yes to the Hardy question.
- 2005 *Newsweek*/Beliefnet poll: “57 percent of Americans surveyed said that spirituality was ‘very important’” (Beauregard and O’Leary 2007, 202).
- Similar results were obtained elsewhere in the English-speaking world: “44% in Australia (1983), and 44% in Canada (1990)” (Hawker 2000, 87).

Religious experience in Asia and Chinese societies

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In Turkey, a predominantly Muslim (see ISLAM) country, a similar national survey was done by Cafer Yaran of Istanbul University in 2006–2007. Around 63.7% of respondents had some form of religious experience (Rankin 2008, 237). In South India (2006), 68.4% of the people interviewed had religious experience (Rankin 2008, 238).

In China, a survey was carried out between 2004 and 2008 using the Hardy question. It found that a total of 56.7% of respondents had had some type of religious

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experience. This “level of religiosity reported” was surprising (Yao and Badham 2007, 200–201). Among these respondents, 25.7% had experienced the Will of heaven, and 6.1% the Christian (see CHRISTIANITY) God (Yao and Badham 2007, 200–201). Others had experiences of ancestors, the BUDDHA, the God of fortune, ghosts, and the Dao (see DAODEJING AND LAOZI) or Qi. Since 1949, the Chinese people have been subject to atheistic indoctrination and severe suppression of religion. Apparently the basic human response to the transcendent dimension had survived.

Concerning the self-declared religious adherence of the interviewees, 8.7% were religious, 26.1% firm atheists, and the rest nonreligious (Yao and Badham 2007, 153). Interestingly, among the nonreligious, “10.1 % ... agree that there exist gods and spirits ... [and] 19.1% acknowledge a communion between humans and gods ... More than half of them accept that ‘husband-wife, relatives, and friends are all a result of what one did in the previous life’” (Yao and Badham 2007, 163). Among the firm atheists (see ATHEISM), many “reported ... religious experiences and said that they were under the influence of some mysterious powers ... 15.9% of the atheists were capable of experiencing the mighty power of the sacred” (Yao and Badham 2007, 170).

This ground-breaking survey on religious experience has been followed by a similar one in Taiwan – the Religious Experience Survey in Taiwan (REST) in 2008–2009. The Taiwanese population is largely religious – only 15.4% claim to have no religious affiliation; among the rest, we have believers in folk religion (38.3%), Buddhists (18.6%), Daoists (13.2%), and Christians (5%) (Tsai 2013, 18). Almost everyone in Taiwan worships or prays, and the “majority of Taiwanese people believe ... in the existence of deities and the power of supernatural entities” (Tsai 2013, 24, 29). They have various kinds of religious experience: fate or fortune (54.8%), karma (47.8%), Buddha or bodhisattvas (40.7%), Mandate or Will of Heaven (38.5%), Qi (27.8%), Dao or heavenly Dao (21%), ghosts or spirits (18.7%), God, Jesus (see JESUS OF NAZARETH), the Holy Spirit, or the Virgin Mary (12.5%) (Tsai 2013, 30). The dominant types belong to the Chinese religions. However, those who agree to “God arranges everything; follow God’s will” amount to 47.1%.

The spiritual nature of humanity

Hardy on the divine flame

Alister Hardy believes in the spiritual nature of humanity. Let us call this the “spiritual nature thesis” (SNT). For Hardy, the potential of making contact with a reality beyond the self is something biologically real – the divine flame within us. That was why he set up the Religious Experience Research Unit at Manchester College, Oxford, in 1969. This was later renamed the Alister Hardy Research Centre (AHRC), and its headquarters moved to the University of Wales, Lampeter, in 2002.

When it was first established, AHRC mainly carried out qualitative research. Then, in the 1970s, it started to use the quantitative method. The results were the studies by Hay, Hay, and Morisy, and the recent surveys in China and Taiwan. Hardy was convinced that the spiritual nature of man is shown to be a reality. True, survey data

still suggest that around half of modern people do not have any religious experience. This seems to contradict the SNT. However, the SNT is only saying that the potential for religious experience is universal, but whether this potential is realized still depends on contingent factors. As Hamer suggests, spirituality is analogical to “the interplay between nature and nurture, even among animals. Consider the song of the white-crowned sparrow ... That the song is at least partly innate can be seen ... [from the existence of] a dedicated brain circuit for song.” However, “it requires the environmental clue of being able to hear its own voice to be triggered” (Hamer 2004, 7–8).

So, given the widespread taboo concerning religion, and the prevalence of scientism, it is already surprising to find that 35–48% of secular people have had a religious experience, and over 60% of them have had a spiritual experience. Moreover, in a place like Taiwan, which is not heavily influenced by the Enlightenment or atheist indoctrination, the degree of religiosity is quite high. Patrick McNamara, a neurologist at Boston University’s School of Medicine, after reviewing the research data, says “religiousness is one of the innate capacities of human beings” (Hagerty 2009, 100–101).

Positive effects of religious experience (PERE)

Religiosity and spirituality can have positive and beneficial effects on human life, and many studies seem to confirm this conclusion. These effects do not only include greater psychological wellbeing or reduced morbidity, but also better physical health and reduced mortality. Some explanations of religious experience would suggest that religious experiences are basically pathological. However, after a critical survey of studies concerning schizophrenia, manic disorder, depression, anxiety, and dissociation, a psychologist concludes that “there is little evidence that religious factors can play a *causal* role in mental disorder” (Lowenthal 2007, 140). PERE alone does not demonstrate the veridicality of religious experience (see Persinger 1987, 153). However, it seems to lend support to the SNT.

Naturalistic explanations of religious experience

How to evaluate naturalistic explanations?

The most common objection to religious experience is perhaps the claim that religious experiences can be explained naturalistically, without any need for reference to transcendental objects. A parallel example is that by appealing to jaundice, we can explain one’s yellow wall experience though the wall is in fact white. Given the jaundice explanation, it is reasonable for us not to trust one’s yellow wall experience. Why should it be any different with the God-experient’s belief in the face of a naturalistic explanation (NE)?

A naturalistic explanation is a *non-epistemic explanation* of religious experiences which does not assume the existence of the experience’s intentional object (e.g. God). There are four main types of naturalistic explanations: psychological, sociological, neurophysiological, and evolutionary explanations (this is often coupled

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with COGNITIVE SCIENCE OF RELIGION). Many critics assume that once such NEs can be specified, all the evidential force of religious experiences are annulled.

Criteria for a successful non-epistemic explanation

Suppose a person, S, claims to see a yellow wall, and another person, A, wants to challenge his claim. Firstly, it is not enough to *postulate* jaundice to explain S's experience. If the postulation of jaundice is allowed, then the evil demon hypothesis should also be allowed. Secondly, the theory must posit causally *sufficient* conditions instead of merely causally necessary conditions. "Having properly functioning eyes" helps to explain "yellow wall perception," yet obviously this "explanation" can't cancel the evidential force of the perception. Only an explanation which accounts fully for the perception *even if no yellow wall exists* can do that job. Thirdly, even if the jaundice theory can explain many experiences when *the subjects are known to be jaundiced*, it does not entail that this explanation will hold true in S's perception. We need *independent* evidence to think that S is jaundiced other than his yellow wall perception. Otherwise all normal perceptions can be explained away as hallucinations caused by drugs.

A non-epistemic explanation is called *evidence-canceling* if and only if it is such that if it were true of an experience, E, E's *prima facie* evidential force would be annulled. So *for a non-epistemic explanation of E to be a successful defeater, it has to be both true and evidence-canceling*. However, when is a non-epistemic explanation evidence-canceling? Merely specifying causally sufficient conditions for E is not enough. It is in principle possible, for any experience, to specify a set of neurophysiological conditions sufficient for its occurrence. So, if specifying causally sufficient conditions for E is enough for evidence-canceling, it follows that the evidential force of *all* our experiences will be cancelled. What more is needed then? Causal pre-emption. Let us revisit the jaundice explanation. Apart from its specifying causally sufficient conditions, it is evidence-canceling only because we know that if a causal chain is initiated by jaundice, the yellow wall is not plausibly to be inserted either in the causal chain leading to the jaundice, or the causal chain leading from jaundice to the yellow wall experience. So, the jaundice explanation *causally pre-empts* the alleged object of perception, the yellow wall. This also explains why a neurophysiological explanation of the yellow wall experience may not be evidence-canceling: the set of neurophysiological conditions does not causally pre-empt the yellow wall. The yellow wall can comfortably feature in a causal chain leading to that set of neurophysiological conditions. Let us propose this analysis:

A non-epistemic explanation of E is evidence-canceling iff (i) it specifies causally sufficient conditions for E; (ii) the conditions causally pre-empt O, the intentional object of E.

Suppose this criterion is roughly correct. How promising is the project of naturalistic explanation? We will concentrate on the case of theistic experiences.

The prospect of naturalistic explanations of theistic experience

Which naturalistic explanations are evidence-canceling?

A non-evidence-canceling naturalistic explanation is not really in competition with a theistic explanation: even if it is true, it can be regarded as some enabling natural conditions for theistic experience or seen as part of the causal chain leading from God to the theistic experience.

Suppose one day a completed neurophysiology discovers a certain psychophysical law, which states that a theistic experience will occur iff a certain brain state is instantiated in a person. The instantiation of that brain state would not be evidence-canceling just as psychophysical laws governing sense experiences would not be evidence-canceling: they do not causally pre-empt their respective intentional objects. Similarly, the psychological or sociological mechanisms postulated by naturalistic explanations will also fail to causally pre-empt the action of God. Therefore, “it is not clear that the theistic explanation is competitive with various social science explanations ... Any such explanation may provide only a contributing condition to E’s occurrence; there is little if any reason to think it provides more. If this is correct, then these explanations will not be evidence-canceling” (Yandell 1984, 37).

Furthermore, a good naturalistic explanation should satisfy the Independent Support Criterion, i.e. the NE’s premises can be established independently. For example, the Freudian explanation postulates the mechanism of wish-fulfilment to explain a religious experience. To substantiate it, we need to have independent knowledge of the existence of the wish-fulfilment mechanism. We also need some reasons to suppose this mechanism is *actually operative* on that experience. But, in general, there is no way of detecting the actual operation of the wish-fulfilment mechanism.

Religious experience and neuroscience

What about neurological explanations of religious experience?

Michael Persinger’s “God Helmet”

Michael Persinger of Laurentian University in Canada is famous for his “God Helmet,” connected with electromagnets that stimulate the brain’s temporal lobes with magnetic fields. He claims that this instrument can make many people have religious experiences: “God Experiences are products of the human brain [and] ... are predicted to be correlated with transient electrical instabilities within the temporal lobe of human brain ... [these are called] temporal lobe transients (TLTs) ... Productions of TLTs create an intense sense of meaningfulness, profundity, and conviction” (Persinger 1987, x), and these are taken to be religious experiences. “Persinger claimed that fully 80 percent of the 2,000 or so subjects who have donned the God helmet report feeling a sensed presence” (Hagerty 2009, 136).

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Problems with Persinger's theory

A major problem is that Persinger's results couldn't be replicated by a team of Swedish scientists led by Granqvist, who "did not find that the application of weak complex magnetic fields caused the sensed presence of a sentient being, or any of the other somatosensory experiences described by Persinger" (Granqvist et al. 2010, 372). There is also an alternative explanation of Persinger's results: "suggestibility."

The neurotheology of Andrew Newberg and Eugene D'Aquili

Andrew Newberg is a radiologist and the director of the Center for Spirituality and the Mind at the University of Pennsylvania, and Eugene D'Aquili was a professor of psychiatry at the same university. They explain mystical states as the effect of "deafferentation" – the cutting off of neural input into various structures of the nervous system. As a result, an experience of "absolute unitary being" occurs.

On 7 May 2001, the cover story of *Newsweek* was "God and the Brain: How We're Wired for Spirituality." The orientation region in our brain requires sensory input to do its calculus.

"If you block sensory inputs to this region, as you do during the intense concentration of meditation, you prevent the brain from forming the distinction between self and not-self," says Newberg. With no information from the senses arriving, the left orientation area cannot find any boundary between the self and the world. The brain seems to have no choice but "to perceive the self as endless and intimately interwoven with everyone and everything" (Begley 2001, 41)

Newberg and D'Aquili's theory is based on their "scanning [of] the brains of eight American Buddhists practicing ... Tibetan meditation and three Franciscan nuns engaged in contemplative prayer. Most of the Buddhists and nuns displayed increased neutral activity in the prefrontal cortex and decreased activity in the posterior superior parietal lobe" (Horgan 2003, 75). They use a technique called single photon emission computed tomography, or SPECT.

Critical evaluation

It should be pointed out that Newberg and D'Aquili themselves do not regard their theory of religious experience as leading to a debunking of religious experience. As Newberg observes, "There is no way to determine whether the neurological changes associated with spiritual experience mean that the brain is *causing* those experiences ... or is instead *perceiving* a spiritual reality" (Begley 2001, 41). The point here is that even if we think that the brain is causing a certain experience, we may still be *perceiving* a reality. This point applies to mundane sense experiences as well as religious experiences. Moreover, Newberg and D'Aquili also ask, "Why should the human brain, which evolved for the very pragmatic purpose of helping us survive, possess such an apparently impractical talent?" (Newberg, D'Aquili, and Rause 2001, 123). So they think that their biology of transcendence (the existence of the neural

basis of religious experience) may well be more congenial to a religious interpretation than to a naturalistic evolutionary explanation (Newberg 2010), where the latter should lead us to expect something more practical or survival-conducive.

For skeptics who want to rely on Newberg and D'Aquili's research, the limitations of this kind of study need to be noted. First, there is the problem of artificiality. We cannot be sure that Newberg's results are really related to deep mystical states rather than just reflecting states of meditation, or that these experiences under the experimental context are really identical to *spontaneous* mystical experiences.

Second, as another neuroscientist objects: "their sample was very small ... Moreover, the researchers did not attempt to analyze and quantify in a rigorous and systematic manner the nuns' subjective experiences." The technology they use, SPECT, is quite poor compared to fMRI (Beauregard and O'Leary 2007, 260).

In fact, different neurological studies yield contradictory results. Some studies contradict Newberg and D'Aquili's results by detecting increased activity in the parietal lobes and decreased activity in the frontal lobes (see Karnath, Farber, and Himmelbach [2001] concerning the orientation region). So, we have two reasons to doubt whether we can generalize their findings. One, it is very insecure to draw sweeping conclusions from several studies, some of them with only modest sample size. Two, their theories need interpretation which cannot be read off directly from the neurological findings. For example, Newberg says that the brain seems to *have no choice* but to perceive the self as endless and interwoven with everything. The idea that "the brain has no choice" is problematic. Moreover, it should be pointed out that "self as endless and interwoven with everything" is a positive, complicated, and bizarre idea. One can assume that Newberg and D'Aquili's neurophysiological description of deafferentation is correct. But when there is no neural input into the nervous system, why can't the brain freely construct some less bizarre ideas (as in a dream), or just become a blank? It is not clear why the brain *has no choice*. It is also personalizing the brain, which in fact cannot choose anything. The physical state of "having no inputs into a certain region of the brain" cannot be equated to a cognitive content of "the self is one with the Whole," nor is it clear how the former causes the latter.

Neurophysiological explanations and the veridicality of religious experiences

What are the epistemic implications of neurophysiological explanations of religious experiences for the veridicality of those experiences? There are three major answers: incompatibilism, mere compatibilism, and positive coherence.

Incompatibilism

Persinger is a standard naturalist who claims that God "is the last illusion that we must overcome" (Hagerty 2009, 141). For him, everything is programmed by brain structure, including *all* experience. Persinger seems to think that if religious



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experiences are products of our brain's construction, then they are also illusory. But if a neurological explanation entails skepticism, then skepticism should be applied to all epistemic claims. In fact, Persinger seems to accept this implication: "There is no absolute good or God; both are creations of the human brain ... The brain was not created; it simply occurs and one of its properties is the God Experience" (Persinger 1987, 138). But it can also be applied to Persinger's experience of scientific research and his reasoning, which are also "creations of the human brain." According to Persinger's "logic," this implies that his own scientific research and reasoning are also unreliable. So his viewpoint is self-defeating.

Mere compatibilism

Neurophysiological explanations are compatible with the veridicality of the religious experiences in question. For religious experiences to be veridical, we only require them to be *ultimately* caused by God or the relevant supernatural reality, and the path of divine causation may include some brain states. However, some intuitions may incline us to the opposite conclusion. Presumably, genuine experience of God should result from a genuine search for God and God's sovereign response. How then can that experience be induced by such a mechanical means as taking a drug? However, it is commonly accepted that God can relate to humans in two ways: special revelation versus general revelation. God's active manifestation can take two forms: special visitation of individuals in their particular contexts, communicating specific messages which are especially fitting in their situations, or making sure that some form of awareness of Himself or spiritual reality is correlated with certain brain states. Let us call the kinds of religious experience produced "specially revelatory experience" and "generally revelatory experience" respectively. Consider the example of voice messages. Most of us have the experience of calling a bank hotline. We also have the common experience of frustration because after pressing so many buttons, we still cannot speak to a real person! Instead we hear voice messages which tell us the procedure for applying for a credit card, etc. Are these auditory experiences veridical? The experience is produced in a mechanical way – whenever a certain number is dialed and certain buttons pressed, you will hear the same message over and over again. In fact, this experience can be controlled and caused to happen by us. Still we can agree that the experience is veridical because the whole mechanism is set up by people who want to convey the correct information to us, and the mechanism is reliable. On the other hand, in some cases we are able to contact a real person who can spontaneously answer our questions apart from conveying the standard message.

Similarly, God can engage spontaneously in real-time interaction with people, and address their specific needs. That may be why so many theistic experiences are in fact not drug-induced. On the other hand, God may have good reasons to record some spiritual messages in our mind/brain. Whenever the correct "hotline" is dialed, these messages will be played. A major researcher on neurotheology, Patrick McNamara, agrees: "Theoretically, if God wanted to communicate with us, then he, She, or It would create a biology that allows us to communicate" (Hagerty 2009, 101).



However, just as the recorded messages on a hotline are mainly the standard stuff which cannot deal with unique situations, it is plausible to think that the messages recorded in our mind/brain should be more standard spiritual truths such as the existence of God or a spiritual/supernatural realm, the unity of all things, and so on. So, the objection to alleged drug-induced divine communication would be much more serious since it is implausible to think that God should have laid down such detailed psychophysical laws specifying special responses to specific personal needs. Speech which addresses unique situations is also too personal and contextual to be reliably produced mechanically. This is further reinforced by the observation that the messages contained in those drug-induced “revelations” tend to be bizarre and conflicting. For example, they may include nightmarish visions, a sense of absolute loneliness, synesthesia, an experience of being eaten alive, and alien pyrotechnics (Horgan 2003, 153, 156, 157, 175, 212). It is indeed doubtful that drug-induced theistic experiences can provide reliable detailed information about God. So, drug-induced religious or theistic experiences, especially at more ramified levels of description, *may* be defeated by naturalistic explanations.

The conclusion is that the existence of neurophysiological explanations is compatible with the veridicality of the religious experiences in question, especially theistic experiences. However, it is possible that *some* forms of neurophysiological explanations may tend to discredit *some* kinds of religious experience.

Positive coherence

It is arguable that the existence of a NE of religious experience (NERE) is more to be expected on theism than on naturalism, i.e. in terms of conditional probability $P(\text{NERE}/\text{theism}) > P(\text{NERE}/\text{naturalism})$. It is plausible to claim that if God wanted to communicate with us then He would create a biology that allows us to communicate with Him – $P(\text{NERE}/\text{theism})$ would not be low. But if the brain is merely “created” by naturalistic evolution, while NERE may be the fact, this is not something to be expected – $P(\text{NERE}/\text{naturalism})$ would be quite low, especially when religion is an accident. It is not at all clear why religious experiences were conducive to the struggle for survival *in the evolutionary context*.

Religious experience, evolutionary psychology, and cognitive science of religion

Cognitive science of religion (CSR) often assumes some kind of evolutionary psychology, which is an ambitious project. It aims at providing evolutionary accounts of all aspects of human behavior, not only the biological phenomena, but also distinctively human behavior like love, morality, or religion.

Preliminary reflection on evolutionary explanation of religion

There are several initial difficulties faced by evolutionary psychology of religion. First, religion seems to have no obvious connection to survival (Bloom 2009, 119).

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Especially when we are talking about mystical experience, evolutionary psychology does not look like a promising hypothesis. “Evolution depends on leaving fertile descendants, but mystics and spiritual adepts commonly vow celibacy” (Beauregard and O’Leary 2007, 206).

Second, religious commitments are costly in terms of evolutionary fitness. Time used to propitiate spirits could be spent producing more food, weapons, etc. Some religious practices, such as celibacy, sacrifice of virgins, animal sacrifice, and grain offerings, would even directly *reduce* our evolutionary fitness. For example, Mother Teresa’s caring for the dying, especially those who are poor, is completely futile from the sociobiological standpoint: whose genes does this activity help to propagate?

Third, we can ask why it should be religion and not something else which can play the same evolutionary role. Since evolution is very versatile, why shouldn’t it throw up a secular society in early times which uses nonreligious means to secure solidarity, cooperation, or the like? Many cognitivist accounts of religion fail to explain why people make costly commitments to some counterintuitive beliefs but not to others. There are a host of such ideas that do not become the object of religious devotion despite having these same characteristics: the tooth fairy, Mickey Mouse, Batman. This is sometimes called the Mickey Mouse Problem.

Varieties of evolutionary explanations

Among evolutionary explanations, we can distinguish adaptationist and non-adaptationist accounts. Broadly speaking, “adaptation” refers to any genetic or cultural variant that increases the mean genetic fitness of a population.

Adaptationist account of religion

An adaptationist account is motivated by the fact of the almost universal presence of religion throughout history. This fact would become more intelligible if religions are on the whole advantageous to a community. For example, religion can serve as a promoter of cooperation. If a population shares a common faith, different individuals and groups can identify with one another more easily, and this would make cooperation and coordination on a wider scale easier. D.S. Wilson’s adaptationist account, the cooperative adaptation hypothesis, is a representative one (Wilson 2002, 228). Religion can also reinforce social control, including the use of coercion, institutional sanctions, and internalized beliefs in supernatural punishment (Wilson 2009, 20–21).

It is possible to regard religion as an adaptation, but it is difficult to prove religion’s overall adaptive value because considerable costs are also involved. For example, religious factions may turn against one another, e.g. as in the Middle East and the Balkans. Many religions teach a moral code but some primitive religions do not have strong ethical content; they may even practice human sacrifice. So the adaptationist account is faced with counterexamples like extreme religious sects espousing maladaptive ideas, such as the People’s Temple which committed collective suicide in 1978, and the Japanese sect Aum Shinrikyo’s nerve gas attack. The construction of a



general adaptationist theory of *all* religions seems to be difficult. Instead, there are lots of ad hoc explanations.

The non-adaptive account of religion

For Atran, “Religions are not adaptations ... Religion did not originate exclusively or primarily to: cope with death, keep social order, ... displace sexual gratification, provide causal explanation” (Atran 2002, 12). Bloom advocates another non-adaptive view: “humans possess certain highly structured systems that have evolved for understanding the social world. Religion emerges as a by-product of these systems ... Religion is not an adaptation ... [It is] similar to the ability to understand calculus ... – something that did not emerge due to its adaptive value, but rather is a by-product ... of pre-existing adaptations” (Bloom 2009, 119).

An evolutionary byproduct is often called a spandrel, which refers to incidental, nonfunctional effects of adaptations that result more or less inevitably but are unrelated to the original function of that adaptation. The reason why hemoglobin evolved is that it enables blood to carry oxygen to various parts of the body, but a byproduct is the red color of blood, which is unrelated to our survival. Similarly, evolutionary psychology can tell a story about the evolution of some cognitive mechanisms that do have selective value, and their byproduct is non-adaptive religion.

Contemporary cognitive science of religion

Let us explore the more fashionable account of religion in contemporary CSR.

Hypersensitive agent detection device and theory of mind

Many think that anthropomorphism is an inborn, adaptive trait. In the face of chronic uncertainty about the nature of the world, guessing that some thing or event is humanlike or has a human cause constitutes a good bet. This strategy is the product of natural selection, but then later applied to religion. Since this capacity can sometimes be overactive, it is called hypersensitive agent detection device (HADD). This mechanism can be triggered with the slightest provocation. But it has obvious adaptive advantages, because if we fail to respond to fatal threats from other animals or human agents, we are more likely to end up dead. Even in ambiguous situations, HADD immediately produces agent beliefs and provokes a quick response. HADD may sometimes lead us to errors (like mistaking a rock for a tiger, as in one famous Chinese story about the general Lee Kwong), but natural selection does not care for truth as such. Bloom points out that “the cost of over-attributing animacy is low (if you turn your head when you hear the rustling of the bushes, and it is just the wind, you’ve lost nothing) while the cost of under-attributing animacy can be high” (Bloom 2009, 120–121).

Given HADD, when humans are faced with unusual phenomena that resemble things brought about by ordinary agents but cannot be explained by them, we are naturally predisposed to seek agentive explanations in terms of extraordinary, supernatural agents (including ghosts, angels, or gods). As Wenegrat explains,

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When applied to nonsocial events, the more general social analyses lead to religious beliefs. In particular, the tendency to surmise actors and intentions from complex events will lead to religious beliefs when the events in question are outside the social realm. Because such surmises come *naturally* to humans, an attempt to apprehend the natural world with the human mind will *inevitably* lead to religious beliefs. (Wenegrat 1990, 82; emphasis added)

Humans also possess an innate, intuitive theory of mind (ToM). This capacity helps all of us, including very young children, to infer the states of mind of other people. ToM may be extrapolated to people after death, and we attribute minds to disembodied persons. This may be the origin of many religious ideas of afterlife, ghost, eternal soul, etc.

Critical evaluation of evolutionary psychology*Lack of evidence*

When Putnam discusses Edelman's evolutionary account of intentionality, he criticizes "the long detour through the at-present totally unproved speculations about our evolutionary history" (Putnam 1992, 34). In fact, Wilson honestly admits that "the study of culture from an evolutionary perspective is still in the rank speculation stage. Isolated facts might be scientifically well established, but these have not been put together into any kind of big picture that can be said to be scientifically established" (Wilson 2009, 320).

A neuroscientist points out that "evolutionary psychology in general has received popular attention out of all proportion to its theoretical rigor. That is especially problematic for a nonexperimental discipline based on the interpretation of prehistory, where so much is simply nontestable and nonfalsifiable ... We simply do not know what early humans thought about many of the relevant questions because they left so few artifacts" (Beauregard and O'Leary 2007, 208).

Religious devotion and the dimension of ultimacy

There are numerous features of religious experience that HADD does not explain. HADD just requires us to believe in some form of supernatural agency, but why do religious entities have numinous qualities which fascinate us so much? Moreover, many religious beliefs do ask for costly commitment, and gods are intrinsically objects of devotion. So there is the question "why concepts spawned in this way would amount to anything other than mere objects of predatory fear ... Why then would these things become the focus of religious devotion?" (Murray and Goldberg 2009, 192) The cognitive scientists' explanations do not seem to deal with the depth of religion in the human soul. But this is to miss the uniqueness of religion as *ultimate* concern.

Three questions about HADD

- 1 The question of existence: The prior question is to understand the exact nature of HADD.



- How sensitive is “hypersensitive”? All faculties will produce false positives. We do not expect 100% reliability. Our vision can also be too sensitive sometimes- because we need to anticipate (even when reading). So, is it hypersensitive or not? The idea of “hypersensitive” seems rather vague.
- How to detect and individuate HADD?
- How to prove that a certain belief is formed by HADD?

But then what about our current mechanism of detecting agency? Are we using HADD or not? Is there another mechanism for detecting agents which is not by definition hypersensitive? If there is another mechanism, then why think we are not using this when we conclude to God? The answers to all these questions seem to be rather unclear.

- 2 The question of historical origin: When, why and how did HADD arise? Most discussions of HADD begin with its usefulness to human beings in the evolutionary context. They seldom directly address this question of historical origin. So implicitly they are also arguing from use to origin, which is problematic. Basically, HADD, even if adaptive, is by no means required for survival. The fact is that so many organisms, such as plants and lower animals, do not even have any beliefs, not to mention beliefs about agents, but they survive just fine. Suppose some higher animals do possess rudimentary forms of belief and even concepts of agency. They also need to escape the predators’ attack. So why shouldn’t they develop HADD as well, or perhaps they have already done that? Surely some animals would switch into flight mode if some uncommon agitation happens in the environment, and this may be adaptive. But such a mechanism may not require beliefs about agents at all. So, there may be other mechanisms for a lion or monkey to avoid predators other than HADD. To answer the question about the historical origin of HADD for humans, we need a lot more research on both animals and humans.
- 3 The question of persistence: Human cognitive mechanisms also possess capacity of self-correction. So, we should expect the deliverance of HADD to be modified or defeated by experience. So why should the use of HADD in the invisible realm prove to be so rigid and persistent? Why can’t people simply suspend their judgments about the transcendent realm? The persistence of reasoning using invisible agents is necessary for the development of religion, and it seems to be just assumed in many discussions. However, according to Wenegrat, cognitive abilities like HADD are evolved to interpret social actors which have bodies. Asocial nature appears to be very different and there is no great need to extrapolate here. In other words, there is no necessary relationship between the ability to interpret socially a class of well-defined and demarcated bodies and the tendency to interpret socially inanimate nature and events. Clearly the former can be evolved without the burden of the latter which leads one to falsehood (assuming atheism). The ability to identify human social actors is all that is relevant for survival in an atheistic world.

Furthermore, even if the people start to *surmise* a Social Actor behind nature, that is not yet to *believe* in it. It stands to reason that the hypothesis should be abandoned

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soon. If God doesn't exist, appeal to God would not have concrete effects. So, the surmise should be short-lived from a naturalistic perspective. Darwinians argue that true knowledge is conducive to survival and false beliefs harmful. Only in this way can they explain how the intellect and sensory apparatus of men can evolve. Now why do they abandon this principle in the case of God?

This problem is also pointed out by Murray and Goldberg:

any agents hypothesized by the activation of HADD are none the less highly liable to empirical defeat. If I hear a noise in the closet but find nothing there when I look I surrender the belief ... False positives are common with HADD, and once we detect their falsity ... the hypothesized agents are quickly abandoned ... shouldn't we expect that religious belief would be equally liable to defeat when the religious hypothesis is not confirmed by independent evidence"? (Murray and Goldberg 2009, 192)

Pitfalls of evolutionary reasoning

First, we need to distinguish "benefit or use" from "evolutionary fitness in the evolutionary context." In evolutionary psychology, we loosely talk about the benefits or uses of religion, such as the psychological benefits which can be gained from spirituality, but whether these psychological benefits might enhance reproductive fitness *in the evolutionary context* stills needs to be demonstrated. Ultimately, only reproductive success counts. So "even when the adaptive rationale for a trait is unquestionable ... we still may have no explanation for how the characteristic evolved ... function does not provide an account of a trait's origin" (Schloss and Murray 2009, 5).

Second, evolutionary reasoning seems to have few constraints and too much flexibility, and hence is largely unfalsifiable. Since evolutionary explanations can be either adaptive or non-adaptive, they can cover almost all scenarios. So evolutionary "interpretations of human behavior are so versatile that with sufficient imagination, *adaptive or maladaptive explanations* can be found for virtually any eventuality" (Alexander 2001, 382; *italics mine*). Stove also observes, "In neo-Darwinism's house there are many mansions: so many, indeed, that if a certain awkward fact will not fit into one mansion, there is sure to be another one into which it will fit to admiration" (Stove 1999, 245).

Conclusion

So again the CSR is far from proven. In fact, some presuppositions of evolutionary psychology are not decidable on a scientific basis.

Implications of CSR for the veridicality of religious experience

Incompatibilism

The implausibility of global incompatibilism

Would the theories of CSR lead to a disproof of theism? No, we should be aware of the hurdle of genetic fallacy. The basic point is that God can make use of

evolution to produce beliefs in Him. An “evolutionary accident’ could certainly be part of the Creator’s plan” (Van Inwagen 2009, 137). So, we have no good reasons to accept a strict and global incompatibilism, which regards CSR and religion as *intrinsically* incompatible. However, localized conflicts seem possible, because *some* theories of CSR may be incompatible with *some* forms of religious belief. For example, the proposed mechanisms of a naturalistic explanation may seem unfitting for God to use.

Hypersensitivity of HADD versus reliability of religious belief

Although there is no logical incompatibility between CSR and the veridicality of religious experience, critics may emphasize the hypersensitive, error-prone nature of HADD, and challenge the reliability of religious experience. This objection is difficult to evaluate because the concept of HADD is not quite clear, especially with regard to the degree of hypersensitivity required. We have pointed out that HADD, together with all our other faculties, are prone to illusions at least in some circumstances. So the mere existence of false positives cannot be used as a ground to discredit the entire mechanism, HADD, or other senses. Otherwise we would inadvertently advocate an argument for general skepticism.

Hypersensitivity does not necessarily mean overall unreliability. Suppose HADD is 60% of the time reliable, then in accordance with reliabilism the belief produced by this mechanism is still *prima facie* justified. So, if theistic belief is produced by HADD, then this is also *prima facie* justified, and critics cannot assume that theistic belief is unjustified unless they can adduce defeaters. If HADD, say, is only 40% of the time reliable, hence overall unreliable, then the theistic belief produced by HADD would be unjustified, but so is our belief in natural agents or other minds. This consequence is counterintuitive.

The spandrel argument against reliability of religious belief

A related argument is the byproduct argument: “Since religious beliefs are only byproducts of cognitive faculties which are adaptive, they are unlikely to be reliable.” There can be several lines of reply. First, logically speaking, beliefs that are byproducts of our cognitive faculties may well be true and trustworthy. CSR mostly thinks that *modern* science is a belief-spandrel, but nonetheless maintains faith in science. Second, evolutionary psychology itself is part of science, and hence also a spandrel. The spandrel argument against religion is thereby self-defeating.

Mere compatibilism

General argument for compatibilism

If evolutionary explanations could specify sufficient conditions for belief in God, is it plausible to think that the agency of God is then preempted? No. God could make sure that the evolutionary process would favor belief in God by creating a complex but reliable belief-forming mechanism. Many natural beliefs can also be explained

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sociobiologically, e.g. belief in other minds and reliability of one's perceptual apparatus. If there is a God, it is clear that it should be so because it would be too risky to entrust the defense of these fundamental beliefs to our finite reason. If God can create complex belief-forming mechanisms in these areas, why can't He do the same for religion?

Analogical arguments for compatibilism

Therefore, an evolutionary account of religion and the truth of religion are not mutually exclusive. Let us consider a parallel: evolutionary explanation of induction. According to Bas van Fraassen,

Inductive and abductive methods are unreliable ... There is ... exactly one shining ubiquitous example of induction and abduction: ... racial and ethnic stereotyping, with its fast fight or flight responses, saved lives in wars and riots, at the cost of sometimes doing individuals an injustice ... [H]umanly usable ampliative methods for prediction are entirely unreliable in general, while reliable under historically important special circumstances. Prevalence of such methods is to be explained by the brute accident of their survival value under *special* circumstances. (Van Fraassen 2000, 264)

Apparently, evolution has created in us a hypersensitive *order* detection device (HODD). Psychologically speaking, humans are prone to jump quickly from a perceived pattern to a universal law, i.e. we can "detect" order way too easily. In many cases, the postulated laws are nothing but an unjustified extrapolation from a chance concatenation of unrelated events. So HODD yields a lot of false positives, but somehow it contributes to our reproductive fitness. Van Fraassen's evolutionary explanation of induction can be compared with the evolutionary explanation of religion. Does this mean induction is therefore unreliable? If so, science is thrown into doubt, implicating evolutionary psychology in its downfall.

Positive coherence

In fact, it is arguable that the cognitive science of religion is positively coherent with a worldview like Christianity. Firstly, we may argue that, given theism, we have reasons to expect a biologically based spirituality, which enables us to establish relatedness with others and God. The natural mechanisms of mutation and selection could be the means whereby God created the embodied spiritual nature of humans. Since humans share in the *imago Dei*, we have a passion for communion with God, and a taste for the infinite. This is why humans are prone to have religious experiences and the quest for meaning. We have suggested this when we discuss the neurophysiological explanation of religious experience (PERE) above. If CSR is basically correct, we would then also have an evolutionarily based spirituality (EBS). PERE and EBS together would provide a strong case for a biologically based spirituality. So P (EBS/theism) is not low, and maybe even quite high.

Secondly, we can argue that on naturalism it is not to be expected that something like religion would evolve. Imagine we have an encounter with ETs. If they talk to us

about relativity and quantum mechanics, we would not be very surprised. What if they talk about their innate search for God and meaning, wouldn't we be surprised by such convoluted products of evolution in which only survival counts? Perhaps given our nature today, we need religions for various functions. But, in the evolutionary context, our human nature is only in the making. The prominence of the ultimacy dimension in humanity is hardly to be expected in that context.

Perhaps moral experiences are good for the formation of a community, but is there any need to experience the moral demand as categorical or unconditional? As social animals, we can all be aesthetically blind – aesthetic experiences do not clearly contribute to survival. Religious experiences do not have a clear function either. Evolutionary psychologists speculate about HADD, ToM, and so on. Well, all these are possible but then the experience of God should be akin to the experience of very powerful aliens. Should we expect the mystical experiences of God to happen in the deepest recess of our souls? Should we expect religious experiences to quench our deep-seated craving for meaning and wholeness? Concerning these existential experiences, the most obvious fact is that they complicate our lives unnecessarily. The time and energy “wasted” over the quest for meaning could better be used to hunt a deer or find a mate, couldn't it?

Suppose spirituality is a kind of spandrel. Then both EBS and PERE are accidents. So $P(\text{EBS and PERE/naturalism})$ is very low. On adaptive explanations, there are still numerous accidents because function does not guarantee origin: “Transitions to a higher level of organization are unusual events because the *probability is low* that a combination of random changes will occur that produces mechanisms that succeed in preventing non-cooperating individuals getting the upper hand” (Richerson and Newson 2009, 105; italics mine). Moreover, there are many other ways (simpler, more mundane, and not as exotic as mystical experiences) to achieve those functions. So $P(\text{EBS and PERE/naturalism})$ is still quite low. It follows that: $P(\text{EBS and PERE/theism}) > P(\text{EBS and PERE/naturalism})$. So, on the whole discoveries of EBS confirm theism relative to naturalism.

Conclusion

To discredit theistic experiences, we need a NE which is both evidence-canceling and known to be true of most God-experients. The difficulty is that both conditions are not satisfied at the same time. Some NEs may be true of most God-experients but they are not evidence-canceling. Other NEs may be evidence-canceling but not true of most God-experients. Either it is known that they are only true of a tiny minority of God-experients, e.g. pathogenic NEs, or while they *might* be true of most God-experients, this is only a speculative possibility. While some NEs are still conceivably both evidence-canceling and true, critics of religious experience need to show that they are *available* as defeaters. The a priori approach to NE should be abandoned and any suggested NE should be subjected to rigorous empirical and philosophical scrutiny.

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eopr0060
eopr0070
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See also: BUDDHA, CHRISTIANITY, COGNITIVE SCIENCE OF RELIGION, DAODEJING AND LAOZI, ISLAM, JESUS OF NAZARETH, MEANING OF LIFE, NATURALISM

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ABSTRACT

This entry will first look at the concept and varieties of religious experience. Then it will evaluate the challenge of constructivism raised by Proudfoot's attribution theory of religious experience. It goes on to survey the prevalence of religious experience in the contemporary world, both in the West and in Asia (such as Chinese societies). The remainder of the entry is mainly devoted to the naturalistic explanation of religious experiences. The criteria for evaluating naturalistic explanations are spelled out, the neurological explanations of religious experience offered by Michael Persinger and Andrew Newberg are discussed, and the cognitive science of religion is also considered. The entry concludes with an evaluation of the epistemic implications of these naturalistic explanations of religious experiences for the veridicality of those experiences.

KEYWORDS

attribution theory; naturalistic explanation; neurotheology; religious experience