

(S16)Naturalistic Explanations & the Veridicality of Religious Experience

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Introduction: The Challenge of Naturalistic Explanations

Religious experiences (hereafter REs) seem to be universal and powerful. Even the neuroscientist Persinger, himself a skeptic, comments, "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). By a *religious experience* I mean an experience which the subject takes to be an experience of God, or some supernatural being or state of affairs. (By "God" I roughly mean the supremely perfect being who is all-powerful, all-loving and personal ground of being.) Such an experience is *veridical* if what the subject took to be the object of his experience actually existed, was present, and caused him to have that experience in an appropriate way. The claim that "S has an experience of God" does not entail "God exists."

In recent years, there has been a resurgence of the argument from religious experience (ARE) among professional philosophers (see Kwan 2011, chapter 1). I have also defended the ARE elsewhere (Kwan 2006b, 2009) which is developed from Richard Swinburne's ARE (1979, chapter 13). His idea, which is embodied in his Principle of Credulity (renamed by me as the Principle of Critical Trust), is that all experiences (including religious experiences) should be treated as innocent until proven guilty.¹ Therefore, the claims of REs should be trusted to some extent unless counter-evidence or defeaters can be brought forward. The most common objection to ARE is perhaps the claim that religious experiences can (easily) 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 his yellow wall experience. Why should it be any different with the God-experient's belief in the face of a naturalistic explanation (abbreviated NE) of his religious experience?

Naturalistic Explanations of Religious Experience

How to Evaluate Naturalistic Explanations?

A naturalistic explanation is a *non-epistemic explanation* of religious experiences which do not assume the existence of the experience's intentional object (e.g., God). Depending on the kinds of mechanism postulated, there are four main types of naturalistic explanations: psychological, sociological, neurophysiological, or evolutionary explanations (this is now often coupled with the Cognitive Science of Religion, CSR). Many critics assume that NEs are powerful defeaters of religious experiences. In this paper I will critically evaluate this claim.

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. It is not enough to construct a theory in which jaundice is *postulated* to exist and to possess such properties as to be able to explain S's experience. If it 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, suppose the jaundice theory is well-corroborated. However, that the jaundice theory can explain many experiences when *the subjects are known to be jaundiced* does not entail that this explanation will hold true in this

¹ A similar principle called Phenomenal Conservatism is defended by Michael Huemer. I have discussed & defended this principle in Kwan (2020).

particular case, S's perception. We need independent evidence to think that S is *really* jaundiced other than his yellow wall perception. Otherwise all normal perceptions can be explained away as hallucinations caused by drugs.

I would call a non-epistemic explanation *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 plausible to think that 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 would also explain 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. As a summary, I tentatively 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.

Now suppose my criterion is roughly correct. How promising is the project of naturalistic explanation? I will concentrate on the case of theistic experiences.

The Prospect of Naturalistic Explanations of Theistic Experience

First, we need to note that the project of naturalistic explanation is different from a naturalistic theory of religion. The latter usually concentrates on the question how and why *belief in God* originates and persists. Only rarely do the theorists directly address the question of theistic *experiences*. But to believe in God is not exactly to have a theistic experience. Some believers never or only occasionally have experiences of God, while their belief in God persists. It is also possible for some who do not believe in God to have a theistic experience.

So even if the current attempts to provide a naturalistic history or theory of religions were successful, it does not entail the success of the project of naturalistic explanation. It has to account for the spontaneous theistic experiences which occur to people who are not yet believers in God. Moreover, it has to explain how belief in God *actually* causes theistic experiences: what sorts of mechanism are involved here and what are the reasons to think these mechanisms to be operating on the believers?

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. Now let us consider whether NEs in general are evidence-canceling.

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. It 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 other 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 in the sense that their truth is incompatible with its truth or renders its truth less likely. 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 explanations" (Yandell 1984, p. 37).

Furthermore, a good naturalistic explanation should also satisfy the Independent Support Criterion, i.e., we can "explain away" a religious experience only by means of a naturalistic explanation whose premises can be established independently of its purported explanatory power. Suppose the Freudian naturalistic explanation postulates the mechanism of wish fulfilment to explain a specific religious experience. To substantiate it, we need to have independent knowledge of the existence of the mechanism of wish fulfilment. We also need some reasons to suppose this mechanism is *actually operative* on that specific experience. But in general there is no way of detecting the actual operation of wish-fulfilment mechanism. Of course, we may justify these mechanisms as the best explanation of experiences known to be delusory on other grounds. However, to be entitled to assert the actual operation of wish-fulfilment mechanism, we must first have good reasons to think the experiences in question unveridical. Otherwise it would amount to question-begging.

The above requirements suggest that the vindication of general explanations of religious experience like Freudianism and Marxism is not as easy as it is often thought. In fact even a researcher in CSR says, "It might be an overstatement to say that among working sociologists, psychologists and anthropologists of religion (especially scientifically minded ones), the theories of Freud and Marx are considered relics rather than serious scientific hypotheses, but it would probably not be far off the mark" (Visala 2011, p. 1).

Religious Experience and Neuroscience

Neurological studies of religious experience have featured in news reports (Stein 2003). Some neuroscientists, like Michael Persinger and Andrew Newberg, are offering neurological explanations of various kinds of religious experience. Are these explanations valid?

Michael Persinger's God Helmet

Michael Persinger of Laurentian University in Canada, suggests that stimulation of the brain can generate religious experiences. Persinger is famous for his "God Helmet" (also called the Octopus) - basically a 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. Persinger explains: "God Experiences are products of the human brain. ... God Experiences are predicted to be correlated with transient electrical instabilities within the temporal lobe of human brain- ...temporal lobe transients (TLTs)... Productions of TLTs create an intense sense of meaningfulness, profundity, and conviction" (Persinger 1987, p. x). "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, p.136). He has also tried to do a control experiment: "40 percent of his subjects 'sense a presence' while they are being stimulated, compared to 15 percent of a control group" (Horgan 2003, p. 92). We first note that the data above suggest that TLTs are not really sufficient conditions for RE.

Problems with Persinger's Theory

A major problem is that Persinger's results can't be replicated by a team of Swedish scientists led by Grandqvist, or other scientists. Grandqvist points out various problems of Persinger's experiment. First, no information on experimental randomization or blindness was provided. This is particularly problematic given the wide scope and occasional vagueness of the experiences reported. Second, the reliability of the EXIT scale used by Persinger is unknown. Third, there is an alternative explanation of Persinger's results: "suggestibility could work as a potent alternative explanation" (Grandqvist et al.

2010, p. 367). In the end, Grandqvist's experimental results also contradict Persinger's findings: "we did not find that the application of weak complex magnetic fields caused the sensed presence of a sentient being, mystical or any of the other somatosensory experiences described by Persinger" (Grandqvist et al. 2010, p. 372).

So Persinger's allegedly scientific findings are not corroborated by other researchers. Moreover, anecdotal evidence also raises many questions. The two journalists, Horgan and Hagerty, have both visited Persinger, and tried out the God Helmet personally. Both failed to have any dramatic experiences (Horgan 2003, p. 98; Hagerty 2009, p. 139). They ended their visits in skepticism.

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. Their neurophysiological theory of mysticism has also caught much attention. 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. In similar ways, the theory proposes explanations of a continuum of mystical experiences, both theistic and non-theistic. They also display the ambition to construct a neurotheology.

Their neurological research has been reported in the media. On May 7, 2001, the cover story of *Newsweek* was about "God and the Brain: How We're Wired for Spirituality" (Begley 2001). 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, p. 41).

Their theory is based on the evidence gleaned from their "scanning [of] the brains of eight American Buddhists practicing a form of 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, p. 75). They use a technique called single photon emission computed tomography, or SPECT.

Critical Evaluation

Newberg himself is careful to observe, "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" (quoted in Begley 2001, p. 41). To strengthen this point, we can point out that there is no need to pit "the brain causing the experience" against "perceiving a reality." They 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, p. 123). They in fact tend to think their biology of transcendence is congenial to religion.

There are limitations to this kind of study, and their models are far from proven. First, the problem of artificiality. Can we be sure that Newberg's results are really related to deep mystical states rather than just reflecting states of meditation and prayer? Are these experiences under the experimental context really identical to *spontaneous* mystical experiences? No one really knows.

Another neuroscientist raises other objections: "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 during their ‘centering prayer.’...they did not interview the nuns using standard measures such as Hood’s Mysticism Scale (1975).” The technology they use, SPECT, is in fact quite poor compared to fMRI (Beauregard and O’Leary 2008, p. 260).

Third, the problem of complexity. In fact different neurological studies yield complicated or even contradictory results (see Jensine Andreson’s review article in the *Journal of Consciousness Studies*) (Horgan 2003, p. 84). Some similar studies, also contradict Newberg and D’Aquili’s results, by detecting increased activity in the parietal lobes and decreased activity in the frontal lobes. See also Karnath, Farber, and Himmelbach (2001) concerning the orientation region. So we have reasons to doubt whether we can generalize their “findings” at this stage. First, it is very insecure to draw sweeping conclusions from several studies, some of them with only modest sample sizes. Second, their theories need elements of interpretation which cannot be read off directly from the neurological findings. So conjectures are often mixed with more factual information. For example, Newberg says that the brain seems to *have no choice* but to perceive the self as endless and intimately interwoven with everyone and everything. The idea that “the brain has no choice” seems to be problematic. Why so? Why going this way rather than freely constructing some less bizzare ways, or just leaving a blank? 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.

Religion is Not Feeling: Response by Woodward

Woodward is skeptical of neurotheology. He thinks that the “chief mistake these neurotheologians make is to identify religion with specific experiences and feelings,” & “confuse spirituality with religion...To see Christ in the person of an AIDS victim or to really love one’s enemy does not necessitate a special alteration in the circuits of the brain” (Woodward 2001, pp. 44). The basic idea is that genuine religion is about real transformation of life manifested in real actions, and not a matter of feelings or momentary experiences. Take “loss of self” as an example. It is not about “the dissolution of the boundaries of the self,” because ... getting free of the self is primarily an ethical imperative. ‘To love you neighbor as yourself,’ as Jesus commanded, requires an extraordinary effort of self-transcendence” (Woodward 2001, p. 45).

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? This is a complicated and controversial question, and there seems to be three major answers: Incompatibilism; Mere compatibilism; Positive coherence thesis.

Incompatibilism

Persinger is a standard naturalist who even claims that God “is the last illusion that we must overcome as a species” (Hagerty 2009, p. 141). For him, “everything is programmed by brain structure or electromagnetic activity or chemistry,” including *all* experience and memory” (Hagerty 2009, p.141). Although Persinger’s reasoning is not clearly spelt out, he does seem to think that if religious 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 across the board! In fact Persinger seems to accept this implication. He says, “There is no absolute good or God; both are creations of the human brain. It was not created any more than rocks are made from minerals. The brain was not created; it simply occurs and one of its properties is the God Experience” (Persinger 1987, p. 138). But it can also be applied to Persinger’s experience of scientific research and his reasoning as well. It seems to be self-defeating.

Mere Compatibilism

We have suggested that neurophysiological explanations are compatible with the veridicality of the

religious experiences in question. We have noted the point that 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 (Kellenberger 2017, pp. 240, 244). 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? (Jordan, p. 159). However, I think we need to take note that in the theistic traditions, it is commonly accepted that God can relate to the world or humans in two ways: special revelation versus general revelation; saving grace versus common grace; miracle versus divinely upheld natural laws, and so on. So 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 make sure that some form of awareness of Himself or the spiritual reality to be correlated with certain brain states. Let us call the kinds of religious experience produced specially revelatory experience and generally revelatory experience respectively. Let us use the example of voice messages to illustrate the point. Most of us have the experience of calling a bank hotline to make an enquiry. 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 of applying for a credit card or paying our bills. The question is: are these auditory experiences veridical? The experience is indeed produced in a very mechanical way- whenever a certain number is dialed and then 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, He may have good reasons to record some spiritual messages in our mind/brain. Whenever the correct hotline is dialed, these messages will be played. Another 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... So it makes sense that there is specific biology that allows for that sort of relationship" (quoted in Hagerty 2009, p. 101).

However, just as the recorded messages in a hotline are mainly the standard stuff which cannot deal with unique situations of the customers, it is plausible to think that the messages recorded in our mind/brain should be more standard spiritual truths like 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. 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, sense of absolute loneliness, synesthesia, an experience of being eaten alive, and alien pyrotechnics (Horgan, pp. 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 higher levels of description, *may* be defeated by naturalistic explanations.

The conclusion is that the existence of neurophysiological explanations as such cannot demonstrate the unveridicality of those 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 (see Gellman 2001, p. 101).

Positive Coherence

Hagerty asks, “Is there a cosmic electrician who wires people’s temporal lobes to let Him communicate with them? Of course, the answer is “not necessarily. Hagerty admits that the explanation may be just “a quirk of evolution,” but it seems equally “plausible to posit that there is a Mind who wired us with the ability to access that Mind and tap into invisible realities” (Hagerty 2009, p. 275). However, “equally plausible” does not suffice for a claim to *positive* coherence. What is needed perhaps is an argument which shows that *the existence of a naturalistic explanation of religious experience* (NERE) is more to be expected on theism than on naturalism, i.e., in terms of conditional probability:

$$P(\text{NERE/theism}) > P(\text{NERE/naturalism}).$$

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. So we should also expect specific biological mechanisms that enables this sort of relationship- $P(\text{NERE/theism})$ would not be low.² But if the brain is merely “created” by naturalistic evolution, while this may be the fact, this is not something to be expected- $P(\text{NERE/naturalism})$ would be quite low, especially when religion is a spandrel (by-product). It is not at all clear why religious experiences were conducive to the struggle for survival in the evolutionary context. (See later discussions of evolutionary psychology.) It seems plausible to Hagerty “that we perceive the ineffable with spiritual senses, and when the spiritual experience ebbs, it leaves a residue in one’s brain or body” (Hagerty 2009, p. 276). The later part of the above quote refers to the Positive Effects of Religious Experience (PERE). Religiosity and spirituality can have positive and beneficial effects on human living- a lot of studies seem to confirm this conclusion. These effects do not only include greater psychological well-being or reduced morbidity, but also better physical health and reduced mortality (see Lowenthal 2007).

If we consider NERE together with PERE, then there is an even stronger case for theism, namely, $P(\text{NERE and PERE/theism}) > P(\text{NERE and PERE /naturalism})$. Religious experiences may be merely chance products of naturalistic evolution, but the fact that spiritual experiences would produce positive tangible experiences would make the whole thing more surprising. Some cases are discussed by Hagerty. For example, Michael Richards was a sixty-year-old patient who suffered from cerebral palsy that left his right hand curled inward and useless. He later claimed to have an out-of-body experience, and the unexpected consequence was that his congenital problem was fixed- he could open his hand. It seemed to the puzzled doctors that Mr. Richards’s extraordinary experience somehow broke the physical laws that held him in bondage (Hagerty 2009, pp. 278-279). This kind of effect would be less expected on naturalism than on theism.

Religious Experience, Evolutionary Psychology and Cognitive Science of Religion

Another kind of naturalistic explanation of religion is provided by Cognitive Science of Religion (CSR). CSR often assumes some kind of evolutionary psychology (called sociobiology earlier) as background theory, and evolutionary psychology is an ambitious project- it aims at providing evolutionary accounts of all aspects of human behavior, not only the biological phenomena, but also those regarded as 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, p. 119). 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 2008, p. 206).

² Even Hamer seems to support this line of reasoning: “If God does exist, he would need a way for us to recognize his presence. Indeed, many religious believers have interpreted the brain-scan experiments of Persinger, Ramachandran, and Newberg as supporting the existence of a deity; why else, they ask, would we have a ‘God module’ prewired in the brain?” (Hamer 2004, p. 211).

Second, religious commitments are costly in terms of evolutionary fitness. Time used to propitiate the spirits or ghosts could be spent producing more food, weapons, etc. Moreover, 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 can this activity help to propagate?

Third, we can ask why should it be religion and not something else which can play the same role in the evolutionary explanation. Since evolution is very versatile, why shouldn't it throw up a secular society in early times which use non-religious means to secure solidarity or cooperation or the like? Atran notes that many "cognitivist accounts of religion ... failed to explain why people make costly commitments to some counter-intuitive beliefs... but not to others" (Richmond 2010, p. 31). There are a host of such ideas that do not, and seemingly cannot, 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 various evolutionary explanations, we can make the distinction between adaptationist and non-adaptationist accounts. Broadly speaking, 'adaptation' refers to any genetic or cultural variant that increases the mean genetic fitness of a population. A third type of explanation is mimetics, which appeals to Dawkins' idea of meme.

Adaptationist Account of Religion

An adaptationist account is motivated by the fact of 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, p. 228). Religion can also serve as a form of social control, including coercion, institutional sanctions and internalized beliefs in supernatural punishment (Wilson 2009, pp. 20-21).

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

So there are very different kinds of religious practice, which have diverse effects on the society. "In the face of biological and cultural complexity and diversity, phenomena like religion are unlikely to support sweeping generalizations about adaptation versus maladaptation" (Richerson and Newson 2009, p.117). So the construction of a general adaptationist theory which can explain the benefits of *all* religions seems to be a very difficult task. Instead, there are just lots of *ad hoc* explanations.

The Nonadaptive Account of Religion

For Atran, "Religions are not adaptations and they have no evolutionary functions as such. Religion did not originate exclusively or primarily to: cope with death, keep social order, recover security of father,

displace sexual gratification, provide causal explanation, provoke intellectual surprise” (Atran 2002, p. 12). None of these can be established as necessary or sufficient conditions for religion. Bloom advocates another nonadaptive 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 or the pleasure we get in playing video games—something that did not emerge due to its adaptive value, but rather is a by-product ... of pre-existing adaptations” (Bloom 2009, p. 119).

An evolutionary by-product is often called a spandrel, which, in more scientific terms, refers to incidental, nonfunctional (or sometimes dysfunctional) effects of adaptations that result more or less inevitably but unrelated to the original function of that adaptation. The reason why haemoglobin evolved is that it enables blood to carry oxygen to various parts of the body, but a byproduct is the red colour 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 by-product is non-adaptive religion.

Religion as a Memetic Pathogen

There is another proposal which views religion as a memetic pathogen. This of course is a development of Richard Dawkins’ idea of meme into the so-called “science” of memetics (see his *The Selfish Gene* in 1976). Memes are stories, songs, habits, skills, inventions and ways of doing things that we copy from person to person by imitation. Memetics is extremely controversial, and has attracted a lot of criticisms. Scholars query whether memetics is even a discipline, and it is safe to say that memetics is a very immature science at present. Due to limitations of space, I will not further discuss this question.

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 is called hypersensitive because it 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. Ture, 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, pp. 120-121).

Given HADD, when humans 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, "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, p.82; my emphasis).

Humans also possess an innate, intuitive theory of mind (ToM). This capacity helps all of us, including very young children, to infer the state of mind of other people. This innate Theory of Mind 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, heaven and hell, etc.

Intuitive Theism and Dualism

Most evolutionary accounts agree that belief in God is a spandrel. They suggest that people are naturally religious, that is, they have natural cognitive faculties which produce, perhaps indirectly, belief in gods. This seems to be confirmed by research who suggests that children are *intuitive theists*. Divine attributes in theistic traditions such as omniscience and omnipotence receive special support from innate cognitive structures, which are also manifested in childhood development. Children find a super-knowing god readily comprehended, and they intuitively embrace gods as the designers and creators of the natural world. Only in a subsequent stage of development, relevant mental tools restrict these abilities to people and other natural agents. For example, the psychologist Deborah Kelemen has found considerable evidence for ‘promiscuous teleology.’ Four-year-olds insist that everything has a purpose, including things like lions and clouds (‘for raining’). (Kelemen 2010). Researchers asked children and adults about the origins of animals, and children tended to favor explanations that involve an intentional creator.

We are also naturally inclined to common-sense dualism of bodies and souls as *distinct*, which comes naturally to children. In contrast to some sophisticated materialist philosophers, children do not find it difficult at all to imagine souls without bodies. Bloom summarizes: “humans possess early emerging and universal cognitive biases, including hypersensitivity to agency, a natural propensity to see non-random design as caused by an intelligent designer, and body–soul dualism. These make it natural to believe in gods and spirits, in the divine creation of the universe, and in an afterlife. These are the seeds from which religion grows” (Bloom 2009, p. 124).

Critical Evaluation of Evolutionary Psychology

Lack of Evidence

When Putnam discusses Gerald Edelman’s evolutionary account of intentionality, he criticizes “the long detour through the at-present totally unproved speculations about our evolutionary history” (Putnam 1992, p. 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, p. 320). No wonder “much within evolutionary biology worth criticizing.” Some accounts “scarcely mention morality,” and others “attempt to reduce it to a form of self-interest..... The concept of selfish genes is entirely metaphorical and amounts to little more than newspeak for ‘anything that evolves by genetic evolution’” (Wilson 2009, p. 328).

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. We know that some buried their dead in a fetal position, with grave goods, or in awe-inspiring places, which implies that they expected the dead to be born again. The cave paintings at Lascaux (15,000 B.C.E.) and the Willendorf Venus (25,000 B.C.E.) point to the great antiquity of shamanism and fertility cults. But beyond that we have mostly speculation” (Beauregard and O’Leary 2008, p. 208).

Religious Devotion & 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? Why would “religious” concepts produced by HADD become overlaid with so many additional properties that look surprising? A mere notional assent to a belief is also very different

from a costly commitment to that certain belief. But 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..... superpowerful, bizarre, and scary. Why then would these things become the focus of religious devotion?” (Murray and Goldberg, p. 192) Why believe in God unto death? This problem suggests that the cognitive scientists’ explanations are rather superficial. It does not deal with the depth of religion in the soul of human being. There are different types of belief but for the cognitive scientist of religion, they are all on the same par. But this is to miss the uniqueness of religion as *ultimate* concern.

The Universality of Religion

Since the evolutionary explanation of religion requires a long series of highly contingent events, then we may expect religion to emerge every now and then. But the nature of such explanation would hardly lead us to expect the emergence of religion *everywhere*. Atran says: “If we reject the unlikely possibility that these thematic occurrences stem from historical contact and diffusion or are spontaneous instantiations of a Platonistic set of innate religious forms ... then how else could such apparent recurrences *independently* take place across cultures without specific and strong universal cognitive constraints?” (Atran 2002, p. 88; italics mine) Perhaps there is really a set of innate religious forms, Platonistic or not, after all?

Three Questions about HADD

There are several questions which can be raised about HADD: the question of existence, the question of historical origin, and the question of persistence.

<The Question of Existence>

The prior question is to understand the exact nature of HADD. There are numerous questions here:

- 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? So this idea of “hypersensitive” seems rather vague.
- The more hypersensitive HADD is, the less reliable it is. The key point about HADD is that it is liable to yield false positives. Hyper-sensitivity only means that some of the outputs are too sensitive, not all. So either 60% reliability or 40% reliability can do the job. If the former, then HADD is still in general reliable. If the latter, then beliefs about agents would be in general unreliable. I wonder given this degree of unreliability, is it still reasonable to think that the HADD is adaptive? If the detecting device is too sensitive, it would also be costly because it is very easy to be scared. So perhaps HADD would still require around 60-80% reliability.
- 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? Are beliefs about agents always formed by this mechanism? 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 and arbitrary currently.

We need to distinguish 2 questions:

Q1: Is HADD an existing mechanism in the human mind?

Q2: When, why and how did HADD arise?

Now Q1 is indeed a scientific question which needs to be resolved by research and experiments in cognitive science. Q2 is a question about origin which is usually answered by the postulation of a certain evolutionary story. However, no one really knows about the evolutionary history. In Putnam’s words, they are mostly “totally unproved speculations.” Q2 is only meaningful when we presuppose a positive

answer to Q1. Sometimes the evolutionary naturalists seem to act as if an unproven positive answer to Q2 would vindicate a positive answer to Q1. But this is reversing the proper order of inquiry. Q1 cannot be settled by inferring from a speculative answer to Q2. If there is no evidence for HADD now, then the evolutionary just-so story would also be rendered suspect. To conclude, the evolutionary account does seem pretty much idle as far as Q1 is concerned. So what is the experimental evidence for HADD? How to prove it is “hypersensitive”? We need to check the evidence carefully.

<The Question of Historical Origin>

When, why and how did HADD arise? In the literature of CSR, most discussions of HADD begin with the observation of 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 agent. 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 the flight mode if some uncommon agitation happens in the environment, and this may be adaptive. But such 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, I think we need a lot more research on both animals and humans.

<The Question of Persistence >

Human cognitive mechanisms also possess capacity of self-correction. So we should expect the deliverance of HADD can also be modified or defeated by experience. So why should the use of HADD in the invisible realm prove to be so rigid and persistent? I guess people can 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, the cognitive abilities like HADD (though he does not use this term) 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). Ability to identify the 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, it is not yet to *believe* in it. It stands to reason that the hypothesis should be abandoned 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 they can 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 or when we come to discover natural explanations for the events that originally led us to hypothesize supernatural agency?” (Murray and Goldberg, p. 192). To sum up, naturalism alone does not provide a very good explanation of the persistence of HADD.

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 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.

Similarly, a function does not mean automatically an evolutionary origin. 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. Stephen Gould’s admonition..... [emphasizes] ‘a crucial, but often disregarded, distinction [exists] between “reasons for historical origin” and “basis of current utility”. The common conflation of these entirely separate notions has engendered enormous confusion in evolutionary theory” (Schloss and Murray 2009, p. 5).

Second, evolutionary reasoning seems to have few constraints, & hence there is too much flexibility. As a result, it is largely unfalsifiable. To begin with, an evolutionary explanation can be either adaptive or non-adaptive, & hence it 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, p. 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, p. 245). For the appeal to spandrel, the concept of “by-product” is not altogether clear, and its usage in evolutionary psychology is quite loose. Is there any necessary connection between the adaptive trait and the non-adaptive by-product? If yes, why and what? If no, how likely is it for the former to produce the latter? This appeal to “by-product which is itself loosely defined” makes evolutionary explanation invincible and unfalsifiable- it can explain everything!

For example, Wenegrat asserts that "By providing real or imaginary substitute attachment figures, religious beliefs may help young people break ties with their parents without giving up their attachment needs" (Wenegrat 1990, p. 36). Then shortly after, he says conversion can also be "a way of maintaining relations with parents from whom the young adult is unable to separate" (Wenegrat 1990, p. 38). This seems to be a "Head I win, tail you lose" game! You can see the extreme flexibility of evolutionary explanation- it can explain contradictory states of affairs.

Third, evolutionary reasoning often forgets the distinction between religion and religious experience, and they often assume that once we have an explanation of the origin of religion, automatically we will have a satisfactory explanation of religious experience. But this is not the case. Especially when we have the explanation of religious experiences, and not just religion, in mind, the appeal to HADD may be putting the cart before the horse. The explanatory order of CSR is:

naturalistic mechanisms (HADD) => religious belief => religious experiences.

However, it seems more plausible to explain religious belief as the result of some people’s religious experiences plus others’ trust in the testimony of those experiences. Then there is no need to invoke HADD. So perhaps the correct explanatory order is:

divine initiative or human nature => religious experiences => religious belief

“To study mysticism or spirituality as if it derives from religion is to reverse the usual course of events. The religion is a later development, typically beginning in a mystical insight or spiritually significant event. That original RSME [religious, spiritual or mystical experience] is usually irrelevant to survival; the religion that grows out of it will probably flourish if it aids survival and die out if it does not. But the fate of the religion doesn’t tell us much about the origin of the RSME” (Beauregard and O’Leary 2008, p. 209). If this is correct, then the search for evolutionary explanations of religion is futile. But due to the

lack of knowledge, we just do not know which explanatory order is correct, historically speaking.

Conclusion

So again the CSR is far from proven. In fact some presuppositions of evolutionary psychology are not decidable on scientific basis. Constrained by these presuppositions, CSR simply would not consider other kinds of explanation. Perhaps belief in God or religious experience is simply natural according to other analyses of human nature. For example, one may suggest, “Human beings seek God as the decisive answer to fundamental questions of life and the absolute solution to puzzles in the world” (Fischer 2005, p. 29). This God will be rather different from just a God postulated by HADD- which is not really related to the inner being of humans! I am not defending this particular theory here. Here I am only gesturing towards the intrinsic limitations of the CSR paradigm.

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, logically speaking- by now 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 as well. An “‘evolutionary accident’ could certainly be part of the Creator’s plan” (Van Inwagen 2009, p. 137). Even Bloom agrees (Bloom 2009, p.126). So we have no good reasons to accept a strict & global incompatibilism, which regards CSR & religion as *intrinsically* incompatible.

The Possibility of Localized Conflicts

However, Van Inwagen made a good distinction between mere compatibility and a bad fit- some naturalistic explanations may resist to be incorporated into a theistic framework. He gives a good example of the “tears” of the Virgin statue. “Suppose that a statue of the Virgin in an Italian church is observed to weep.” However, later scientific analysis shows that the “apparent tears are bat urine..... This account of the tears is of course logically consistent with their having a partly supernaturalistic explanation.....Still, ... it strongly suggests that there’s ‘nothing more to it’ than ordinary causes... In this situation the theistic explanation looks unreasonable” (Van Inwagen 2009, pp. 135-136). I have made a similar distinction above. The idea is that while a naturalistic explanation may be logically compatible with theism, the proposed mechanisms may seem unfitting for God to use. So the naturalistic explanation is kind of improbable with respect to theism. So localized conflicts seems possible, because *some* theories of CSR may be incompatible with *some* forms of religious belief.

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.³ This objection is difficult to evaluate because, as pointed out above, the concept of HADD is not quite clear, especially with regard to the degree of hypersensitivity required. I 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 ground to discredit the entire mechanism, HADD or other senses. Otherwise we would inadvertently advocate an argument for general skepticism.

We have also argued that 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 theistic belief is wrong or unjustified unless he can adduce defeaters. If HADD, say, is only 40% of the time reliable, hence overall unreliable, then the theistic belief

³ This “standard” interpretation of HADD is contradicted by other scholars. See two carefully argued papers by Jonathan Jong (2013) & Adam Green (2015).

produced by HADD would be unjustified, but so is our belief in natural agents or other minds. This consequence is counterintuitive. Murray suggests another response: “the critic of religious belief would have to show that HADD is unreliable specifically in the contexts in which religious beliefs are formed. HADD might be unreliable when I hear creaking noises in the abandoned house down the block, but might be quite reliable when I hear a whistled tune in the hall..... the reliability of HADD can only be assessed with reference to the contexts in which it is activated” (Murray 2009, p. 171).

Spandrel Argument versus Reliability of Religious Belief

A related argument is the by-product argument: “Since religious beliefs are only by-products 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 by-products of our cognitive faculties may well be true and trustworthy. CSR mostly thinks that *modern* science is a belief-spandrel. We cannot understand how the capacity for constructing Riemannian geometry or General Theory of Relativity has helped our survival in the evolutionary context. So we believe it is only a by-product of cognitive faculties that proved to be adaptive long time ago. These cognitive faculties (whatever they are) were developed to help us fight, feed, and reproduce, but it just happened that they also yielded the capacity for developing relativity theory or advanced mathematics. [However, the details of this story are less than certain.] The fact is that although evolutionary psychologists believe science to be a spandrel, they nonetheless maintain their faith in science.

Secondly, evolutionary psychology itself is part of science, and hence also a spandrel. The spandrel argument against religion is thereby self-defeating: “Evolutionary speculations about the origins of religious belief are themselves byproduct beliefs: therefore, evolutionary psychology is irrational.” So the by-product argument would undermine itself. Horgan also points out that the “human capacity for science is arguably a spandrel, an incidental byproduct of our innate curiosity and capacity for pattern recognition. Science has nonetheless proved to be an enormously powerful method for discovering truth. The point is that the evolutionary origin of our mystical capacity has no bearing on the truth and value, or lack thereof, of mystical visions” (Horgan 2003, p. 88).

Mere Compatibilism

General Argument for Compatibilism

Suppose the evolutionary explanations could specify sufficient conditions for belief in God, is it plausible to think that the agency of God is then pre-empted? No! If there is a God, it stands to reason that he could make sure that the evolutionary process or the structure of society would favour or even determine belief in God. In doing so He is only creating a complex but reliable belief-forming mechanism. Similarly, we have many natural beliefs (Hume and Reid agreed on this point!) which, I think, can also be explained sociobiologically, e.g. belief in the external world, 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 and broken reason. If God can create complex belief-forming mechanisms in these areas, why can't He do the same for religion? It is the complete lack of such mechanisms which would be puzzling to the theist.

If there is a God, it would be important for us to arrive at a true belief in Him. It would be strange if a good God does not give any natural aid to us in this important matter. Of course I have indicated that in our world, sociobiological or sociological NEs of belief in God are far from being causally sufficient. These partial NEs actually fit well with a personal theism which emphasizes man's freedom to respond to God. It is a coherent possibility that mechanisms postulated by CSR are established by God in the first place. This is the logical basis for compatibilism.

Analogical Arguments for Compatibilism

Therefore, an evolutionary account of religion and an *alethic* account of religion (which allows for the truth of religion) are not mutually exclusive. This point can be supported by analogical arguments. Murray and Goldberg have proposed an evolutionary account of science, which “no one is going to be inclined to think that this is the whole truth about the origins and persistence of empirical science...[We can still maintain that] empirical science.... exists and persists because it helps to get us at the truth about the physical world” (Murray and Goldberg 2009, p.198).

Let us consider another 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: racism, ethnic prejudice, and stereotyping... 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. In a nutshell, this is the scientific verdict: humanly 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 in which we humans have lived and to which they happen to be suited” (Van Fraassen 2000, p. 264).

Perhaps we can say that the highly contingent course of evolution has created in us a hypersensitive *order* detection device (HODD). As Popper argues, there is no logical solution to the problem of induction, but only a psychological solution. Psychologically speaking, humans are prone to jump quickly from 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 the HODD also 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. If not, why should the evolutionary explanation of religion threaten it?

HODD may seem intrinsically unjustified but perhaps the human mind is naturally driven towards infinity. When we detect a pattern in nature, we postulate laws of nature which can yield *infinite* number of predictions. Similarly, our moral experience suggests a kind of infinite responsibility before the face of others (Levinas). From the evolutionary perspective, our conscience may again appear to be hypersensitive, but perhaps this is reflecting the dimension of ultimacy in human existence.⁴

Positive Coherence

I think it is arguable that the cognitive science of religion is positively coherent with the Christian worldview.

Explanatory Argument for Positive Coherence

Again the form of the explanatory argument can be Bayesian. Firstly, we 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

⁴ Yet another analogy is suggested by Justin Barrett: the evolutionary explanation of our belief in other minds: “a complete scientific explanation for why humans nearly universally believe that other people have minds would not suddenly count against whether humans *should* believe that others have minds. Belief in other minds and belief in gods are both highly intuitive consequences of cognitive architecture operating on ordinary inputs. Both are non-empirical, widespread beliefs. Neither is directly weakened by increasing scientific knowledge about how these beliefs come about any more than knowledge of the visual system makes us suspicious that the visual world is not really out there” (Barrett 2009, p.96). “God could have guided natural selection to develop the sorts of minds humans have. Perhaps the ‘random mutations’ from which natural selection selected were not random after all” (Barrett 2009, p.97).

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 the infinite- in matters of the good, the true and the beautiful. 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 (NERE) above. If CSR is basically correct, we would then also have an evolutionarily based spirituality (EBS). NERE and EBS together would provide a strong case for a biologically-based spirituality. So P (EBS/theism) is not low, maybe quite high. We may also expect a positive relationship between spirituality and health, or in other words, positive effects of religious experience (PERE). So again P(EBS and PERE/theism) is not low.

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 or other abstruse scientific matters, we would not be very surprised. What if they talk to us about their innate search for God and meaning of life, wouldn't we be surprised by such convoluted products of evolution (such a complicated psyche) in which only survival counts? If we think about human beings, we would not feel this way because we already know from experiences that we are *homo religiosus*. Perhaps given our nature today, we need religions for various functions. But remember that in the evolutionary context, our human nature is only in the making, & no fixed human nature can be taken as given. I submit that the prominence of the ultimacy dimension in humanity is not 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? Is there any need to see human life as sacred? Moreover, even as social animals, we can all be aesthetically blind- aesthetic experiences do not clearly contribute to survival (see Kwan 2011, chapters 13-14). 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 that religious experiences can at the same time quench our deep-seated craving for meaning and wholeness? Concerning these existential experiences, the most obvious fact is that they seem to complicate our lives unnecessarily. The time and energy 'wasted' over the quest for meaning can better be used to hunt a deer or find a mate, isn't it?

Suppose spirituality is a kind of spandrel. Then both EBS and PERE are accidents. So P (EBS and PERE/naturalism) is very low. On adaptive explanation, there are still a lot of accidents because function does not guarantee origin. Typically, "[t]ransitions 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, p.105; italics mine). The title of their paper is also revealing: "Is Religion Adaptive? Yes, No, Neutral. But Mostly We Don't Know." Moreover, there are many other ways (simpler, more mundane and not as exotic as mystical experiences) to achieve those functions. So P (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 our discoveries of EBS confirm theism relative to naturalism. This is an explanatory argument for positive coherence. We can also factor in NERE to strengthen this argument.

Transcendental Argument for Positive Coherence

We have mentioned a transcendental argument from religious experience, which argues that the Principle of Critical Trust has to be accepted if we want to avoid scepticism. Sometimes it can be expressed as a parity argument: "The primary reason to believe that it is proper or rational for a person to accept belief in God without the need for an argument is a parity argument: It is rationally permissible, in

general, to accept the deliverances of our cognitive faculties, so it is rationally permissible to accept the deliverance of our god-faculty. We simply must trust that our cognitive faculties generally produce true beliefs or we will know nothing at all” (Clark 2010, p. 506). So CSR’s rediscovery of our sense of God as a basic belief delivered by natural faculties of human beings help to substantiate this argument. Similarly, a CSR researcher argues, “when it comes to naturally derived beliefs, we may treat them as ‘innocent until proven guilty.’ I believe the same principles apply here to belief about gods. Insofar as beliefs in the existence of gods are fairly direct, natural outcomes of ordinary human cognition, they may be regarded as justified until reasons arise to reject them” (Barrett 2011, pp.108-109). (Also see Lyons.)

Psychology or cognitive science can discover some dispositions or mechanisms but cannot in itself conclude about its rationality. As an argument, this would be question-begging. We can construct evolutionary explanations of other cognitive faculties as well. In the end we have to trust them, & this is rational. Alston has an extended argument for this doxastic practice approach (Alston 1991).

Social Scientific Explanations of Religious Experience

General Considerations

No naturalistic explanation of religion should be exempt from critical examination: Do they prove the falsity of religion? Can these theories stand up to scrutiny? Is there sufficient evidence for their accounts? If we press these questions, then many naturalistic explanations seem to be more vulnerable than it looks at first. The following are some examples.

Let us consider the sociological naturalistic explanations. Firstly we note that they usually only aim at explaining the origin and persistence of religious *institutions* and *beliefs* rather than religious *experiences*. I have already explained why this is a defect. There are general reasons to think that these naturalistic explanations are not evidence-canceling. Firstly, it is not clear how any sociobiological or sociological explanation can give a sufficient condition for any experience. For example, sociological explanation may be offered to explain suicide. However usually what is achieved is only, say, a correlation between the suicide rate and some social facts, e.g. unemployment rate. It may point to the general social factors which favour suicide, but it is impotent to explain why Tom committed suicide rather than his neighbour Jim, who was in similar social conditions. It seems that a sociological naturalistic explanation is intrinsically incomplete: it needs psychological mechanisms which show how religious beliefs can induce experiences in some individual. Now let us evaluate the evidence-canceling power of psychological naturalistic explanations, which are essential to the whole enterprise.

Let us consider a psychological NE. It is evidence-canceling only if it specifies causally *sufficient* conditions (CM) for a theistic experience. Most psychological explanations proffered fell at this first fence. It is not only the case that we are often not in a position to determine whether CM is sufficient, but also that many candidates for CM are clearly not. For example, suppose CM is the desire to be immortal. If it is sufficient, then all who have such a desire will have a theistic experience, which manifestly is not the case. So to have an adequate specification of CM which is causally sufficient, CM must not obtain in the case of any non-God-experients. It seems to me the role of CM can hardly be occupied by psychological states which are clearly discernible by sense experience or introspection, e.g., conscious need for comfort, suggestibility, low intelligence. For all these states can also be ascribed to non-God-experients. At most they are only necessary conditions for a theistic experience. (This is also implausible because theistic experiences occur to so many diverse psychological types of person.) Hence, such NEs cannot be evidence-canceling.

The only candidates for a causally sufficient CM which are not obviously false may be postulated *unconscious* psychological states of God-experients, e.g., unconscious need, unresolved unconscious

conflicts. However, this saves the day only by making the attribution of these states to the God-experients extremely hard to verify. It means that it is harder to have reasons for believing in the truth of the NE. But suppose a certain CM is causally sufficient for a theistic experience, does it pre-empt God's action? Again, it is hardly the case. There is no intrinsic reason why God cannot make use of psychological mechanisms *as such* to produce an experience of Himself. For example, if there is a God, it is not unfitting for Him to use an unconscious need for God to cause a theistic experience. To pre-empt God, the specified CM has to possess characteristics which are demeaning or unfitting for God to use. We may have reason to think that is the case if the CM also leads *directly* to insanity or personality disintegration. It is plausible to claim that a good God would not use such psychologically harmful mechanism. So if the specified CM is causally sufficient and pathological or pathogenic, the *naturalistic explanation for the resulting* theistic experience is probably evidence-canceling. But obviously this kind of defeater is only available for a tiny fraction of theistic experiences.

Let us look at the methodological questions over the credentials of the Freudian explanation. (A detailed critique will be provided later.) Freud thinks that belief in God is "born from man's need to make his helplessness tolerable and built up from the material of memories of the helplessness of his own childhood and the childhood of the human race" (quoted in Heaney, pp. 9-10). Of course, these are true of all people, according to Freud. So Freud needs to explain why there are both believers and non-believers but he fails to do so. A contemporary Freudian may say that belief in God is caused by *unresolved* unconscious conflicts whereas the non-believers have successfully resolved those conflicts and hence removed the need to believe in God. Bowker, however, comments: "it would be impossible on psychoanalytic grounds alone to exclude the possibility that God is the source of the sense of God: however much a sense of God may be constructed through, and as a consequence of, the replication of infantile experience, and however much the characterization of God may replicate parental relationships, the possibility cannot be excluded that there may be an x in reality which has in the past sustained those replications and which has reinforced the continuity of such terms as "god" " (quoted in Preus, p. 211).

This is Preus' question: "what kinds of evidence might be adduced by religious apologists to challenge naturalistic theories so as to advance beyond these gratuitous proposals of possibilities?" (p. 211). However, it is not clear while theistic proposals are regarded as gratuitous, the Freudian "proposals of possibilities" should be taken for granted. Let us consider a group of God-experients. Now the Freudian critic suggests that the following claims are true:

- 1) These God-experients all have unresolved unconscious conflicts, perhaps in relation to their attitudes to their fathers.
- 2) These unresolved conflicts, together with their memories of their childhood and the childhood of human race, cause them to believe in God; the needs, etc. are *projected* onto external reality.
- 3) This belief somehow *causes* them to have the theistic experiences.

Yes, these are possibilities, but we want to know whether all three claims above are true, and whether the religious experiences *actually* came about in the alleged way. But these are contingent, empirical matters which need to be verified. The Freudian critic needs to adduce reasons for believing that they are all *actually* true, otherwise these possibilities are also gratuitous. I do not have the faintest idea how these are to be verified for a particular group of people. They do not seem to be discoverable by either sense experience or introspection. Basically all claims about the unconscious are actually *theoretical constructs*. So we have to critically assess the empirical credentials of these constructs and the underlying theory of Freud. We can also ask whether the theory can yield predictions about those people? We might have a reason to believe in it if some predictions are borne out. For example, Hay argues that Freud's theory should lead us to expect that God-experients should be more neurotic than the others. But the empirical data he collects seem to contradict that : "The data that have been assembled on the psychological well-being of populations reporting religious experience contradict the view that religious experience is associated with poor mental health"(Hay 1990, p. 89).

Of course the Freudians may argue that we should not draw out the implications in this way, i.e. although God-experients generally have unresolved unconscious conflicts, they need not display signs of neurosis. Although this seems to contradict the Freudian account of neurosis, the above epicyclic move may not be impossible because Freudian explanations are typically vague and open-ended. However, in this case we have to ask, "What actually does an 'unresolved unconscious conflict' amount to? How on earth, even given the general truth of Freudianism, can the Freudians so confidently declare that this or that God-experient has unconscious unresolved conflicts, not to mention all?" Unless we have answers to these questions, we cannot just assume the truth of the Freudian naturalistic explanation.⁵

We should adopt a more critical and empirical approach to naturalistic explanations rather than an a priori approach. The critics, who are believers in science, would no doubt adopt similar criteria when they criticize any other empirical theory. Obviously, they should consistently apply the same criteria to evaluate the truth of naturalistic explanations. In this light, the following claims made by Alston may not be unjustified: "the most prominent theories in the field invoke causal mechanisms that themselves pose thus far insoluble problems of identification and measurement: unconscious psychological processes like repression, identification, regression, and mechanisms of defense; social influences on ideology and attitude formation. It is not surprising that theories like those of Freud, Marx, and Durkheim rest on a slender thread of evidential support and generalize irresponsibly from such evidence as they can muster. Nor do the prospects seem rosy for significant improvement" (Alston 1991, p. 230). Although this wide-ranging assertion needs further defense and substantiation, it poses important challenges to defenders of NEs.

The conclusion is that we have general reasons to doubt that sociological and psychological naturalistic explanations will be successful defeaters of religious experience. However, to strengthen my case, let us consider in more details the truth of various naturalistic explanations.

Sociological Explanations of Religious Experience

The traditional kinds of explanation in this area are the Durkheimian and Marxist explanations. But since there have already been a lot of discussions on them, I just devote some space to examine a more recent explanation offered by Evan Fales.

Fales' Sociological Explanation

One recent attempt to provide a sociological NE of mystical experience is Evan Fales (1996b; 1996b). His explanation is built on the studies by the anthropologist I. M. Lewis on spirit possession, and suggests that mysticism serves as a means of access to political and social power. This is his position: "when mysticism goes public, it does so in ways that involve negotiations concerning the power, social status, or access to resources and rights for individual mystics or for groups with whose interests they identify. Direct commerce with the gods is a source of power and authority; and those who can make a socially recognized claim to such commerce do in fact do so in contexts in which competing social interests are at stake" (Fales 2005, p. 447). Fales thinks that this sociological understanding of mystical experience is superior to the theistic explanation.

However, his project suffers from the generic problems of naturalistic explanation which I have pointed out. He has also been incisively criticized by Gellman (2001). Gellman responds by producing

⁵ So far I have assumed that the general Freudian theory at least is credible. This of course is controversial. Some psychologists, e.g. Eysenck, dismiss Freudianism as psychobabble. Even Grunbaum, not an unsympathetic commentator, says: "far from having good empirical support, at best these obsessional and oedipal hypotheses have yet to be adequately tested, even prior to their use in a psychology of religion. *A fortiori*, the psychoanalytic ontogeny of theism still lacks evidential warrant" (1987, p. 166). See also Farrell; Kline; Masson; Webster.

counterexamples to Fales' central thesis that public mysticism mediates the struggle for recognition and authority. In the cases of mystics like Jacob Boehme, Abraham the son of Maimonides (1186-1237), Baal Shem Tov, and Rabbi Abraham Isaac Kook (1865-1935), their mystical experiences have little to do with their attainment of power. Moreover, there is the phenomenon of non-institutionalized mysticism: mystical possession is often independent of social institutions, or the mystic is not well placed for access to power. Gellman further argues that even if Fales' theory were convincing, it would not be successful as a defeater. Suppose the mystics did manage to achieve improvements for their marginalized group by force of their mystical authority. Gellman asks, "Isn't it fitting for God to appear to people for the relief of oppression and injustice?"

"Few serious mystics seek such obviously fatal distractions as social power. The 'social power' hypothesis also offers no explanation of how mystical consciousness is actually acquired... 'Naturalistic proposals of these kinds exaggerate the scope and influence of the cited factors, sometimes choosing to highlight the bizarre and eye-catching at the expense of the more common occurrences'" (Beauregard and O'Leary 2008, p. 195). In fact if we are talking about religious experiences in general, then Fales' theory is hardly applicable to a large proportion of those cases. For example, in many cases of religious experience collected by the Alister Hardy Research Centre, the subjects had those experiences when they were alone, and subsequently had not talked about those experiences to other people. How then can these religious experiences "mediate the struggle for recognition and authority"?

Now Fales seems to qualify his theory: "I in no way mean here to suggest that *every* mystical experience is situated within a personal history that gives scope to the sorts of sociological influences that are analyzed by Lewis...two other individuals--quite close friends, both highly educated-- who have generously described to me in some detail their theistic mystical experiences. *In neither case do I find Lewis's framework readily applicable.* But absent such intimate acquaintance, we should not be too quick to think ourselves entitled to draw epistemic conclusions from the reports given by our sources" (Fales 2005, p. 455; italics mine). Despite admission of falsification, Fales still wants to uphold his skepticism as the default position. But I cannot see why. The preponderance of evidence, the numerous reports of religious experience which we have surveyed or mentioned, is against his theory. To require "intimate acquaintance" before we can trust others' reports is against the fundamental principle of testimony. It is also not applied to most cases. Why should we apply it only to subjects of religious experience? This seems to be unfair to and prejudicial about these people.

Psychological Explanations of Religious Experience

The Outline of Freudian Projectionism

Freud is the classical proponent of the view that religion is an illusion. Perhaps we may start with Freud's view of the human situation. His picture is quite a pessimistic one. He thinks that man is constantly facing the threats of nature and hence feels helplessness. Just as our infantile feeling of helplessness arouses our need for protection, this feeling of helplessness before nature arouses our need for protection provided by a Heavenly Father. This need, together with others (desire for justice and theoretical curiosity), explain our belief in God: "Thus the benevolent rule of a divine Providence allays our fear of the dangers of life; the establishment of a moral world-order ensures the fulfilment of the demands of justice, which have so often remained unfulfilled in human civilization; and the prolongation of earthly existence in a future life provides the local and temporal framework in which these wish-fulfilments shall take place. Answers to the riddles that tempt the curiosity of man, are developed in conformity with the underlying assumptions of this system." Hence in this sense religion is an illusion, a belief primarily motivated by wish-fulfilment.

The Weakness of Freudian Projectionism

Numerous thinkers have already mounted a counter-critique of the critique of Freud⁶ I just explain the main points below. Firstly, we need to see the gap between the need and the conscious belief by distinguishing several things:

- a) need to cope with the threats of nature and civilization, to understand oneself and the world
- b) wish there to be a Cosmic Father
- c) believe that there is a Cosmic Father

Freud believed that (a), (b) and (c) are true of man (almost) universally and that (a) is the cause/explanation of (b), and (b) that of (c). However, there is no valid psychological generalization from either (a) to (b) or (b) to (c). A need may not necessarily generate a corresponding wish (not to say a wish of a particular content)- we can resign or evade or accept stoically the reality. Freud himself can adopt a non-religious way to cope. Why can't others? To make this link more plausible, extra assumptions concerning the human psyche have to be made. A wish rarely, statistically speaking, generates a belief. In contrast with dreams, conscious belief calls for mental assent as well as readiness to act upon it, sometimes at great costs. Freud has not provided clear guidelines to tell when and under what conditions a wish will generate a belief. It is not hard to see that *every* belief could be explained as wish-fulfillment of *some* wish. It means that a Freudian explanation may be quite vacuous.

Actually both (a) and (b) are not apparently true of all believers. Many grow up in a well-protected environment. Many can't recall any insistent wish for a Cosmic Father or they deny that it is the wish that causes them to believe. So the wishes do not seem to be necessary conditions for belief in God. To save his theory, Freud has to claim that those wishes have been repressed into the unconscious. (Conscious wishful thinking is self-defeating, anyway.) However, how can we know what exactly is contained in a person's unconscious?

In fact the wishes alone cannot be sufficient conditions either. Otherwise, why are there are unbelievers in all ages? (Remember Freud thinks that such wishes are universally shared.) So Freud needs to postulate psychological processes which operate on *all believers and them alone*. What are these processes and how are they to be verified? These questions concerning the empirical adequacy of the Freudian naturalistic explanation are crucial. However, the Freudians seldom address these questions.

Another difficulty. As a matter of fact, many religious doctrines are psychologically difficult to accept, e.g. selfless love, sacrifice, strife for perfection, taking up the cross. More importantly, a religious attitude often leads to a radical evaluation of our desires. So "the idea of wish-fulfillment in Feuerbach is a fundamentally wrong turn.... If a believer confesses his desires before God, this may be with the purpose of seeing their true status in the light of the divine providence. That in turn involves seeing why they are unimportant, or need modifying or replacing by more religiously appropriate desires. Such confession of desire in prayer is a way of coping with the problem that the pursuit of desire satisfaction creates for the ego. But the 'solution' consists in bringing the ego's desires before a standard of what is truly worthwhile. This standard must then be thought of as something independent of and transcending human wishes" (Clarke and Byrne, p. 119).

In fact projectionism is a doubled-edged sword: we can also use the projection theory to explain atheism (cf. Koster 1989; Vitz 1999). As Plantinga says, "Many people thoroughly dislike the idea of an omnipotent, omniscient being monitoring their every activity, privy to their every thought, and passing judgment on all they do or think" (1998, p. 131). This is confirmed by a surprisingly candid confession of an atheist philosopher, Thomas Nagel: "I want atheism to be true and am made uneasy by the fact that

⁶ For response to Feuerbach, see Küng (19980, pp. 191ff), Phillips (ch. 4), Neusch (pp. 31ff), and Clarke and Byrne (ch. 5). For response to Freud, see Küng (1990), Phillips (ch. 8), Neusch (pp. 90ff), and Clarke and Byrne (ch. 8). This is just a small sample of the relevant literature. I have also critically evaluated projectionism (Kwan 2006a).

some of the most intelligent and well-informed people I know are religious believers.... I hope there is no God! I don't want there to be a God; I don't want the universe to be like that" (Nagel, 130). This aversion to a theistic world is not hard to understand. As Purtill points out, "Man in relation to God is not only infinitely feeble and dependent, but is also condemned by his own sinfulness. God's infinite power and his perfect justice leave us in no very flattering position. True, there is also infinite mercy, but to be an object of mercy is hardly comforting to the ego. ...idea of the afterlife...not only presents us with a real chance of terrible and eternal failure, but it also makes us responsible for even the seemingly most trivial of our actions...complete responsibility for our actions to a power infinitely superior to ourselves, without compensating power or admiration, is completely repugnant to us... The secular view of mankind, on the other hand, leaves man himself as the highest known Being, the pinnacle of the universe. He is responsible only to himself, which is to say that he is not responsible...Some humanists feel a sense of responsibility to or for 'mankind as a whole', ...But 'mankind as a whole' cannot call us to account or judge us" (Purtill, p. 33).

The Problematic Nature of the Mechanism of Projection

Another important question about projectionism is that: how can we know the projective mechanism is in fact operating on this or that believer? To answer this, we have to be clear what is meant by such a mechanism and how to identify or individuate it. Normally when we say a belief (or experience) is a projection, it means two things:

- a) the belief is false or the experience is unveridical.
- b) the belief or experience accords with your inner desires; and it is produced entirely by such desires.

No doubt some experiences are projections: "People who are angry and filled with turbulent feelings of unresolved hatred often project that inner turmoil onto others, accusing them of harshness or oppressive behaviour, interpreting the most insignificant remark as hostility. ... Projection is one of the things we do to distort reality and shape it into our own subconscious image ... we also react to others in a disproportionate way in those areas where we are most fragile. An insecure person will interpret even a kindly remark as a grave assault, if it is made flippantly, while an off-hand remark can bring on a major depression" (Holloway, p. 103). However, in this sense 'projection' is much more than a word labelling a psychological process: it implies (strongly negative) epistemic evaluation. So it should only be used when solidly backed up by epistemic considerations. In the above examples, these considerations are provided by our consensual sense experiences and interpersonal experiences. Otherwise, although a belief may accord with one's desire very much, we still cannot conclude that it is a projection. The point is that in the normal cases, apart from the epistemic evaluation of the belief, we have no independent and secure way to identify the psychological mechanism. Likewise, we cannot say that belief in God is a projection unless we can first show that this belief is false. The projectionists simply have not told us their way to identify the projective mechanisms in believers.

Projection or Reflection?

The above discussions try to engage with projectionism and points out its various questions. However, the most important defect of projectionism as a critique of theism can be shown by a counter-question: "So what?" As Küng explains, quoting E. von Hartman, "If the gods are products of wishful thinking, it does not follow that they are merely such: we cannot conclude from this either to their existence or to their non-existence. It is quite true that nothing exists merely because we wish it, but it is not true that something cannot exist if we wish it" (Küng 1990, p. 210). Or in the words of Berger: "the entire view of religion as a human product or projection may once again be inverted... If I am right in this, what could be in the making here is a gigantic joke on Feuerbach" (Berger 1969, p. 63). It is because "both perspectives may coexist... What appears as a human projection in one may appear as a reflection of divine realities in another, ... if there is any intellectual enterprise that appears to be a pure projection of human consciousness it is mathematics. A mathematician can be totally isolated from any contact with nature and still go on about his business of constructing mathematical universes, which spring from his

mind as pure creations of human intellect. Yet the most astounding result of modern natural science is the reiterated discovery (quite apart from this or that mathematical formulation of natural processes) that nature, too, is in its essence a fabric of mathematical relations. Put crudely, the mathematics that man projects out of his own consciousness somehow corresponds to a mathematical reality that is external to him, and which indeed his consciousness appears to reflect... It is possible ... because ... there is a fundamental affinity between the structures of his consciousness and the structures of the empirical world. Projection and reflection are movements within the same encompassing reality. The same may be true of the projection of man's religious imagination" (Berger 1969, pp. 64- 5).

Conclusion

Both the general considerations and detailed considerations of some representative NEs seem to suggest that the prospect of a successful project of NE is not particularly bright.⁷ To discredit theistic experiences, we at least 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 well be true of most God-experients but they are not evidence-canceling. Theists can welcome this type of NEs as long as they are well-founded. On the other hand, some NEs may be evidence-canceling but they are not known to be 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 an ungrounded and speculative possibility. Most NEs, as a matter of fact, are neither evidence-canceling nor true of most God-experients. While some NEs are still conceivably both evidence-canceling and true, critics of the argument from religious experience still need to show that they are *available* as defeaters of the argument. They should not *complacently assume* that a NE is automatically evidence-cancelling. Moreover, the a priori approach to NE should be abandoned and any suggested NE should be subjected to rigorous empirical and philosophical scrutiny.

"It is highly unlikely that the vast array of religious expression spread across the world and throughout history is purely and simply pathological fantasy, or a device for the maintenance of a *status quo*. Nor is it plausible to explain religion as a purely theoretical exercise in meaning construction. On the contrary, in most places for most of history, religion is taken to be the most direct and practical of human activities, dealing as it does with the fundamental questions of human experience and existence...link there appears to be between report of religious experience and personal wholeness. Sensitivity in this dimension seems to parallel sensitivity in other dimensions of human experience. In other spheres of life, phenomena that are widely reported and are associated with human well-being are usually thought to be 'natural', 'part of being human'" (Hay 1990, p. 90).

⁷ Of course I haven't discussed all proffered NEs. For more detailed discussions, see Davis (ch.8), Yandell (1993, chs. 6-7), Gellman (1997, ch.5), Shaw, Waterhouse, Clarke and Byrne. Wall's whole book (Wall 1995) is devoted to this issue and he utilizes concrete examples of religious experiences to point out the inadequacy of various naturalistic explanations.

Reference

- Alexander, Denis. 2001. *Rebuilding the Matrix: Science & Faith in the 21st Century*. Grand Rapids, Michigan: Zondervan.
- Alston, William. 1991. *Perceiving God: The Epistemology of Religious Experience*. Ithaca and London: Cornell University Press.
- Atran, Scott. 2002. *In Gods We Trust*. New York: Oxford University Press.
- Barrett, Justin. 2009. "Cognitive Science, Religion, & Theology." In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press, 2009), pp. 76-99.
- Barrett, Justin L. 2011. *Cognitive Science, Religion, & Theology*. West Conshohocken, PA: Templeton Press.
- Beauregard, Mario & Denyse O'Leary. 2007. *The Spiritual Brain: A Neuroscientist's Case for the Existence of the Soul*. New York: Harper One.
- Begley, Sharon. 2001. "Religion & the Brain." *Newsweek*, May 14, 2001, pp. 40-43.
- Berger, Peter. 1969. *A Rumour of Angels*. London: Allen Lane.
- Bloom, Paul. 2009. "Religious Belief as an Evolutionary Accident." In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press, 2009), pp. 118-27.
- Clark, Kelly James. 2010. "Reformed Epistemology & the Cognitive Science of Religion." In Melville Y. Stewart, ed., *Science & Religion in Dialogue*, vol.1 (Oxford: Wiley-Blackwell), pp. 500-513.
- Clarke, Peter B. & Peter Byrne. 1993. *Religion- Defined & Explained*. New York: St. Martin's Press.
- Davis, Caroline. 1989. *The Evidential Force of Religious Experience*. Oxford: Clarendon Press.
- Eysenck, Hans. 1985. *Decline & Fall of the Freudian Empire*. Penguin.
- Fales, Evan. 1996a. "Scientific Explanations of Mystical Experiences, Part I: The Case of St. Teresa." *Religious Studies* 32: 143-63.
- Fales, Evan. 1996b. "Scientific Explanations of Mystical Experiences, Part II." *Religious Studies* 32: 297-313.
- Fales, Evan. 2005. "The Road to Dasmacus." *Faith & Philosophy* 22.4 (October 2005): 442-59.
- Farrell, B. A. 1981. *The Standing of Psychoanalysis*. Oxford: Oxford University Press.
- Fischer, Norbert. 2005. *The Philosophical Quest for God: An Introduction to the Philosophy of Religion*. Münster: Lit Verlag.
- Gellman, Jerome. 1997. *Experience of God and the Rationality of Theistic Belief*. Ithaca: Cornell University Press.
- Gellman, Jerome. 2001. *Mystical Experience of God: A Philosophical Inquiry*. Aldershot: Ashgate.
- Grandqvist, Pehr, et al. 2010. "Sacred Presence & Mystical Experiences Are Predicted by Suggestibility, Not by the Application of Transcranial Weak Complex Magnetic Fields." In Justin Barrett, ed., *Psychology of Religion: Critical Concepts in Religious Studies, Volume 1: Explaining Religion & Spirituality* (London & New York: Routledge), pp. 365-376.
- Green, Adam. 2015. "The Mindreading Debate & the Cognitive Science of Religion." *Sophia* 54: 61-75.
- Grunbaum, Adolf. 1987. "Psychoanalysis and Theism." *Monist* 70 (1987): 152-192.
- Hagerty, Barbara Bradley. 2009. *Fingerprints of God: The Search for the Science of Spirituality*. New York: Riverhead Books.
- Hamer, Dean. 2004. *The God Gene: How Faith Is Hardwired into Our Genes*. New York: Anchor Books.
- Hay, David. 1990. *Religious Experience Today: Studying the Facts*. London: Mowbray.
- Heaney, John J. 1973. *Psyche and Spirit*. New York: Paulist Press.
- Holloway, Richard. 1988. *Crossfire: Faith and Doubt in an Age of Certainty*. London: Collins.
- Horgan, John. 2003. *Rational Mysticism: Dispatches from the Border between Science and Spirituality*. New York, NY: Houghton Mifflin Company.
- Jong, Jonathan. 2013. "Explaining Religion (Away?): Theism & the Cognitive Science of Religion." *Sophia* 52: 521-533.
- Jordan, Jeff. "Religious Experience and Naturalistic Explanations." *Journal of Religious Studies*, Vol. 17

Nos. 1 and 2, pp. 158-64.

- Karnath, Hans Otto, Susanne Farber, and Marc Himmelbach. 2001. "Spatial Awareness Is a Function of the Temporal Not the Posterior Parietal Lobe." *Nature*, June 21, 2001, pp. 950-953.
- Kelemen, Deborah. 2010. "Are Children 'Intuitive Theists'? Reasoning about Purpose & Design in Nature." In Justin Barrett, ed., *Psychology of Religion: Critical Concepts in Religious Studies, Volume 1: Explaining Religion & Spirituality* (London & New York: Routledge), pp. 66-79.
- Kellenberger, James. 2017. *Religious Epiphanies Across Traditions & Cultures*. Palgrave Macmillan.
- Kline, Paul. 1972. *Fact & Fantasy in Freudian Theory*. London: Methuen.
- Koster, John P. 1989. *The Atheist Syndrome*. Brentwood, Tennessee: Wolgemuth and Hyatt.
- Küng, Hans. 1990. *Freud and the Problem of God*. Enlarged edition. New Haven and London: Yale University Press.
- Kwan, Kai-man. 2006a. "Are Religious Beliefs Human Projections?" In Raymond Pelly and Peter Stuart, eds., *A Religious Atheist? Critical Essays on the Work of Lloyd Geering* (Dunedin, New Zealand: Otago University Press, October 2006), pp. 41-66.
- Kwan, Kai-man. 2006b. "Can Religious Experience Provide Justification for Belief in God? The Debate in Contemporary Analytic Philosophy." In *Philosophy Compass*, November 2006.
- Kwan, Kai-man. 2009. "The Argument from Religious Experience." In William Craig & J. P. Moreland, eds., *The Blackwell Companion to Natural Theology* (Oxford: Blackwell), pp. 498-552.
- Kwan, Kai-man. 2011. *The Rainbow of Experiences, Critical Trust, and God: A Defense of Holistic Empiricism*. New York: Continuum.
- Kwan, Kai-man. Forthcoming. "The Argument from Religious Experience." In Colin Ruloff, ed., *Contemporary Arguments in Natural Theology* (London: Bloomsbury Press).
- Lowenthal, Kate. 2007. *Religion, Culture & Mental Health*. Cambridge: Cambridge University Press.
- Lyons, Jack C. 2009. *Perception and Basic Beliefs: Zombies, Modules, and the Problem of the External World*. Oxford: Oxford University Press.
- Masson, Jeffrey. 1990. *Final Analysis: The Making & Unmaking of a Psychoanalyst*. London: Fontana.
- Murray, Michael J. 2009. "Scientific Explanations of Religion & the Justification of Religious Belief." In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press, 2009), pp. 168-78.
- Murray, Michael J. & Andrew Goldberg. 2009. "Evolutionary Account of Religion: Explaining & Explaining Away." In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press, 2009), pp. 179-99.
- Nagel, Thomas. 1997. *The Last Word*. Oxford: Oxford University Press.
- Neusch, Marcel. 1982. *The Modern Sources of Atheism*. New York: Paulist.
- Newberg, Andrew, Eugene D'Aquili and Vince Rause. 2001. *Why God Won't Go Away: Brain Science and the Biology of Belief*. New York: Ballantine Books.
- Persinger, Michael A. 1987. *Neuropsychological Bases of God Beliefs*. New York: Praeger. [copied]
- Phillips, D. Z. 2001. *Religion and the Hermeneutics of Contemplation*. Cambridge: Cambridge University Press.
- Plantinga, Alvin. 1998. Selected Chapters from *Warranted Christian Belief*. For use in Summer School '98 course IND616, Regent College.
- Preus, J. Samuel. 1987. *Explaining Religion*. New Haven & London: Yale University Press.
- Purtill, Richard L. 1974. *Reason to Believe*. Grand Rapids, Michigan: Eerdmans.
- Putnam, Hilary. 1992. *Renewing Philosophy*. Cambridge, Massachusetts: Harvard University Press.
- Richerson, Peter J. & Lesley Newson. 2009. "Is Religion Adaptive? Yes, No, Neutral. But Mostly We Don't Know." In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press, 2009), pp. 100-17.
- Richmond, Patrick. 2010. "Scientific Explanations of Religious Experience & Their Implications for

- Belief." *Science & Christian Belief* 22.1(April 2010): 23-42.
- Schloss, Jeffrey & Michael Murray. 2009. "Introduction: Evolutionary Theories of Religion." In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press), pp. 2-25).
- Shaw, D.W.D. 1978. *The Dissuaders: Three Explanations of Religion*. London: SCM Press.
- Stein, Joel. 2003. "Just Say Om." *Time*, August 4, 2003, pp. 44-54.
- Stove, David. 1999. *Against the Idols of the Age*. New Brunswick: Transaction Publishers.
- Swinburne, Richard. 1979. *The Existence of God*. Oxford: Clarendon Press.
- Van Fraassen, Bas C. 2000. "The False Hopes of Traditional Epistemology." *Philosophy & Phenomenological Research* LX.2 (March 2000) : 253-280.
- Van Inwagen, Peter. 2009. "Explaining Belief in the Supernatural: Some Thoughts on Paul Bloom's 'Religious Belief as an Evolutionary Accident.'" In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press, 2009), pp. 128-38.
- Visala, Aku. 2011. *Naturalism, Theism & the Cognitive Study of Religion: Religion Explained?* Farnham, Surrey: Ashgate.
- Vitz, Paul C. 1999. *Faith of the Fatherless: The Psychology of Atheism*. Dallas: Spence.
- Wall, George. 1995. *Religious Experience and Religious Belief*. Lanham, MD: University Press of America.
- Waterhouse, Eric S. 1923. *The Philosophy of Religious Experience*. London: The Epworth Press.
- Webster, Richard. 1995. *Why Freud Was Wrong: Sin, Science and Psychoanalysis*. Fontana.
- Wenegrat, Brant. 1990. *The Divine Archetype: The Sociobiology and Psychology of Religion*. Massachusetts: Lexington Books.
- Wilson, David Sloan. 2002. *Darwin's Cathedral: Evolution, Religion & the Nature of Society*. Chicago, Illinois: University of Chicago Press.
- Wilson, David Sloan. 2009. "Evolutionary Social Constructivism: Narrowing (but Not Yet Bridging) the Gap." In Jeffrey Schloss & Michael Murray, eds., *The Believing Primate: Scientific, Philosophical, & Theological Reflections on the Origin of Religion* (Oxford: Oxford University Press, 2009), pp. 318-38.
- Woodward, Kenneth L. "Faith Is More Than a Feeling." *Newsweek*, May 14, 2001, pp. 44-45.
- Yandell, Keith. 1984. *Christianity and Philosophy*. Grand Rapids: Eerdmans.
- Yandell, Keith E. 1993. *The Epistemology of Religious Experience*. Cambridge: Cambridge University Press.