

# The cognitive science of religion: A critical evaluation for theology

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This article explores the cognitive science of religion to discover the challenges and implications for theology by providing a critical evaluation through the lenses of philosophy, evolutionary biology and neuroscience. Four positive implications of the cognitive science of religion are identified. Firstly, the cognitive science of religion can function as a strong hermeneutics of suspicion through which theologians can criticise dogmatic and authoritative religions and theologies. Secondly, the cognitive science of religion invites scholars of religion and theology to consider the evolutionary view of survival. Thirdly, the discipline's counter-intuitive concept of God could provide the basic material for theology. Finally, the folk psychology this field depends on can be harmonised with theological emphasis on the weak. Despite these positive comments, it is nevertheless clear that a constructive encounter between the cognitive science of religion and theology should follow a careful critique of the former. Thus, I criticise that the cognitive science of religion is excessively dependent on evolutionary psychology and overemphasises a reductionist explanation of religion as merely a by-product of evolutionary adaptation whilst this study almost precludes any non-reductionistic model of mind such as 'connectionism' and 'enactionism' as well as any holistic interpretation of religion and theology. Finally, I conclude that *theology of nature* is a proper method for establishing a relationship between the cognitive science of religion and theology.

**Contribution:** The article explores a critical accommodation of and response to the cognitive science of religion which has challenged religion and theology. It can not only expand transdisciplinarity of theological discourse, but also enrich the discourse of science and religion.

**Keywords:** the cognitive science of religion; evolutionary psychology; counter-intuitive concept of God; hermeneutics of suspicion; enactionism.

## Introduction

It is interesting to consider that scientific revolutions have occurred coincidentally in cycles of 100 years – for example, Isaac Newton (1642–1727), Lavoisier (1743–1794), Charles Darwin (1809–1882). More important, however, is that those revolutions have always been challenges to Christianity and other religions. More recently, in the 1970s and 1980s, sociobiologists such as E. O. Wilson and Richard Dawkins appeared from a background of Neo-Darwinism and have continued to challenge the social sciences, including religious studies, right up to the present. Furthermore, in the 1990s, the emergence of evolutionary psychologists, such as Steven Pinker, has facilitated harsh debates between the natural and social sciences, including the humanities. Almost simultaneously with the appearance of evolutionary psychology, a new field emerged, called the 'cognitive science of religion', which engages in scientific research into the study of religions, and can be considered a direct challenge to various religions, including Christianity. Given that early Christianity was based on a dialectic of faith and theology, in which theologians were encouraged to engage with other sciences, we too should not only research the cognitive science of religion (CSR) critically, but also draw out its positive implications to see if there is any room for a meeting with Christian faith and doctrine. Accordingly, in this article, I investigate the background, characteristics and theological implications of the CSR, whilst also offering critical evaluations considering sciences such as philosophy, evolutionary biology and neuroscience. This investigation will provide a basic platform from which to advance to the next step, which is, at some point in the future, to find an alternative model and construct a fresh and distinct theological hypothesis that corresponds to our reality.

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# The challenge of the cognitive science of religion

## Background

The CSR is a recently emerging and rapidly developing field of the 1990s (Martin 2004). It began with Pascal Boyer, of the Washington University in St Louis, who can be considered the pioneer of this field. Other leaders in the field include Luther H. Martin, Robert N. McCauley, Scott Atran, Todd Tremlin and E. Thomas Lawson from the United States; Harvey Whitehouse of Great Britain and Ilkka Pyysiäinen from Finland. Furthermore, the International Association for the Cognitive Science of Religion (IACSR) and the North American Association for the Study of Religion (NAASR) were created under the auspices of Lawson and Martin, and are producing research steadily through the *Journal of Cognition and Culture* (see <http://www.iacsr.com/index.html> and <http://www.as.ua.edu/naasr/about.html>).

## The character of the cognitive science of religion

Although this discipline has been in existence for just a very short period, the quantity of research output already produced is vast. Therefore, I describe here several characteristics of this new science of religion.

Firstly, the CSR is basically an interdisciplinary study, 'gathering in neurology, psychology, biology, archaeology, paleontology, anthropology, linguistics, philosophy, and other fields' (Tremlin 2006:7). As we can glean from the name of Tremlin's study, *Minds and Gods: The Cognitive Foundations of Religion*, the cognitive science of religion (hereafter CSR), cognitive psychology or 'the study of mental activity as an information-processing problem' is the fundamental background (Gazzaniga, Ivry & Mangun 2002:97). This is especially the case, as another definition of cognitive psychology states, 'it is all about how we manipulate representations' (Gazzaniga et al. 2002:97). Indeed, CSR has scrutinised various religious representations – religious ritual (Lawson & McCauley 1990), religious ideas about gods, belief and so forth (Boyer 1994) and representations of both religious rituals and ideas (Andresen 2001; Atran 2002). Meanwhile evolutionary psychology, which has received global attention since the appearance of Steven Pinker's *Instinct of Language* (1995) and *Blank Slate* (2003), has also been an important underpinning of CSR (Andresen 2001:5; Tremlin 2006:57). Evolutionary psychology holds that the human mind has been created throughout the long history of evolution, such that human instincts, including thought, initially adapted to the environment of the prehistoric age when modern humans (*Homo sapiens*) came into being (Tremlin 2006:14–15). Now CSR applies this same premise to religious studies.

Secondly, according to CSR researchers, religions, rituals and the concept of gods are altogether by-products of the human mind (cognition), itself influenced by the history of evolution (Andresen 2001:15–16; Atran 2002:265). Their explanation of the origin of religion is also distinctive. Against the theory that explains religion as originating from a primary cause (a

religious phenomenon or experience in primeval time) which then expanded into numerous and diverse religious phenomena, CSR proponents contend that today's religions are surviving descendants that have suffered a crooked natural history amongst innumerable religious phenomena and modes of the past. Furthermore, CSR scholars, specifically, define the concept of gods as 'counter-intuitive' (Atran 2002:95–100; Tremlin 2006:86–93). Because the concept of god/s has an aspect of anthropomorphism in all religions, such deities are then categorised according to a varied equation of relationship in which there are exaggerations, absences, similarities and reverses of the characteristic elements of humans and of human cognition.

Thirdly, CSR makes folk psychology (one of the folk sciences along with folk physics, folk biology, etc.) a presupposition of the field (Lawson 2005:559). Psychological principles, cognitive habits, concepts and customs which we can find in daily life are thus connected to the development of religious concepts and rituals.

Fourthly, CSR scholars seem to differentiate too strongly between 'explanation' and 'interpretation'. They believe that in the past, religious studies have ignored aspects of explanation and have overemphasised interpretation, and therefore argue the need to 'redress the imbalance' (Lawson 2000:342).

## Positive implications for theology

In recent times, CSR has sought to change the map of religious studies whilst standing up for scientific research into religions. Because proponents of CSR assume that previous studies of religion were not scientific, considerable debates and challenges are to be expected between CSR and religious studies. Christian theology, one of the areas of the study of religion, is no exception. Therefore, within the overall features of CSR described above, I need to explain the specific challenges to Christian theology and positive implications for theological studies from CSR.

Firstly, one result of CSR research might be a very strong 'hermeneutics of suspicion' which could be used alongside Paul Ricoeur's 'demystification' (Palmer 1969:44). It becomes possible to criticise dogmatic and authoritative religions and theologies effectively through the theories of CSR. That being said, the argument that the concepts of gods are a product of the human mind, and that religious institutions and doctrines have a purely human origin is not something new. Because of the Enlightenment, numerous criticisms and critical or liberal theologies have emerged, biblical texts have been demythologised and reinterpreted, and orthodox doctrines are now understood in light of the historical and social situation of early Christianity. We can find a typical example of this in the Jesus Seminar, a research group exploring the historical Jesus, and that challenges existing doctrines and portraits of Jesus through interdisciplinary studies (Borg & Wright 1999; Crossan 1991; Funk 1996). If we view the outcome of CSR research positively, the horizon of criticism

can be expanded from the historical and social context to the evolutionary context, or to the entire and vast history of nature.

Secondly, the 'viewpoint of survival' as applied to religious studies and theology can raise interesting questions. If we are able to make room for the argument that all religions, their thinking and culture have been influenced by natural selection and have emerged as by-products of cognitive evolution, we may reach the opinion that religions need to listen to the voice of nature in order to survive. In consequence, a religion that deviates from the instincts of human beings and the human mind might be weeded out.

Thirdly, even if it could be proved, after positive and theoretical verification that the concept of gods is 'counter-intuitive', CSR's argument that the gods the different religions point to are concepts formed by human beings is similar to existing tendencies in contemporary Christian theology. For example, systematic theology is now often given the name of 'constructive theology', which implies 'an activity of imaginative construction' (Kaufman 1993:ix). Therefore, viewed positively, CSR's research into the concept of gods could serve as a basic source for constructive theology.

Fourthly, the fact that CSR draws on folk psychology is also meaningful. As the definition of folk psychology shows, the way common people think has always played an important role in religions. Religious institutions, thinking and cultures are not the exclusive property of a specific class of clergy. Moreover, the common people are not limited to religious groups, because human cognition as understood by CSR does not divide people into faithful and unfaithful groups (Boyer 2001:3). This theory can thus correspond to various modern and postmodern theologies, such as liberation theology, which has long emphasised the experiences of those at the bottom of society and the weak. It can thus be argued that religions that ignore the cognitive features of ordinary people are unsound and will find it hard to survive.

## Critical responses of other sciences

The theological implications of CSR given above highlight the positive aspects of the field. However, it cannot be said that all the arguments of CSR can be received so positively, because there are also several negative and worrying aspects. I will thus deal with CSR more critically in this section. That being said, the scholars who are named here and assumed to take critical positions towards CSR have not themselves criticised CSR directly. They are merely cited because the results and methods of their research are helpful in revealing the defects of CSR.

### The assumptions of evolutionary psychology

As noted above, CSR depends on the assumptions and research production of evolutionary psychology. Given this, we need to

examine those assumptions. Accordingly, I introduce an article by Suplizio (2006), entitled 'Evolutionary Psychology: The Academic Debate'. Suplizio argues that evolutionary psychologists assume that the scholars from other disciplines who are researching human beings view the human mind as if it were a blank slate, which can then be written upon by any external cause, such as environment or culture. Yet, according to Suplizio, this assumption is wrong. Thinkers and scholars, such as Locke, Rousseau, Piaget and Lévi-Strauss, whom evolutionary psychologists have taken as examples of those presupposing arguing a blank slate, did not, in fact, accept this. For example, Suplizio explained that Locke considered the human mind as a container of 'primitive (intuitive) resources for thinking logically', Piaget refused psychology to fully accept the Blank Slate Doctrine and Lévi-Strauss attempted to find out 'the mind in its most primitive state' (Suplizio 2006:272–274). Suplizio believed that evolutionary psychology should be supplemented by biological anthropology, which views human beings as 'animals', empirical linguistics which considers humans 'embodied' beings and developmental psychology which considers the human as a 'child', unlike evolutionary psychology's 'conception of the human as thinking machine' (Suplizio 2006:291).

Furthermore, it is very doubtful whether all mental phenomena, including languages and religious experiences, can be explained only in terms of evolutionary psychology. Andresen, a theologian who sympathises with CSR, divides the cognitive sciences into 'cognitivism', 'adaptationism', 'connectionism' and 'enactionism' (Andresen 2001:5–7). In the field of cognitive science, the 'cognitivist' paradigm which explained a human mind in light of a 'computational model' was dominant during the 1960s. As mentioned above, evolutionary psychologists such as Pinker who inherited from this computational model had combined cognitivism with evolutionary adaptationism during the 1990s. But these two models are historically not a full picture of cognitive science. As the 'connectionist' paradigm appeared in the late 1970s, the human mind began to be understood as a connected being through numerous networks. This view has been recently developed to the 'enactionist' paradigm which has acknowledged 'the importance of dynamical mechanisms and emergence' in the human mind and interpreted 'cognition is embodied action – the enactive activity of situated agents who create regular interdependencies with their surroundings' (Andresen 2001:7). Thus, the fact that the world of the cognitive sciences is varied and wide makes us realise that the perspective of CSR would be limited and narrow because most scholars of CSR depend only on 'cognitivism' and 'adaptationism' (Suplizio 2006:271). I here argue that more diverse perspectives, such as 'connectionism', 'emergentism' or 'enactionism' should be incorporated into the study of religion.

### The alternative model of evolutionist Matt Ridley

Whilst CSR scholars distinguish between interpretive and explanatory research in studies of religions, human

cultures and cognition, at the same time, they criticise the humanities and social sciences for having a bias towards 'interpretation' and claim that a balance between interpretation and explanation is needed (Lawson & McCauley 1990:30). This point seems to be closely related to the way in which CSR characterises nature (an evolutionary cause) as pitted against nurture, and denounces the opposing group with the catch phrase 'blank slate'. However, not all evolutionists are like Steven Pinker. Amongst scholars who offer an alternative model to the dichotomy between nature and nurture is Matt Ridley, a journalist of science who, in stark contrast to Dawkins (1989), famous for *The Selfish Gene* model, explains the altruism of the human being with vast and in-depth material from biology, the social sciences and the humanities in his book, *The Origins of Virtue* (Ridley 1996). In Ridley's recent work, *Nature via Nurture* (2003), he suggested a new model that could terminate the historical debate between nature and nurture. As can be seen from the title of his book, he changes 'vs (against)', which was the keyword of previous debates into 'via (through)', to show that nature, which is given genetic traits, is not developed automatically, but emerges from environmental and fostering stimuli with many-sided examples. Typical examples include new neurons emerging through experiences, animal 'imprinting', which can be interpreted as both nature and nurture in point of fact, and 'aversion to incest' which can be considered as the 'inevitable development from a genetic program' but should be simultaneously evoked when two children, who are not siblings, have brought up together since their early childhood (Ridley 2003:145, 153, 173).

Therefore, debates over whether one should choose nature or nurture are exhausting and meaningless. Nature and nurture are so intricately related to each other that separating them is impossible. Is it possible to divide and separate them? It might be impossible. The reality that nature gets entangled in nurture would be understood by a teaching that 'explanation' cannot be separated from 'interpretation' in perspectives of hermeneutics and philosophy of science. As we might know from the history of hermeneutics, both explanatory and interpretive aspects are needed, and maintaining only one side does not lead to truth (Palmer 1969:59–60). As Barbour (1990:32–39), who was a pioneer of dialogue between science and religion showed clearly in *Religion in an Age of Science*, both science and theology (the humanities) have explanatory elements of experiments and verifications of data, and at the same time, interpretative elements in building up hypotheses and creating models. For instance, although Dawkins tries to explain the scientific facts about genes through the 'selfish gene' hypothesis, the term, 'selfish gene' should itself be called a metaphor. This shows that scholars such as Dawkins, who are considered to stand in the most radical camp of 'explanation', are actually offering works of 'interpretation' and using specific interpretative terms. By contrast, anthropologists and social scientists, who are believed to do interpretive work mainly, strive to explain numerous social phenomena and human features scientifically within the frames of their theories. Therefore, an excessive separation and division of nature and nurture, or of explanation and

interpretation adds nothing but confusion, and this is the time when creative models such as Ridley's are needed.

### Synaptic approach – A critique from neuroscience

As noted above, CSR scholars see the human brain and mind as by-products of evolutionary history, in light of module theory. There are, however, other scholars who explain the mind and brain in different ways. Typically, one can count Joseph LeDoux, a neuroscientist who studies emotion with Damasio (Gazzaniga, Ivry & Mangun 2002:542–543). In his recent book, *Synaptic Self*, LeDoux (2002:41–42) focussed on the 'synapse' that is located in 'the small synaptic space between the terminal and the spine' of nerve fibre and is 'the point [for] sending and receiving elements of neurons.' This synapse performs an enormously important role in the human brain connecting numerous parts and functions physically, chemically and biologically, and finally allowing cognition, emotion and motivation to emerge. Moreover, LeDoux contended that the harmony of these three functions, which he terms 'the mental trilogy', forms the human self, namely the synaptic self (LeDoux 2002:258–259). In this way, he attempts to disprove and overcome traditional cognitive science, which has concentrated only on cognition. Consequently, his research is suggestive for CSR. If CSR does not accept new approaches to brain research, such as this branch of neuroscience, satisfactory and integrated studies of religion will not be possible. In particular, I want to pay attention to a characteristic of the synapse which is a kind of empty space. If there are no materials in an empty space between the synapse and the brain controlled by this synapse, it shows that the brain mechanism cannot be fully explained by materialism and we then might conclude that the brain cannot be reduced to a machine in the same way as occurs in CSR and evolutionary psychology's module model. Therefore, LeDoux's synaptic model provides some room in which we are able to theologially interpret the brain and discover God's existence and the reality of religious experiences therein, whereas we cannot or do not need to imagine and assume such phenomena when relying solely on CSR theories.

### Conclusion – How can theology make a conversation with cognitive science of religion?

In sum, and briefly, the recently emerging field of CSR (the cognitive science of religion) challenges not only cognitive and social science but also religion and theology. As an interdisciplinary study, CSR depends mainly on cognitive science, evolutionary psychology and folk psychology. It considers religion a survival object and reckons the concepts of gods to be counter-intuitive. In addition, CSR tends to differentiate between interpretation and explanation. After explaining these characteristics of CSR, its influence on and implications for theology were evaluated. CSR can provide a powerful 'hermeneutics of suspicion' and the material to organise a basic theology and constructive theology.

However, the negative features of CSR emerged through comparison with other sciences. The extravagant dependence on evolutionary psychology and modalism, which is only the view of the cognitive sciences, makes CSR a monotone and unvaried study. Overemphasis on explanation further pushes CSR into a useless and exhausting debate. If, however, we take care not to indulge in the defects of CSR, a creative encounter between theology and with other sciences, such as LeDoux's neuroscience, can be expected.

Thus, I want to finalise this article by responding to the following question: 'How can theology engage in a conversation with CSR?' The fact is that theology has been evolved in a varied relationship between theology and science for a long time. According to Ian Barbour, an eminent scholar on the intersection of science and religion, there are four types of relationship between religion and science: conflict, independence, dialogue and integration (Barbour 1990:3). People who belong to the camp of conflict have insisted on the exclusiveness of truth. The Medieval Church, rooted in authoritarianism, and scientific creationism, which believes in biblical literalism, have both denied science. Meanwhile, scientism does not acknowledge religion because it believes that science is the sole source of knowledge and truth (Barbour 1990:4–10). Although a prejudice that religion is always in conflict with science is prevalent in the media industry, more people think that religion has no relationship with science and that each area plays in a separate and independent area (Barbour 1990:10–16). However, scholars such as Barbour, who seek a dialogue between religion and science, have insisted that religion and science have been changed through interaction and that a conversation between them is necessary (Barbour 1990:16–23). For instance, the change in the cosmic view caused by the paradigm shift from the Ptolemaic theory to the heliocentric theory has made theologians realise a cosmic view that biblical times presupposed. It has granted them the new task of reinterpreting the Bible in light of the cosmic view of our times. The deism of modern theology stands on Newtonian physics and presupposes a mechanistic understanding of nature.

Notably, metaphysics and theology have attempted to prove the existence of God through observed phenomena and the causal relationships in nature from ancient Greece to modern times. This cosmological proof of God is a facet of *natural theology* (Barbour 1990:24). It is one of the typical examples used to show that theology and science are closely interrelated. If that is so, can CSR prove God's existence? Can CSR validate the Christian faith? If one were to follow the path of natural theology, the answer would definitely be negative. Instead, natural theology might unwittingly support a reductionistic position for CSR, in which religion and faith practices are viewed as evolutionary methods for the survival of human beings and, especially, religious communities. In fact, as a modern philosopher, David Hume disputed the traditional ways of proving that God exists. He believed that the project of natural theology for

proving God's existence by understanding nature had failed. From the philosophical perspective, no one can prove that only a causal relationship explains all phenomena and experiences in the world, including the non-material world, and that the end of the chain of cause and effect should be God. But the impossibility of proof does not necessarily mean the non-existence of God. We should not overlook the fact that metaphysics and religious faith are certainly different fields when compared with the natural sciences. Thus, unlike the arguments of some CSR scholars, a concept of God that is explained as a by-product of evolutionary modules in the brain cannot be identified with the being of God and can neither prove nor disprove God's existence. Natural theology risks letting theology become overly dependent on a specific scientific theory because not only a failure of scientific theory but also the shift in the scientific paradigm have continued to occur throughout the history of science.

On the other hand, scholars, who pursue a dialogue between science and religion, distinguish the *theology of nature* from natural theology and endorse the method of the former. The theology of nature, unlike natural theology, stems from religious faith and theological traditions (Barbour 1990:26). An explanation from the perspective of hermeneutics is that no one can escape from the ontological and epistemological dimensions that he or she belongs to, such as their nation, tradition, language, culture, community, knowledge and religion (Gadamer 2004:268–270). In particular, the theology of nature is cognisant that natural science now plays a more important role in forming and transforming the epistemological and social environments. As for the theology of nature, a task of theology is to philosophically and theologially reflect nature through a profound conversation with natural science and finally reinterpret and reconstruct Christian doctrines, such as the doctrine of God, creation, humans, providence and Christology in the age of science (Barbour 1990:26; Peters 1998:22).

Therefore, I argue that *theology of nature* is a proper method for establishing a relationship between CSR and theology for the following reasons. Firstly, through the philosophy of science and the philosophy of religion, theology needs to criticise and reject what some CSR scholars have attempted: to reduce the existence and concept of God to evolutionary adaptation and the physical workings of the brain. Secondly, whilst paying attention to a reductionistic interpretation of CSR, exploring how CSR's methods will contribute to a new interpretation of the Christian Bible, the history of communities, and theological doctrines will be a new task for theology. For example, with a message to creatures from God in the Bible such as Genesis 1:22, 'Be fruitful and multiply', theology would be able to show that religion has reinforced humankind's adaptation to natural law. Another possible avenue for research would be to explore the role that teaching sacrificial love has played in the survival of Christian communities and how it is fitted to the symbiotic and interdependent ecosystem. Thirdly, CSR might support

the biblical studies and systematic theology that have recently defined the human being as an 'embodied soul' (or 'ensouled body') (Burns 2005:182; Pannenberg 1994:218). The analysis of CSR, in which religious behaviours and concepts are inherent in the cognitive process of the human brain, confirms a basic assumption of religious studies. At the same time, it makes us aware that we cannot understand human spirituality without understanding its neurological roots. However, as we have explored, theology does not need to limit its conversation partners in the fields of cognitive science and neuroscience to CSR. Instead, the dialogue with other subfields of cognitive neuroscience that could neutralise the reductionistic inclination of CSR will enrich the discourse of religion, spirituality and Christian theology.

In the limited space that remains, I just want to introduce a good example of a productive conversation amongst theology, cognitive science and neuroscience. Graves (2008) offered an inclusive model ranging from sub-atom to culture, and he employs distinctions made up of 'concentric' and 'intra-level relationships' in his book *Mind, Brain and the Elusive Souls* (Graves 2008:26–29). Graves argues that this inclusive model is possible because of the emergent system theory that he employs. Graves does not restrict the understanding of human being within cognition, neurons and brain because '[e]mergent systems theory describes the subatomic, physical, biological, psychological, cultural, and transcendent relationships constituting the human person' (Graves 2008:218). We can discover here that Graves follows the theory of emergence in which a higher level such as biological level should be based on a lower level such as physical level, but the former cannot be exhaustively reduced into the latter. Thus, Graves transformed a traditional meaning of the human soul by remarking, '[t]he soul consists of the dynamic form of the body and serves as a nexus of relationships across all six levels of human existences' and defining the role of soul as opening 'oneself up to participating in' a higher level such as 'transcendent, spiritual relationships' (Graves 2008:218).

Cognitive science and neuroscience including CSR provide us an important lesson about religion and theology. Religious faith, practice and theological doctrines have a cognitive and neurological basis even though religious experiences and theological imagination transcend physical basis. This article just unfolds a small part of the relationship between cognitive science and religion or theology. But I look forward to encountering more profound and diverse conversations between those two areas that will be performed by many other religious scholars and theologians.

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The author confirms that the data supporting the findings of this study are available within the article.

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