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Cognitive Science of Religion: Looking Back, Looking Forward

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The cognitive science of religion (CSR) arose out of attempts to "science up" religious studies and the anthropology of religion without eliminating interpretive approaches. While maintaining this historical orientation, CSR holds promise to help bridge to other areas within the scientific study of religion. Particularly fruitful areas of future collaboration and complementary study are evolutionary studies of religion, psychology of religion, sociology of religion, and archeology of religion. In response to an invitation to explore the potential of CSR for the 50th anniversary of this journal, I briefly summarize CSR's history and current state and then offer exemplary future directions that might bring CSR into fruitful connection with other areas in the greater scientific study of religion.

Keywords: *cognitive science*, *evolutionary psychology*, *prosocial behavior*.

INTRODUCTION

About eight years ago anthropologist Emma Cohen conducted long-term field research in the northern Brazilian city of Belém, investigating the religious practices of Afro-Brazilian spiritualists. Through her observations and interviews she discovered something peculiar: the way spirit-possession was described and taught by the cult-house leader (*pai-de-santo*) did not resemble how it was described by the laity, and yet the lay spiritualists affirmed the authority and trustworthiness of the leader's teachings (Cohen 2007). For some reason what was taught was not the same as what was received, but why?

Fortunately for Cohen, she could draw upon insights and strategies from the cognitive science of religion (CSR) to solve this problem. Humans in all cultures have a number of conceptual tendencies by virtue of being *Homo sapiens*, and these ideas inform and constrain religious expression (Barrett 2000; Boyer 2003). For instance, in the absence of the uncommon conditions experts enjoy, ideas that deviate too far from cognitively natural thought are subject to confusion and distortion, a phenomenon termed *Theological Incorrectness* (Slone 2004).[1] The people Cohen observed were suffering from Theological Incorrectness because the taught conception of spirit possession (a fusing or mixing of two spirits in a host's body) was too unnatural or *counterintuitive* to be easily communicated faithfully. Instead, people adopted a view of possession closer to the default settings of human thought: the spirit fully displaces the agency of the host when it enters the body because only one mind can occupy a body at a single moment. Cohen backed up this interpretation by doing something very unusual for an anthropologist: she conducted psychological experiments that indeed supported the claim that the understanding used by the

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[1] Slone chose this term because *Theological Incorrectness* is a corollary of *Theological Correctness*, a demonstrated distinction between stated theological beliefs and conceptually simpler beliefs used in real-time information processing (see Barrett and Keil 1996).

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laity was conceptually more natural and simpler than that of the house leader (Cohen and Barrett 2008a, 2008b).

Had Cohen conducted her fieldwork even seven years earlier, it is likely she would not have turned to the cognitive sciences for theoretical and methodological inspiration. CSR was in its infancy and most scholars of religion and culture did not know it existed. Published harbingers of such an approach to the study of religion appeared decades ago (Guthrie 1980; Sperber 1975), but the sustained, collaborative effort to approach religion from cognitive *and* scientific perspectives did not emerge until the 1990s. Four important books taking cognitive approaches appeared in the first half of the 1990s (Boyer 1994; Guthrie 1993; Lawson and McCauley 1990; Whitehouse 1995). But the birth event of a joined up movement featuring scholars from different disciplines and institutions working together to advance a cognitive, scientific approach was a small conference hosted by the Department of Comparative Religion at Western Michigan University in February 1996 called "Cognition, Culture, and Religion." With E. Thomas Lawson presiding, the speakers were Justin Barrett (a psychologist), Pascal Boyer (an anthropologist), Brian Malley (a religion scholar), Robert McCauley (a philosopher), and Harvey Whitehouse (an anthropologist), who would all go on to write important books in the area in large part through mutual discussion and encouragement (Barrett 2004; Boyer 2001; Malley 2004; McCauley and Lawson 2002; Whitehouse 2000). By these lights, CSR turns 15 years old in 2011. In 2000, the general approach was dubbed "Cognitive Science of Religion" (Barrett 2000), and in the subsequent years closer ties with evolutionary approaches were forged, producing the research area we see today.

I raise these historical points to highlight that CSR is not a conspiracy of scientists to take over the study of religion, but the chief impetus was (and is) from religion scholars wanting to "science up" the study of religion, and seeing the cognitive sciences (and evolutionary psychology) as particularly promising resources. For instance, in introducing their seminal book, Lawson and McCauley wrote:

> We defend two crucial metatheoretical theses. The first concerns both the possibility of and the relationship between interpretive and explanatory endeavors. In short, we maintain that both interpretation and explanation are possible and that they can fruitfully interact to increase our knowledge. They are complementary not competitive . . . . The second metatheoretical thesis concerns what we call "the competence approach to theorizing" . . . . We argue . . . that an important means for generating explanatory theories about many socio-cultural systems is to first formulate and test theories about the cognitive representations that an idealized participant's implicit knowledge about such systems suggests. (Lawson and McCauley 1990:2)

Lawson and McCauley set the tone for CSR by emphasizing a cognitive, theory-driven, empirical, and complementary approach to the study of religion. The movement that was to become CSR was primarily concerned that religious studies scholars and anthropologists of religion would "explain" religious phenomena using theories that generated empirically testable hypotheses, and made use (when appropriate) of psychologically plausible mechanisms.

CSR in Brief

Primarily, CSR draws upon the cognitive sciences to explain how pan-cultural features of human minds, interacting with their natural and social environments, inform and constrain religious thought and action. For instance, how might belief in superhuman intentional beings (gods) be explained in terms of underlying cognitive structures? Additionally, CSR considers how particular religious, cultural, and environmental factors stretch or modify natural cognitive tendencies. To illustrate, perhaps early immersion in a thought-world populated by gods shapes the development of children's cognitive systems that pertain to understanding intentional beings.

Basic Tenets of CSR

A number of tenets frame the CSR approach. First, drawing upon breakthroughs in the cognitive sciences over the past 60 years, CSR scholars reject full-bodied cultural relativism. Minds are not passive sponges or blank slates, equally able and willing to learn and use any type of information equally well. By virtue of their biological endowment as *Homo sapiens* plus regularities of the environments in which they grow up, humans naturally have numerous cognitive biases and predilections—independent of cultural particulars. The second tenet, then, is that at least some important and content-rich aspects of human cognition are pre- or extracultural. Uncontroversial examples include preferential attention to and processing of human faces (Meltzoff and Moore 1983), reasoning about the properties and movement of bounded physical objects, and the distinction between ordinary physical objects and those that can move themselves in a goal-directed manner or *agents* (Spelke and Kinzler 2007). Other well-supported domains of thought that appear largely invariant across cultures in terms of their basic parameters and developmental courses include language, folk psychology (or theory of mind), folk biology, and some aspects of moral thought and social exchange reasoning (Hirschfeld and Gelman 1994). I have referred to these various extracultural, content-rich cognitive systems as *mental tools* (Barrett 2004).

Certainly, the operation of mental tools does not determine human cultural expression in all of its diversity. Rather, mental tools can be likened to the foundation and supports of a house. They give a basic shape and size to the house, but the particulars of room arrangement, exterior facades, dormers and roof pitch, interior decorating, and all of the features that make a house unique and beautiful are free to vary considerably. Similarly, identifying the relevant mental tools for religion (or other cultural expression) mostly helps explain basic patterns of cross-cultural recurrence, and why specific cultural expression has the general shape that it does, but has little (on their own) to offer concerning particulars. A third tenet of CSR, then, is that mental tools inform and constrain religious thought, experience, and expression. For those scholars interested in the variability more than the recurrent patterns, CSR is still helpful in identifying just which aspects of religious expression are more likely to be explainable in terms of cultural particulars—those that deviate considerably from the natural outputs of mental tools.

Fourth, drawing upon Sperber's epidemiological approach to explaining cultural expression (Sperber 1996), CSR scholars typically focus on ideas that are distributed across individuals. An idea that is not shared by a community of individuals is not religious, but is idiosyncratic from this perspective. Jamesian individual religious experiences currently fall outside the purview of CSR.

It follows that the task for CSR is to account for recurrent patterns of religious expression—types of ideas, identifications, experiences, and practices—that are distributed across some population (or even across cultures). Explaining religion is explaining how mental tools working in particular environments resist or encourage the spread of these ideas and practices we might call "religious."

Additional Characteristic Features of CSR

But what is *religion* for cognitive scientists of religion? Typically, CSR scholars have avoided trying to define *religion* as a whole, but rather have chosen to approach "religion" in a piecemeal fashion, by identifying human thoughts or practices that are generally considered religious and then trying to explain why those are cross-culturally recurrent. If the explanations turn out to be part of a grander explanation of "religion," so be it, but there is no assumption that *religion* is a coherent natural kind that can be explained *in toto*.

The piecemeal approach of CSR makes it complementary to the activities of other religion scholars. CSR does not pretend to exhaustively explain everything that might be called "religion" (provocative book titles aside). Rather it seeks to detail the basic cognitive structure of thought and

behavior that might be deemed religious and invites anthropologists, historians, psychologists, sociologists, and other religion scholars to fill in the hows and whys of particular religious phenomena.

As CSR is an interdisciplinary enterprise, it is marked by methodological pluralism. To determine cross-culturally and historically recurrent features of human religious cognition, scholars in this field have turned to whichever data collection and analysis methods that appear appropriate to particular questions, including archeological (Whitehouse and Martin 2004); ethnographic (Cohen 2007; Malley 2004; Whitehouse and Laidlaw 2004); historiographic (Lisdorf 2001; Vial 2004; Whitehouse and Martin 2004); interview (Malley and Barrett 2003); and experimental (Barrett and Keil 1996), including cross-cultural (Astuti and Harris 2008; Knight 2008) and developmental techniques (Barrett and Richert 2003; Bering and Parker 2006).

Topics of Exploration

Because of the focus of popularizing texts, it is often thought that CSR is only concerned with explaining religion as a whole or with accounting for belief in gods. CSR, however, has made starts on many topics, including: children's ideas about the design and origin of the natural world (Evans 2001; Kelemen 2004); death and afterlife beliefs (Astuti and Harris 2008; Bering, Hernández-Blasi, and Bjorkland 2005); magic (Sørensen 2005); prayer (Barrett 2001); religion and morality (Boyer 2001); religious development in children (Barrett 2011); religious ritual and ritualized behaviors (Liénard and Boyer 2006; Malley and Barrett 2003; McCauley and Lawson 2002); religious social morphology (Whitehouse 2004); scripturalism (Malley 2004); the relationship among souls, minds, and bodies (Bloom 2004; Cohen and Barrett in press); spirit possession (Cohen and Barrett 2008a); transmission of religious ideas (Boyer and Ramble 2001; Gregory and Barrett 2009); and various superhuman agent concepts (Barrett 2008).

Future Directions for CSR

Below, I suggest a number of areas for future growth in CSR. Because of its relative youth, the area has a host of new problems and projects to tackle. Numerous common features of religious systems have yet to be rigorously studied from a CSR perspective, including religious architecture and art, divination, meditation, pilgrimage, prayer, prophecy, sacrifice, scripture interpretation and use, and worship.[2] As exciting as new horizons are, however, CSR will (and should) wither away if the field's players do not focus on empirical fortification and/or falsification of claims. For instance, one of the field's early prominent theories, the cognitive optimum theory, has received a fair amount of empirical attention that is forcing amendment of the theory (Barrett and Nyhof 2001; Gregory and Barrett 2009; Norenzayan et al. 2006; Upala et al. 2007). Many other theories such as Lawson and McCauley's ritual form hypothesis (McCauley and Lawson 2002), Whitehouse's modes of religiosity theory (Whitehouse 2004), Bering's simulation constraint theory of afterlife beliefs (Bering 2006), and Boyer and Liénard's theory of ritualized behaviors (Boyer and Liénard 2006; Liénard and Boyer 2006) all require greater empirical attention. A second practice that needs to become bread-and-butter to the area is more rigorous theoretical analyses, to help reject incoherent theories before they unnecessarily attract empirical attention, and to make empirical testing easier. I have in mind here exercises such as Murray and Moore's analysis of costly signaling theories of religion (Murray and Moore 2009), and Schloss and Murray's treatment of the fear of supernatural punishment theory (Schloss and Murray in press).

[2] Some preliminary investigations of scripture use (Malley 2004) and petitionary prayer (Barrett 2001) have been conducted, but a sustained stream of research has not been established in any of these areas.

In both cases, variants of theories were shown to be nonstarters, and the range of theories worthy of empirical attention was thereby reduced. As CSR scholarship grows into the areas suggested below, it must do so through careful theoretical analysis and empirical research and not merely treat the cognitive and evolutionary sciences as providers of interpretive frames.

In keeping with the founding impetus of CSR as a resource to be joined up with other scientific approaches to the study of religion (instead of as a replacement or competitor), I will focus here on ways in which CSR might bridge to other areas: evolutionary studies of religion, psychology of religion, sociology of religion, archeology of religion, and neuroscience of religion.

Connecting with Evolutionary Studies of Religion

CSR and evolutionary approaches to the study of religion have enjoyed a close relationship, particularly for the last 10 years, but the two types of approaches are distinguishable. Cognitive approaches are characterized by identifying pan-cultural features of human cognitive systems that then help account for patterns in religious cultural expression. In terms of evolution, most cognitive approaches operate on the level of cultural evolution, and conclude that religious thought and practices are byproducts of cognition that evolved because of its success in other (nonreligious) domains (Bloom 2009). Evolutionary approaches emphasize the possible adaptiveness of religious practices or identification, and have even suggested that religion is an adaptation and not a byproduct (Wilson 2002). Cognitive approaches tend to emphasize the content of religious ideas (including how those ideas shape religious practice), but evolutionary approaches emphasize religious behaviors and remain largely silent about religious thoughts.

The most natural growth area for CSR is to forge an even stronger alliance with evolutionary approaches. The two areas have much to offer each other. CSR approaches have had little to say about why religious practices seem to have adaptive outcomes on both the group level (e.g., in terms of increased in-group trust, cohesion, and cooperation) and on the individual level (e.g., in terms of health and well-being (see McCullough et al. 2010; Pargament 2010). Evolutionary approaches have generated a number of suggestions on this front. Evolutionary perspectives also add depth to cognitive explanations: why cognitive systems have particular features that they have, and why they might perform the way they do under varying environmental conditions. Conversely, CSR has more resources for answering content questions (e.g., why gods?), and the ability to account for religious phenomena that are not adaptive.

Many of those who identify with CSR argue that forms of religious expression are evolutionary byproducts—not necessarily adaptive, and not here because they provided ancestors with a selective advantage. Many who adopt an evolutionary approach argue that at least some aspects of religion are adaptations that endowed our ancestors with improved fitness over competitors who were not religious (Sosis and Alcorta 2003; Wilson 2002). A collaboration of approaches could capitalize on the possibility that many of the building blocks of religion—such as mind-body dualism, belief in gods, and a tendency to ritualize behaviors—could have arisen as evolutionary byproducts (Bloom 2009; Boyer 2003), but that once these tendencies were joined up and culturally elaborated, they created gene-culture complexes that were adaptive and selectively reinforced.

Better Bridges to Psychology of Religion

CSR makes heavy use of psychological findings and methods but has had only a weak relationship with mainstream psychology of religion. In part, such distance reflects differences in disciplinary backgrounds: most CSR scholars are religion scholars first, whereas most psychologists of religion are psychologists first. But the paucity of connections also reflects different theoretical concerns. Psychology of religion (in recent decades) has been more concerned about individual religious psychology than accounting for cross-cultural patterns in why people have

the type of religious beliefs or practices that they have. Nevertheless, real potential exists for synergy between these two areas.

I regard the experienced quality of relationships with gods as being an exciting point of potential collaboration between psychology of religion and CSR. Psychologists of religion have explored the personal and social factors that lead to people loving, fearing, trusting, and distrusting God (Hood, Hill, and Spilka 2009). A relational attachment to God, comparable to attachment to parents, is a current emphasis in psychology of religion, along with explorations of when people become angry with or feel estranged from God (Exline et al. 2011; Granqvist 2006; Kirkpatrick 1992). Because this research has essentially been about relationships with the Judeo-Christian God, little attention has been given to just what features of a god are required for a person to have loving devotion to their god instead of, say, fearful avoidance. It might be that the kind of intimacy that Christians profess to feel with God—not just loving God, but claiming to collaborate with God in life—is relatively unusual across traditions and requires a certain type of god. CSR could contribute to this discussion as it has much to say about how god concepts are formed, structured, and developed, but would also be usefully broadened if it begins to make the quality of relationships with gods a more visible scholarly concern.

Similarly, religious commitments have been associated with psychological coping, general well-being, and thriving, but unclear is why (Emmons 1999; McCullough et al. 2010; Pargament 2010). Some findings from psychology of religion hint that particular religious thoughts (and subsequent actions) might be more beneficial than others. For instance, in his research on day-to-day goals or *strivings*, Robert Emmons has shown that people who have a high proportion of spiritual strivings (such as striving to be a good Muslim, or striving to please God), tend to have better physical and mental health (Emmons 1999). University students with relatively high numbers of spiritual strivings reported lower incidences of depression, anxiety, and other common emotional distress, as well as fewer bouts of illness and visits to the university health center. It seems, then, that spiritual strivings are related to health, but why?

Emmons's research has also shown that people with lots of religious and spiritual strivings do tend to have less conflict among their various strivings, and this conflict is associated with stress and poor health. Rather than being torn in every which way by competing values and desires, religiously centered people tend to find that their strivings work together. Being actively religious, to the point that religious beliefs impact one's day-to-day goals or strivings, might promote well-being by structuring and ordering what is important in life, thereby reducing conflict, thereby reducing mental and physical illness. What is unclear from Emmons's work, and where CSR might be of some assistance, is just which religious ideas (e.g., metaphysical views, god concepts, views on morality, ideas about the afterlife) have the right conceptual properties to produce harmonious strivings or help disentangle mundane strivings to make them more meaningful and healthy. Surely not just any religious ideas will do the trick. And if not, then some such ideas have more promise to be adaptive for individuals—a question that CSR and evolutionary studies of religion commonly value.

Similarly, both evolutionary studies of religion and psychology of religion have begun showing interest in whether religion promotes prosocial behavior. For instance, Pichon, Boccato, and Saroglou (2007) found that an act of prosocial intention was increased by subliminal priming with positive-valence religion-related words. Participants completed a lexical decision task (decided whether a briefly presented string of letters was a word or not). Just before each string of words, participants were presented with one of a number of words from one of four categories: religion-related with positive valence; religion-related with neutral valence; not religion-related with positive valence; and not religion-related with neutral valence. Subsequent to the lexical decision task as participants were leaving the laboratory, they were told that they could take some publicity pamphlets for a charity organization to "increase sensitivity" to the organization's mission. Participants who had been primed with positive religion-related words took the most pamphlets. Those who had been exposed to the other three classes of words did not significantly

differ in the number of pamphlets taken. In this context, priming of positive religion-related ideas was sufficient to produce a behavioral change in the direction of increased prosociality. With a similar sample and priming procedure, Saroglou, Corneille, and Van Cappellen (2009) documented a connection between religion-related primes and a forgiving attitude to an unseen harsh critic.

These interesting findings raise a number of questions—some of which would likely benefit from CSR perspectives. Specifically, what aspects of religion (e.g., beliefs, existential security, moral teachings, social identification, ritual participation) encourage prosocial attitudes and actions, and why? What are the boundaries on this prosociality? For instance, it may be that only particular types of religiousness or particular levels of religiosity bear these prosocial marks (see, e.g., Blogowska and Saroglou 2011), or differentially apply to various classes of others (e.g., my own religious group, all of humanity, all living things).

Collaborating with Sociology of Religion

Perhaps it is premature for much speculation about collaborations between CSR and sociology of religion. CSR has been focusing on establishing the general human conditions that give rise to cross-culturally recurrent forms of religious expression with the next step being to elaborate how environmental variability—including variable social factors—moves religious experience and expression away from the cognitively natural anchor-points. Until having confidence in the regularities, a cognitively informed treatment of variability at the hands of social dynamics will remain tentative. With that proviso, I suggest just a couple illustrative areas of possible synergy.

CSR has often emphasized the theme that religion is relatively natural in some important respects. The ordinary features of our minds working in ordinary human environments (including social) make us receptive to a number of religious ideas. If religion is so natural due to cognitive factors, why does degree of religious identification, belief, and practice vary nonrandomly in human populations? Sociologists have found that religion varies among groups as well as within groups. Can sociological and cognitive accounts forge a unified account of why this is?

For instance, why do sociologists find that a minority of countries (mostly in Europe) are strikingly nonreligious compared to the rest of the world? William Bainbridge has suggested that one factor may be the web of intimate and dependent social relationships people have: people who actively care for others cannot often fully satisfy the needs of others (for safety, health, happiness) because some needs fall outside of human power or resources. Hence, suggests Bainbridge, caregivers resort to compensatory strategies, including religious practice. He writes: "Someone on whom no one else is dependent, someone who lacks strong social bonds of a kind to incur such obligations, is more free to espouse Atheism" (Bainbridge 2005). To support his argument Bainbridge shares survey data that show that single, childless, young males have much higher rates of atheism than others, and having children works strongly against atheism. Similarly, European nations with lower fertility rates are correspondingly lower in religious importance and higher in atheism rates.[3] The key mechanism proposed to account for these correlations is psychological: compensation. But why would such a psychological dynamic exist and how would it work? Alternatively, a CSR approach might suggest alternative explanations for the same correlations. Perhaps the environment of urbanized, strong-government, social-welfare states of Europe undercut many of the cognitive dynamics that encourage religious belief and practice (Barrett 2004), *and* simultaneously erode the need and desire for dependent relationships (Lanman 2009).

[3] Bainbridge interprets this as a difficulty maintaining atheism while being a parent, but of course it may be that atheists are less interested in having kids in the first place.

Even within relatively religious societies, the degree of commitment and participation varies considerably. As hinted at above, one predictable within-group difference is that women will (generally) be more religious than men (Paloutzian 1996). Surveys have found that being male is a leading predictor of nonreligiousness, increasing one's likelihood by upwards of five times (Bainbridge 2005; Beit-Hallahmi 2007). These cross-culturally recurrent patterns are just the sorts of patterns that CSR tries to explain, and perhaps it can make a contribution here. For instance, several CSR scholars have emphasized the critical role robust facility in reasoning about other's mental states, typically termed *Theory of Mind* or ToM, plays in religious thought and practice. To understand nonvisible gods as acting for such-and-such a reason, or to understand what is going on during spirit possession, or to follow the logic of a ritual in which the gods act in response to and through a series of symbolic actions all require strong ToM nimbleness. If so, people with weaker ToM facility might be less interested in religious construals of the world and related actions. Might men be more likely to have weaker than average ToM? Some evidence exists to support such a claim (Baron-Cohen 2002; Baron-Cohen and Wheelwright 2004; Knickmeyer and Baron-Cohen 2006), opening the possibility that at least one reason for the observed sex difference in religious commitment is a sex difference in relevant cognitive systems.

Assisting Archeology of Religion

Archeologists, particularly those who study prehistory, have the unenviable task of generating sound interpretations from fragmentary material evidence. Such a task, however, could be greatly aided by importing insights from CSR. If the prerequisite equipment for basic, natural religion is ordinary cognitive systems in historically (and prehistorically) prevalent environments, then evidence for the key cognitive systems that CSR scholars have identified as critical to religion, would be evidence for prehistorical people (or even prehumans) having the prerequisite cognitive equipment for religion. Evidence suggesting strong ToM facility and an ability to meta-represent (form mental representations of mental representations)[4] *plus* evidence of ritualized burials or symbolism would be more suggestive of early religion than just one set of evidence or the other.

Moving nearer the present age, suppose that on the basis of genetic evidence, skeletal remains (e.g., skulls and vertebra), and artifacts, we can safely assume a past people (e.g., 10,000 years before the present) had comparable basic cognition to contemporary peoples. If so, and if the CSR claim that ordinary human cognition is sufficient for generating religious ideas and practices is sound, then insights from CSR could be extended to past peoples. For instance, if certain materials are indicative of particular types of rituals for *cognitive* reasons instead of for more variable social reasons, archeological evidence of these materials could be taken as evidence for the particular type of rituals.

Finally, much in the same way that the scientific methodologies of CSR have been productively applied to address anthropological questions (as in Cohen's work mentioned at the start of this article), similar cognitive scientific methods might be applied to fill out archeological findings. Archeologists commonly use scientific methods to test how an artifact might have been created or the various ways in which it might be used, a practice called experimental archeology. What I am proposing in addition would be conducting true, controlled experiments to generate evidence for postulated psychology or cognition involved in the production, use, or understanding of artifacts and spaces. CSR scholars could be helpful in these efforts.

[4] For instance, evidence of meta-representation might be the development of complex artifacts that would have required meta-representation to create (Wadley, Hodgskiss, and Grant 2009). Structures that would have required complex collaboration suggest advanced ToM use.

Toward a Cognitive Neuroscience of Religion?

I am less optimistic about the imminence of CSR engaging more closely with neuroscience of religion. Perhaps this seems surprising given the close relationship between the subject matter of cognitive science (minds) and that of neuroscience (brains), as well as the swell of scholarship in cognitive neuroscience in recent decades. Nevertheless, a number of challenges face a cognitive neuroscience of religion. One such challenge is the youth of the two areas. Both the neuroscientific study of religion (sometimes called neurotheology) and CSR are new and still fairly small areas of study, meaning that the state of the art in both areas can be hard to determine, and the body of solid findings in both cases contains huge gaps. The relatively small number of trusted discoveries from CSR can more easily engage the much broader literatures of the psychology of religion or anthropology of religion. Second, a cognitive neuroscience of religion faces a difficult levels-of-explanation mapping problem. CSR attempts to explain sociocultural level religious phenomena by appealing to undergirding cognitive structures. Such a move at points requires the mapping of social level phenomena onto cognitive or psychological level phenomena (or *vice versa*). Similarly, cognitive neuroscience requires a mapping of cognitive phenomena onto brain structures and dynamics, a one-level mapping problem. Whenever such conceptual levels of explanation are mapped or reduced, some information is lost or distorted. This loss is the price paid for insights. But to succeed at a cognitive neuroscience of religion would require the interaction of three levels (social, cognitive, biological) of explanation. Whereas the promise of better understanding cognition from examining brain structures is fairly strong, and the promise of better understanding religious phenomena from examining underlying cognition has been demonstrated by CSR, it is not yet clear that either CSR or cognitive neuroscience are mature enough for genuine insights to result from a CSR-neuroscience of religion collaboration. Times are changing, however, and perhaps it will be sooner than I suppose that the time is ripe to join up these scientific approaches.

Conclusion

The CSR's strength has been helping humanities-oriented areas of the study of religion, such as religious studies and anthropology, become more scientific in their theorizing, and more responsive to empirical testing of claims. Without losing that core mission, CSR also holds promise to help bridge to other areas within the scientific study of religion. Particularly fruitful areas of future collaboration and complementary study are evolutionary studies of religion, psychology of religion, sociology of religion, and archeology of religion. Eventually, CSR and neuroscience of religion might spawn a cognitive neuroscience of religion. In any future directions, for CSR to survive and thrive as a genuinely scientific study of religion, it will need to ground itself firmly in empirical evidence for its various theoretical claims.

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