



Cognitive Science and the Naturalness of Religion

Journal:	<i>Philosophy Compass</i>
Manuscript ID:	Draft
Manuscript Type:	Article
Keywords:	Naturalistic Philosophy < Compass Sections, Mind & Cognitive Science < Compass Sections, Religion < Subject



Review

Cognitive Science and the Naturalness of Religion

Abstract

Cognitive approaches to religious phenomena have attracted considerable interdisciplinary attention since their emergence a couple of decades ago. Proponents offer explanatory accounts of the content and transmission of religious thought and behavior in terms of underlying cognition. A central claim is that the cross-cultural recurrence and historical persistence of religion is attributable to the cognitive naturalness of religious ideas. In this paper, we primarily provide an introductory summary of foundational questions, assumptions, and hypotheses in this field, including some discussion of features distinguishing cognitive science approaches to religion from established psychological approaches. Relevant ethnographic and experimental evidence illustrate and substantiate core claims. Finally, we briefly consider the broader implications of these cognitive approaches for the appropriateness of 'religion' as an explanatorily useful category in the social sciences.

1. Introduction

One way to characterize the history of epistemology and metaphysics is to recount the penchant of philosophical speculation to spawn empirical sciences. The catch, though, is that as those sciences mature, they return to commandeer intellectual domains on which philosophy had previously presumed to possess a proprietary claim. Ironically, this process by which philosophy has managed to limit its own purview is a direct consequence of philosophers' insistence on rational, disciplined inquiry. We ask philosophical proposals for greater precision and detail and press them to square with, to organize, to illuminate, and, ultimately, to inspire new discoveries about the world. What the birth of modern science brought were means for meeting such demands that are far more systematic, more efficient, and more penetrating than any devised before. The collective accomplishments of communities of scientific experts fostering theoretical competition, discovering empirical evidence, and constantly monitoring the credibility of that evidence has proved far more effective at producing fruitful accounts of the world than isolated speculations in philosophy, where assessments, far too often, have turned on nothing more than common sense, suggestive anecdotes, and the canons of logic.

To the extent that religion involves presumptions about agents who allegedly possess counter-intuitive properties, traditional projects in metaphysics, epistemology, and the philosophy of religion offer familiar means for handling such materials. They address questions about the properties of such agents, the plausibility of such configurations of properties in agents, the evidence for the existence of agents with such properties, and the status of linguistic usage pertaining to all of this. But, finally, most of these philosophical undertakings address aspects of religion's conceptual infrastructure rather than anything very directly connected with popular religious belief and practice.

By contrast, naturalists focus on explanatory theories of religion. Naturalism in philosophy demands that philosophical proposals exhibit a healthy respect for the methods and findings of the empirical sciences -- especially when those proposals address the same domains those sciences do. Where, then, might a science of religion begin? *Prima facie*, religion looks like a topic for which the social sciences and cultural anthropology, in particular, are most appropriately suited, and dominant explanatory theories in these disciplines would serve as perfectly proper points of departure. The problem, though, is that, for the past thirty years, cultural anthropology has favored interpretive over explanatory approaches to culture. Suffice it to say, formulating empirically testable theories that address explanatory questions has not been a high priority. Those cultural anthropologists who have retained a vision of the discipline's

scientific mission have suggested that students of culture look to its *psychological* foundations, where explanatory theorizing and experimental testing have thrived during exactly the same period. Subsequent research along these lines has indicated that the cognitive and psychological sciences offer valuable resources for explaining components of culture, including religion.

In this paper, we explore the core theoretical assumptions of the new cognitive science of religion (CSR) and some of the resulting hypotheses. CSR has emerged in the past two decades as an interdisciplinary and explanatory approach to religion, focusing on the cognitive foundations of religious beliefs and practices, and, in particular, on recurrences and variations of patterns across cultures. We begin by contrasting the field with established approaches to the psychology of religion and specifying what is distinctive about CSR's empirical purview. The remainder of the paper reviews both theoretical proposals that have been offered to account for the form and spread of religious belief and practice, and some illustrative case studies of empirical work in the area. For a complementary introduction to specific programs of research, we refer the reader to Barrett's recent review of the empirical literature (2007).

2. Cognitive Science of Religion

At its core, religion seems to involve individual experience. Such individual-level phenomena appear to provide a natural opening for a psychology of religion. Yet, for a host of reasons having to do with their character, their eliciting conditions, their special cultural status, and more, religious experiences do not readily submit to the standard techniques of psychological experimentation. In the seminal text in the area, *The Varieties of Religious Experience*, William James takes a different approach. He catalogues an enormous assortment of experiences reported in the history of religions, examining and evaluating numerous explanatory proposals, and advancing hypotheses of his own. James' shadow has loomed over subsequent work on religion within experimental psychology. Sorting through materials like the immense collection James surveys has occupied and inspired generations of researchers. Most of that work, however, retains two features of James' approach from which contemporary cognitive theories diverge.

The first is James' presumption that religious experience is fundamentally affective:

. . . you suspect that I am planning to defend feeling at the expense of reason, to rehabilitate the primitive and unreflective . . .

To a certain extent I have to admit that you guess rightly. I do believe that feeling is the deeper source of religion, and that philosophic and theological formulas are secondary products.

(1902/1929: 422)

Cognitivists diverge not because they reject these claims. Barrett and Keil (1996), Slone (2004), and Tremblin (2006), for example, suggest that substantial conceptual distance separates the "theologically correct" religious conceptions that subjects affirm upon reflection from the much more anthropomorphic representations that they deploy in their intuitive, on-line reasoning. Nor do cognitivists hold that religious emotions are irrelevant. They do argue, however, that explanations that focus on emotion will be unable to make much sense either (a) of the religious convictions of the substantial percentage of religious people who have not experienced any *peculiarly religious* emotion, or (b) of the forms that their religious representations take.

This leads directly to a second front on which contemporary cognitive theorists diverge more drastically from James' approach. At the outset of *The Varieties*, James declares:

I speak not now of your ordinary religious believer, who follows conventional observances . . . His religion has been made for him

1
2
3 by others, communicated to him by tradition, determined to fixed
4 forms by imitation, and retained by habit. *It would profit us little*
5 *to study this second-hand religious life.* We must make search
6 rather for the original experiences which were the pattern-setters to
7 all this mass of suggested feeling and imitated conduct.
8 (1902/1929: 7-8, emphasis added)
9

10 James holds that most everyday religious experience is but a pale imitation of the
11 originating experiences of the religiously gifted. This may be true, but if it is so, then,
12 cognitivists would argue, James himself has provided grounds for skepticism about the relevance
13 of the originating experiences to an enhanced understanding of conventional religious patterns,
14 which are “communicated . . . by tradition, determined to fixed forms by imitation, and retained
15 by habit.” On James own account it is those processes that inform the *vast majority* of people’s
16 religious experiences, beliefs, and practices. James’ strategy of studying the varieties of
17 (*extraordinary*) religious experience constantly risks doing so at the cost of its relevance to
18 studying (and explaining) *most* religious experience. In contrast to James’ approach, then,
19 cognitivists examine both cognitive and affective dimensions (as opposed to affective
20 dimensions only) of commonplace (as opposed to extraordinary) patterns of religious experience,
21 cognition, and conduct.
22
23

24 Although contributors to the cognitive science of religion have advanced assorted
25 theories about an array of religious phenomena, all champion the promise of the methods and
26 findings of the cognitive sciences for enhancing our understanding of religion, and all maintain
27 that religious thought and action turn overwhelmingly on harnessing perfectly *ordinary* forms of
28 cognition available to all normally equipped human beings. Religious representations and
29 practices rely on garden-variety cognitive capacities, which develop quite naturally in every
30 normal human being. Thus, accounting for religious belief and conduct requires neither
31 employing special methods nor postulating distinctively religious faculties.
32
33

34 The earliest works in this field looked to theoretical strategies from the various cognitive
35 sciences, including cognitive psychology, linguistics, and evolutionary psychology, in order to
36 formulate new theories about a wide range of religious materials.ⁱ Works exploring the
37 consequences of those theories include new experimental research in psychology and
38 anthropologyⁱⁱ on religious cognition as well as examinations of these theories’ abilities to make
39 sense of a wide variety of materials from diverse religious systems in other places and other
40 times.ⁱⁱⁱ Works advancing new cognitive hypotheses include proposals about sacred texts, about
41 magic, about the connections between religion and morality, and about the character of
42 theological variation.^{iv}
43
44

45 In contrast to well-established approaches in the psychology of religion, then, recent
46 cognitive theories of religion concentrate

- 47 (a) on the similarities among the mental representations that people possess
- 48 concerning religious materials,
- 49 (b) on cognitive explanations of those similarities, and
- 50 (c) on the implications of those cognitive theories for the explanation of religious
- 51 belief and practice as well as features of religious systems.
52
53

54 3. How religious cognition works

55 Cognitive theories of religion hold that the mind does not contain a specific department
56 of religion. Instead, religion exploits a diverse collection of cognitive inclinations in the minds
57 of human beings that enjoy neither a logical nor a psychological unity. The upshot of this
58 analysis is that, *cognitively speaking*, religion is a Rube Goldberg device, which is to say that it
59 is an exceedingly complicated contraption calling on all sorts of psychological propensities that
60 are, otherwise, usually unlinked (McCauley 2003). The standard features of religious mentality

1
2
3 and conduct are cobbled together from the susceptibilities of a disparate compilation of
4 psychological dispositions^v that typically develop in normal human minds for very different
5 reasons -- both from one another and from anything having to do with religion.
6

7 These psychological dispositions develop because the resulting mental reflexes they
8 undergird served our ancestors well in dealing with a host of problems their physical and social
9 environments presented, just as they continue most of the time to serve us well when we deal
10 with the same problems. These various mental capacities and their instantaneous operations
11 conferred adaptive advantages on the organisms that possessed them. They include abilities to
12 detect agents and recognize individual conspecifics, and to read their minds from the expressions
13 on their faces. Whether or not these capacities begin as dedicated, task specific systems, many
14 end up seeming to operate that way as a result of standard cognitive development.
15 Comparatively early in human development, the mind responds to some stimuli (facial, social,
16 linguistic, etc.) instantly, automatically, and unreflectively. The resulting knowledge is
17 overwhelmingly intuitive and any underlying principles that might be guiding such behavior -- if
18 such principles there be -- involve *implicit* knowledge, which is to say that they generally operate
19 below the level of consciousness.
20
21

22 Frequently, the cuing of these systems and their mental reflexes engenders powerful
23 feelings in human beings as well as characteristic intuitions and behaviors. Consider, for
24 example, the feelings and behaviors associated with the perception of contaminated food or with
25 the inability of an informant to make eye contact or with inequitable distributions of resources on
26 the basis of self-interest. All other things being equal, the human beings in each of these
27 scenarios typically experience distinctive feelings that can instantly propel them into
28 characteristic behaviors -- here, acts and attitudes of avoidance, suspicion, and complaint,
29 respectively.
30
31

32 But how do such systems, abilities, and dispositions outfit human beings for *religion*?
33 One core proposal, offered by Pascal Boyer and others (Atran 2002, Barrett 2004), is that
34 systemic features of modern human cognition have rendered human minds susceptible to
35 generating and retaining a variety of representations, beliefs, and practices that presume
36 particular *counter-intuitive* arrangements. These concepts do not wholly conform to our instant,
37 automatic, unreflective expectations, but rather violate these expectations in interesting and
38 attention-grabbing ways. These include representations of Yogi Bear, talking wolves that can
39 plausibly be mistaken for grandmothers, and Superman; beliefs in everything from Lassie, Santa
40 Claus, fairies, and leprechauns to ghosts, ancestors, angels, and gods; and practices such as
41 theater and ritual. However normal it may seem, it is striking that humans have no problem
42 conceptualizing Mickey, Minnie, Donald, and Goofy talking, having pets, and going on picnics.
43 Nor are the counter-intuitive representations that human beings readily process confined to non-
44 standard agents. Not only could Mighty Mouse fly, he produced contrails, which could function
45 like ropes to bind up bad guys (who, incidentally, were almost always cats who had five-o'clock
46 shadows, wore clothes, smoked cigars, and drove cars).
47
48
49

50 We return below to the question of what makes these representations *religious*, but
51 needless to say, not all counterintuitive concepts are religious (by any definition). They abound
52 in folk tales and fiction as well as in cartoons, comic books, and commercials. They are also
53 sometimes one of the marks of lunacy. So, as Boyer and others argue, this is not an exclusive or
54 complete story about religious cognition, but it is an important part of it.
55

56 Although the limited catalogue of templates that counterintuitive concepts exhibit recurs
57 across cultures, the precise contents of particular counterintuitive representations is mostly a
58 function of what is in the air locally. So, for example, representations of agents with
59 counterintuitive psychological properties are recognizably widespread, if not universal, in human
60 culture, and their emergence, stability, and spread are amenable to general explanatory accounts
in terms of the generic features of human minds. Finer-grained cultural particulars about the

1
2
3 specific form the agent takes, and the precise nature of his or her counterintuitive psychology,
4 biology, or physicality, are informed by social, historical, ecological and other factors and
5 contingencies of the local environment. Explaining how these factors jointly contribute to
6 patterns of cross-population variation and recurrence of cultural forms is a major challenge for
7 the emerging cognitive science of culture.

8
9 Cognitive theorists offer at least three complementary lines of analysis about how
10 counter-intuitive representations that we regard as religious come about. The first two
11 concentrate on their *origins*, the first and third on their *persistence*. Inspired, in part, by a long
12 tradition of intellectualist theorizing in anthropology that holds that humans entertain religious
13 beliefs because they help explain things, the first line of analysis^{vi} maintains that when humans
14 confront anomalous phenomena, i.e., phenomena that violate their intuitive expectations, they
15 generate counter-intuitive representations in order to make sense of these states of affairs.
16 (Although plenty of theorists have made much of dreams, they are not the central issue here.)
17 Surprising, unexpected experiences that resist ready explanation engender the construction of
18 otherwise unexpected, counter-intuitive representations to make sense of them. Our default
19 hypothesis for explaining unexpected sounds (especially in the dark) is that they have resulted
20 from some agent's actions (and we begin searching for the agent responsible). The force of the
21 associated emotions and intuitions is such that it is a very small step cognitively to explanations
22 of the unsuccessful searches in terms of empirically undetectable agents. Representations of
23 agents possessing counter-intuitive properties arise, in effect, as the result of such cognitive
24 false-alarms.
25
26
27

28 In supportive cultural settings, such experiences are just as capable of stimulating what
29 we may come to deem *scientific* speculations as religious ones. Science, however, inevitably
30 advances proposals that are much less modestly counter-intuitive than those religion recruits
31 (McCauley 2000). Science invariably traffics in representations that arise from genuinely
32 extraordinary variations on our standard mental contents. So, for example, sooner or later, it
33 abandons appeals to agent causality. One firm correlate of scientific progress has been its
34 steadily increasing restriction of the domains in which appeals to agent causality are
35 acceptable.^{vii} To explain things, religions, by contrast, rely on the states of mind and actions of a
36 panoply of agents.^{viii}
37
38

39 The range of conditions capable of activating the mental reflexes we have been
40 discussing do not infallibly correlate with the objective conditions that led to their development.
41 Permitting false positives, they are not perfect detectors; thus, they err on the side of liberality.
42 The second line of analysis^{ix} within the cognitive science of religion highlights how religions the
43 world over assume forms that capitalize on the fallibilities of such dispositions. Because every
44 normal human being is susceptible to such emotionally compelling, cognitive misfires (in a
45 variety of domains), persisting religions include all sorts of public representations capable of
46 stimulating these false-positive responses by activating the relevant perceptual systems -- from
47 fashioning simple human-like objects that incorporate visual cues suggesting the presence of
48 additional agents^x to producing glossolalia that includes auditory cues suggesting the presence of
49 significant speech. Cohen, for example, describes the fairly typical case of a member of an Afro-
50 Brazilian religion whose religious journey began with the frequent sound of footsteps, which the
51 adept described as "like that of a man, a really tired man, who used to hang around me. But I
52 never saw him, I only listened – just a child" (191). To this young mind, all evidence pointed to
53 there being a person responsible for the noises that she readily identified as footsteps. As Cohen
54 observes, "The fact that, until then, her entire experience of persons indicated that the property of
55 physicality was normal did not stop her from thinking that this person was factual. Indeed, since
56 person-agency was so undeniable, only such a being *could* be responsible" (192).
57
58
59

60 Two general questions remain. First, why do only some of the representations that these
false alarms provoke get transmitted? And, second, why do some, but not others, among those

1
2
3 that do persist count as religious? We shall touch briefly on the second question in the final
4 section, but, for now, we shall turn to the third line of analysis^{xi} in the cognitive science of
5 religion, since it focuses on the first of these two questions.
6

7 Cognitive scientists of religion explain the similarities among people's religious
8 representations by focusing on how human cognition influences the ways that these
9 representations emerge and spread. Those pursuing the third line of analysis, however,
10 specifically examine the selection pressures that humans' cognitive dispositions and
11 susceptibilities exert -- particularly in the process of cultural transmission -- on the forms and
12 contents of religious representations. On this account, how such counter-intuitive
13 representations originate is not the critical issue. The more important question is why some of
14 these representations continue to get transmitted and why some are more faithfully transmitted
15 than others. The answer, in short, is that selective forces operating in transmission hone
16 religious representations' forms and cognitive appeal. Just as humans find some foods
17 particularly good to eat, they find some cultural representations -- as Claude Lévi-Strauss
18 suggested -- particularly good to think.
19

20
21 Humans tend to transmit representations when they have the following properties. First,
22 as the second line of analysis stresses, appealing representations are readily *recognizable*. For
23 example, physical structures that manifest symmetry along a vertical axis are rare in nature
24 (outside of the animal kingdom) but abundant in culture.^{xii} Structures of this sort with two spots
25 resembling eyes seize humans' attention particularly effectively.
26

27
28 Second, Boyer has argued that representations are more likely to get transmitted if they
29 achieve a balance between their ability to grab attention and to underwrite *cost-free inferences*.
30 Learning, for example, that some agent controls the wind and the rain is attention grabbing. It
31 also automatically permits inferences that this agent has goals, desires, and preferences, that it
32 can be persuaded to do things, that it finds some attitudes and behaviors offensive, that it is
33 disinclined to help anyone who manifests such, and so on. The modest counter-intuitiveness of
34 cross-culturally widespread religious forms (in contrast to the radically counter-intuitive
35 representations that the sciences and elaborate theologies trade in) approximates this cognitive
36 optimum (McCauley 2000).
37

38 Third, if a cultural representation is *easily remembered*, that will add to its cognitive
39 appeal. Boyer and Charles Ramble (2001), for example, have provided cross-cultural,
40 experimental evidence that indicates that the modestly counter-intuitive representations with
41 which religions deal (such as gods who are invisible) are also more readily and more accurately
42 recalled than ones that are simply unusual but not counter-intuitive (such as a chocolate table), or
43 ones that are massively counter-intuitive (such as chairs that listen in on human conversations,
44 know when they are being watched, and skip and play and have tea parties when they are not,^{xiii}
45 or, representations such as those that the sciences routinely generate -- from gravity, electro-
46 magnetic fields, and anti-matter to implicit memory, change blindness, and distributed
47 representation). Lawson and McCauley (2002) have argued that persisting cultural
48 representations, especially in non-literate settings, provide important insights about the character
49 of human memory.^{xiv} For example, people tend to remember rhythmic verbal formulae that
50 rhyme^{xv} and culturally significant rituals that arouse the emotions.
51
52

53 Fourth, like some diseases, such representations are readily *communicable*. Frequently,
54 the features that make a representation memorable will also make it easier to transmit. Usually,
55 tunes are unforgettable precisely because they are so easy to sing, hum, or whistle. By contrast,
56 representations like those in science or in formal theology that possess none of these features,
57 that are complicated and detailed, and that trade in unfamiliar concepts are far less likely to get
58 transmitted, let alone faithfully so.
59

60 Finally, these representations often *motivate* people to spend their time and energies
transmitting them to other people. If we believe God is the secret to happiness and human

1
2
3 fulfillment and we want those whom we care about to have happy, fulfilled lives, then we will
4 tend to transmit representations about God to those whom we care about. Or if part of some idea
5 is that rewards will accrue to those who propagate that idea, this will increase the probabilities
6 that it gets propagated.
7

8 The crucial point, though, is that all three of these cognitive accounts presume that the
9 eruption of religious representations in human populations relies neither on a uniquely religious
10 set nor even on any integrated set of sensibilities or cognitive capacities. Instead, religion (along
11 with such things as civil ceremonies and superstition, fantasy and folklore, and music and magic)
12 largely results from the latent consequences of normal variation in the operations of fallible
13 perceptual and cognitive heuristics enshrined in human minds that otherwise aid us in managing
14 problems from a wide array of domains.^{xvi}
15

16 All of the above points concerning the cognitive influences on the emergence and spread
17 of religious representations are testable against experimental, ethnographic, and historiographical
18 data. Evidence supports the claims, for example, that concepts that have readily recognizable
19 components, that achieve a cognitively optimal balance between attention-grabbing novelty and
20 cost-free inferences, that are easily remembered, that are readily communicable, and that
21 motivate communication will have an edge in cultural transmission over concepts that fail to
22 meet these criteria. Recent ethnographic and experimental work in the cognitive science of
23 religion has strengthened the empirical foundations of these claims. In section four, we offer a
24 necessarily brief illustration of this work concerning a particular religious form that is both
25 widespread and ancient in human culture – namely, spirit possession – with specific reference to
26 Cohen’s cognitively-informed ethnographic study with Afro-Brazilian religionists. The
27 ethnographic literature to which this study contributes testifies to the ‘cognitive naturalness of
28 religion’ even for domains of thought and practice that are often categorized as ‘ecstatic’ and
29 extraordinary. Careful analysis of the everyday elicitation, use, and spread of different kinds of
30 spirit possession concepts reveals that cognitively optimal concepts (according to the criteria
31 outlined above) out-compete more complex concepts in cultural transmission.
32
33
34
35

36 4. An Illustration: Spirit Possession

37 The idea that disembodied agents possess the bodies of living human and animal beings
38 recurs across cultures and historical epochs. Cultural universality and historical persistence
39 strongly suggest that such ideas are ‘good to think with’ and readily communicable. Until
40 recently, however, explanatory analyses of possession have focused disproportionately on the
41 biological basis of trance behavior that often accompanies the eclipse of agency typically thought
42 to occur in possession episodes. Some of the earliest anthropologists sought answers to *cognitive*
43 questions about the generation and spread of such ideas of spirits, souls, soul flight, and
44 possession, but at that time could only remark “There has arisen an intellectual product whose
45 very existence is of deepest significance, a ‘psychology’ which no longer has anything to do with
46 ‘soul’” (Tylor 501). As we have shown in the previous sections, the emergence of the cognitive
47 sciences in the second half of the twentieth century has enabled anthropologists to return to such
48 questions, applying new methods and a new set of conceptual and theoretical tools. So, why are
49 possession concepts so persistent? Let us consider each of the five criteria mentioned above in
50 turn.
51
52
53

54 *Spirit possession concepts largely employ readily recognizable components.*

55 Fundamentally, widespread possession ideas concern configurations among familiar, everyday
56 entities - bodies and agents. Typically, a bodiless agent, or spirit, effectively displaces an agent
57 (the ‘host’) from his or her body, and takes control of the body. The conceptual entities in
58 possession – agents and bodies - and the notion that agents animate and act through their bodies
59 are basic elements of everyday social cognition. Successful possession concepts capitalize on
60

1
2
3 this familiarity by maintaining largely intact intuitive assumptions about agents, bodies, and the
4 relationships between them.

5
6 *Spirit possession concepts are cognitively optimal.* The conceptual building blocks of
7 successful possession concepts are intuitive and familiar and may effortlessly generate inferences
8 that might be considered mundane in everyday social causal reasoning, e.g. about why the
9 (possessed) person is walking over there, talking to that person, etc. Possession concepts also
10 diverge from everyday normality, however, by positing the replacement of the usual host agent
11 with another agent, and inferences must be drawn accordingly. The possibility that someone
12 might *look like* the Tom or Mary we all know, but actually *be* a completely different person is
13 powerfully attention grabbing and consequential for one's behavior (especially if Tom or Mary is
14 one's spouse, boss, parent, etc.). Unsurprisingly, this specific element is particularly dramatized
15 in popular portrayals of possession in film and media, and in fantastical thrillers and comedies
16 about mind swaps and mind control (e.g. *Freaky Friday*).

17
18 *Spirit possession concepts are easily remembered.* Cross-cultural survey, ethnography,
19 and experimental evidence suggest that possession concepts are best remembered when they
20 exploit intuitive assumptions about agents, and agent-body relationships. For example, Cohen
21 and Barrett (2008b) have provided evidence suggesting that concepts that deviate from everyday
22 assumptions about the nature of agents and the relationship between mind and body are more
23 poorly recalled than concepts that are aligned with basic mind-body expectations; possession
24 concepts that blend familiar assumptions about agents and bodies with specifically *displacement*
25 (i.e. the host agent is effectively displaced by the possessing agent) are better remembered than
26 alternative, more cognitively complex concepts (e.g. that host and spirit agencies fuse and/or
27 simultaneously control the host's body). This experimental evidence is corroborated in Cohen's
28 ethnographic research and in the ethnographic record generally.

29
30 *Spirit possession concepts are readily communicable.* The ready communication and
31 recall of concepts of agent-displacement appear to be facilitated by implicit assumptions that
32 minds and bodies operate, at least in part, independently of one another, such that persons may
33 change while bodies remain the same, and vice versa. Indeed, glib attributions of possession are
34 commonly made and readily understood (even if not believed) outside of explicitly religious
35 contexts, such as when a person acts out of character. Similar notions are implicit in phrases such
36 as "he's not himself today" or "she's out of her mind". Although some possession concepts (e.g.,
37 the 'fusion' version mentioned above) are not easily communicated, requiring repetition and the
38 use of metaphor (whereby familiar concepts are elicited and likened to new concepts),
39 cognitively optimal concepts literally seem to come almost for free, requiring little explicit
40 communication. Revision of these concepts in favor of alternative cognitively cumbersome
41 concepts requires considerable cultural support (see Cohen 2007).

42
43 *Spirit possession concepts motivate transmission.* That one's body is periodically taken
44 over by another agent is not something that is easily concealed from relatives, friends, and even
45 employers. Spirits in many possession religions have a habit of arriving unexpectedly and
46 announcing who they are, and, like anyone, prefer to be addressed as themselves. The motivation
47 to spend time and energy transmitting ideas about possession is not just bred of necessity,
48 however. Possession concepts are often part of a broader ideology (theological, political,
49 historical) that frames and enhances the significance of possession experiences. Possession,
50 therefore, can *mean* many things, even within a single cultural context and across various phases
51 of the lifespan, and these meanings variously motivate transmission in forms of personal
52 testimony, proselytizing rhetoric, support for novice adepts, and so forth. Possessing spirits, for
53 example, are often believed to assist hosts in the resolution of existential concerns having to do
54 with health, safety, family, employment, etc. The cognitive simplicity of possession concepts
55 combined with their contextualization within such profound significances thus foster the
56 successful transmission and persistence of these concepts in culture.
57
58
59
60

5. Whither 'religion'?

Finally, and in conclusion, we consider the second question raised earlier. Why do some but not all persisting counter-intuitive representations count as *religious* representations? Perhaps, one most interesting implications of CSR for the study of religion is the suggestion that this query already begs a critical question, viz., whether there is, any longer, a principled basis for delimiting a subset of our representations as the "religious" ones. If, cognitively speaking, human religiosity is a Rube Goldberg device, what, then, are the *scientific* grounds for identifying specific socio-cultural phenomena as religious? Because human religiosity is a hodgepodge at the psychological level, are religions -- construed at the socio-cultural level -- comparable miscellanies? Is 'religion' a viable, analytical category for social science?

The cognitive approaches reviewed here suggest some grounds for skepticism about the conceptual glue that purportedly holds the outcomes of our diverse dispositions and susceptibilities together as distinct, socio-cultural systems that the term "religion" denotes. It appears that theorists in the social sciences must bear the burden of demonstrating the respects in which 'religion' is an explanatorily useful category in order to stave off the suspicion that, like concepts such as 'weed' or 'constellation,' it only delineates superficial (indeed, accidental!) patterns that reveal little or nothing about the phenomena it designates, but only something about the perspective humans are inclined to take on these things prior to reflecting about them *theoretically*.^{xvii}

The piecemeal approach that characterizes the cognitive science of religion is a direct consequence of the 'naturalness' thesis. This new explanatory approach develops from the recognition that features of human thinking and behaviour that we commonly think of as religious have many divergent properties. Explaining religion is not a matter of accounting for a single trait, nor of accounting for divergent traits in terms of the same sets of underlying factors. An account of the persistence and spread of spirit possession concepts, for example, may thus tell us very little about the patterns of socio-political arrangements and coalitional dynamics that recur across organized institutions. The success with which the cognitive science of religion explains such diverse phenomena in the coming decades will undoubtedly turn as much on the creative development of novel methodological and conceptual tools for a better science of society as on the continued borrowing of valuable resources from the cognitive and psychological sciences for the study of religious cognition.

i. See Lawson and McCauley (1990), Guthrie (1993), Boyer (1994), and Whitehouse (1995).

ii. See, for example, Astuti and Harris (2008), Barrett, Richert, and Driesenga (2001), Bering and Bjorklund (2004), Cohen and Barrett (2008a, 2008b), and Malley and Barrett (2003).

iii. See, for example, in anthropology, Abbink (1995), Cohen (2007) and Whitehouse and Laidlaw (2004) and from work in the history of religions, Vial (2004) and Whitehouse and Martin (2004).

iv. Pyysiäinen (2004) and Malley (2004) discuss sacred texts. Sørensen (2007) offers a cognitive theory of magic. Hinde (1999) and Boyer (2001) treat the connections between religion

and morality, and Slone (2004) addresses theological variations.

v. For a discussion of the relation between adaptive cognitive dispositions and their various latent susceptibilities, see Sperber (1996), pp. 66-67.

vi. See Barrett (2004) and Bering and Johnson (2005).

vii. Churchland (1989)

viii. These include ancestors, angels, brownies, cherubim, demons, devils, elves, genies, ghosts, ghouls, gnomes, goblins, gods, gremlins, fairies, fiends, imps, leprechauns, mermaids, nymphs, phantoms, pixies, poltergeists, saints, seraphim, sirens, sorcerers, specters, spirits, sprites, vampires, warlocks, witches, and wizards, let alone golems, sylphs, or zombies or representations of animals, plants, objects, and places possessing counter-intuitive properties.

ix. See Boyer (1994 and 2001) and Burkert (1996).

x. Guthrie (1993)

xi. Boyer (2001)

xii. Atran (2003)

xiii. Exactly what counter-intuitiveness amounts to and whether or not it can be quantified with sufficient precision remain points of controversy. See Gonce et al. (2006), Tweney et al. (2006), and Norenzayan et al. (2006). Justin Barrett (2009) has provided the most detailed, systematic, theoretical account currently available.

xiv. McCauley and Lawson (2002)

xv. Rubin (1995)

xvi. Consider, for example, Burkert's observation that: "There is probably a cluster of factors in evolution and a cluster of functions served by new avenues of communication; functions may also be lost or altered. Nonetheless certain persistent and permanent patterns emerge and even seem to control interactions, since all these events occur within a unique landscape to which they are adapted. What we discern are the tracks of biology followed by cultural choice (22-23)".

xvii. Sørensen (2004) explicitly takes up this challenge.

References

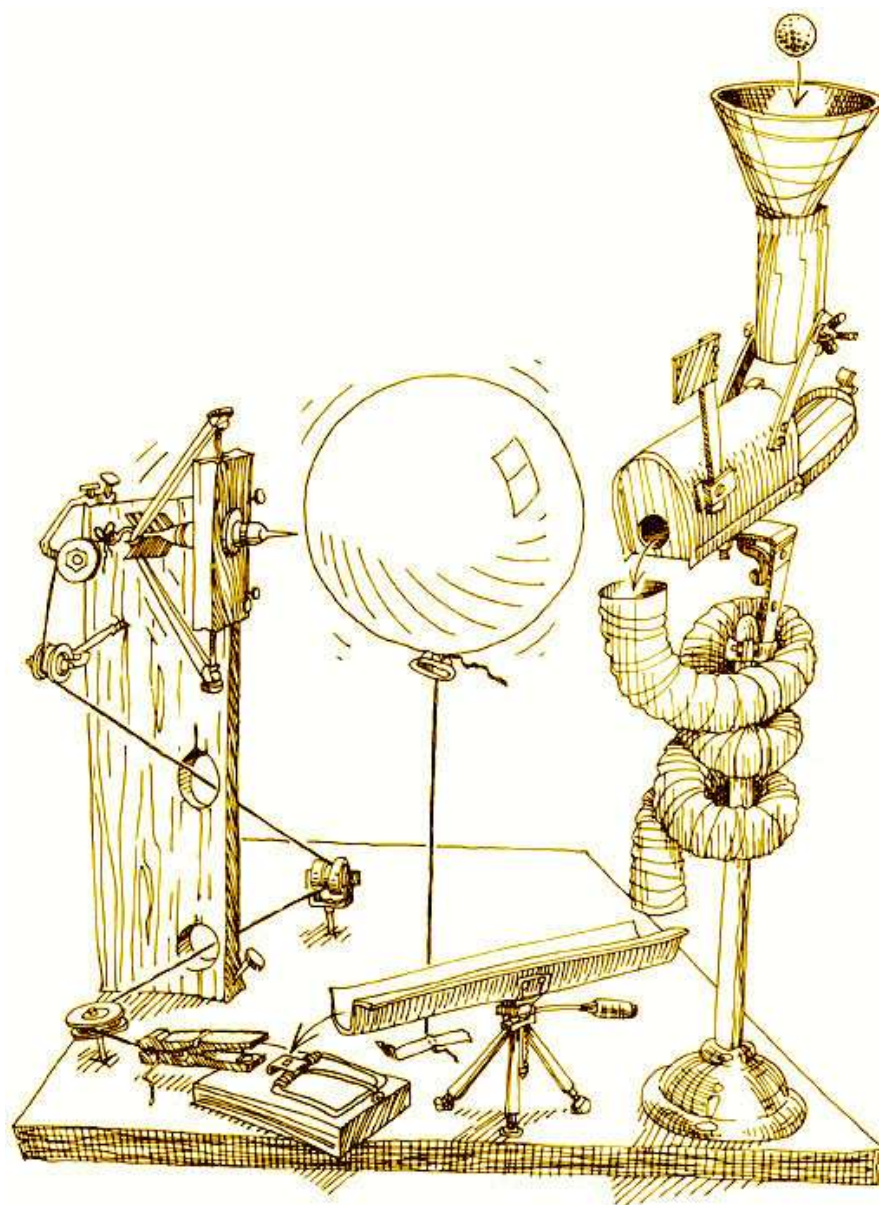
Abbink, Jon. "Ritual and Environment: The *Mosit* Ceremony of the Ethiopian Me'en People." *Journal of Religion in Africa* 25 (1995): 163-190.

- 1
2
3
4
5 Astuti, Rita and Paul Harris. "Understanding Mortality and the Life of the Ancestors in Rural
6 Madagascar." *Cognitive Science* 32.4 (2008): 713-740.
7
- 8 Atran, Scott. *In Gods We Trust*. Oxford: Oxford UP, 2002
9
- 10 Barrett, Justin L. *Why Would Anyone Believe in God?* Walnut Creek, CA: Alta Mira Press,
11 2004
12
- 13 ---. "Cognitive Science of Religion: What Is It and Why Is It?" *Psychology Compass* 1 (2007): 1-
14 19.
15
- 16 ---. "Coding and Quantifying Counterintuitiveness in Religious Concepts: Theoretical and
17 Methodological Reflections." *Method and Theory in the Study of Religion* 20 (2009):
18 308-338.
19
- 20 Barrett, Justin L. and Frank Keil. "Conceptualizing a Non-natural Entity: Anthropomorphism in
21 God Concepts." *Cognitive Psychology* 31 (1996): 219-247.
22
- 23 Barrett, Justin L., Rebekah A. Richert, and Amanda Driesenga. "God's Beliefs versus Mom's:
24 The Development of Natural and Non-Natural Agent Concepts." *Child Development* 72
25 (2001): 50-65.
26
- 27 Bering, Jesse M. and David F. Bjorklund. "The Natural Emergence of Reasoning about the
28 Afterlife as a Developmental Regularity." *Developmental Psychology* 40 (2004): 217-
29 233.
30
- 31 Bering, Jesse M. and Dominic D. P. Johnson. "O Lord . . . You Perceive My Thoughts from
32 Afar: Recursiveness and the Evolution of Supernatural Agency." *Journal of Cognition
33 and Culture* 5 (2005): 118-142.
34
- 35 Boyer, Pascal. *The Naturalness of Religious Ideas*. Berkeley: University of California Press,
36 1994
37
- 38 ---. *Religion Explained: The Evolutionary Origins of Religious Thought*. New York: Basic
39 Books, 2001
40
- 41 Boyer, Pascal and Charles Ramble. "Cognitive Templates for Religious Concepts: Cross-
42 Cultural Evidence for Recall of Counter-Intuitive Representations." *Cognitive Science*,
43 25.4 (2001): 535-564.
44
- 45 Burkert, Walter. *Creation of the Sacred: Tracks of Biology in Early Religions*. Cambridge:
46 Harvard UP, 1996
47
- 48 Carruthers, Peter, Stephen Stich, and Martin Siegal (eds). *The Cognitive Basis of Science*.
49 Cambridge: Cambridge UP, 2002
50
- 51 Churchland, Paul M. *A Neurocomputational Perspective: The Nature of Mind and the Structure
52 of Science*. Cambridge: MIT, 1989
53
54
55
56
57
58
59
60

- 1
2
3
4
5 Cohen, Emma. "Out with 'Religion': A Novel Framing of the Religion Debate." Proceedings of
6 the Oxford Amnesty Lectures (2008), forthcoming.
- 7
8 ---. "What is Spirit Possession? Defining, Comparing, and Explaining Two Possession Forms."
9 *Ethnos* 73.1 (2008): 101-126.
- 10
11 ---. *The Mind Possessed: The Cognition of Spirit Possession in and Afro-Brazilian Religious*
12 *Tradition*. Oxford: Oxford UP, 2007.
- 13
14
15 Cohen, Emma and Justin Barrett. "When Minds Migrate: Conceptualizing Spirit Possession."
16 *Journal of Cognition and Culture* 8 (2008a): 23-48
- 17
18
19
20 Cohen, Emma and Justin Barrett. "Conceptualizing spirit possession: Ethnographic and
21 experimental evidence." *Ethos* 36.2 (2008): 245-266
- 22
23
24 Gonce, Lauren O., Afzal M. Upal, Jason D. Slone, and Ryan D. Tweney. "Role of Context in
25 the Recall of Counterintuitive Concepts." *Journal of Cognition and Culture* 6 (2006):
26 521-547.
- 27
28 Guthrie, Stuart. *Faces in the Clouds*. Oxford: Oxford UP, 1993.
- 29
30 Hinde, Robert. *Why Gods Persist*. New York: Routledge, 1999
- 31
32
33 James, William. *The Varieties of Religious Experience*. New York: The Modern Library,
34 1902/1929
- 35
36
37 Lawson, E. Thomas and McCauley, Robert N. *Rethinking Religion: Connecting Cognition and*
38 *Culture*. Cambridge: Cambridge UP, 1990
- 39
40 Malley, Brian. *How the Bible Works*. Walnut Creek, CA: Alta Mira Press, 2004
- 41
42
43 Malley, Brian and Justin Barrett. "Can Ritual Form Be Predicted From Religious Belief? A Test
44 of the Lawson-McCauley Hypotheses." *Journal of Ritual Studies* 17 (2003): 1-14.
- 45
46
47 McCauley, Robert N. "The Naturalness of Religion and the Unnaturalness of Science."
48 *Explanation and Cognition*. Ed. Frank Keil and Robert Wilson. Cambridge: MIT, 2000.
49 61-85.
- 50
51 ---. "Is Religion a Rube Goldberg Device? Or Oh, What a Difference a Theory Makes!"
52 *Religion as a Human Capacity*. Ed. Brian Wilson and Timothy Light. Leiden: Brill,
53 2003. 45-64.
- 54
55
56 McCauley, Robert N. and E. Thomas Lawson. *Bringing Ritual to Mind: Psychological*
57 *Foundations of Cultural Forms*. Cambridge: Cambridge UP, 2002.
- 58
59
60 McCauley, Robert N. and Harvey Whitehouse (Ed.). *The Psychological and Cognitive*
Foundations of Religiosity, special issue of *Journal of Cognition and Culture* 5.3 (2005)

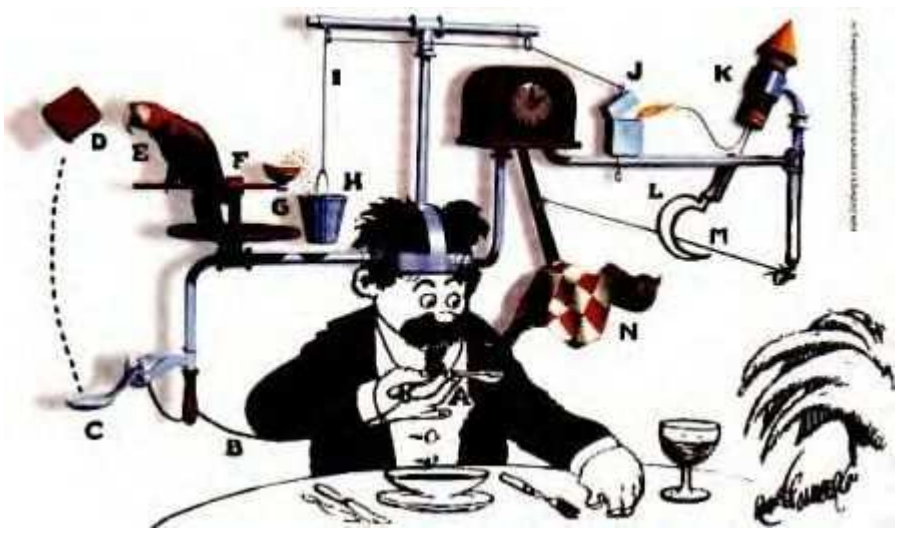
- 1
2
3
4
5 Norenzayan, Ara, Scott Atran, Jason Faulkner and Mark Schaller. "Memory and Mystery: The
6 Cultural Selection of Minimally Counterintuitive Narratives." *Cognitive Science*, 30
7 (2006): 531-553.
8
- 9 Pyysiäinen, Ilkka. "Holy Book: The Invention of Writing and Religious Cognition." Ed. Ilkka
10 Pyysiäinen. *Magic, Miracles, and Religion: A Scientist's Perspective*. Walnut Creek,
11 California: AltaMira Press, 2004. 160-171.
12
- 13 Rubin, David C. *Memory in Oral Tradition: The Cognitive Psychology of Epic, Ballads, and*
14 *Counting-Out Rhymes*. New York: Oxford UP, 1995.
15
- 16 Slone, Jason. *Theological Incorrectness: Why Religious People Believe What They Shouldn't*.
17 New York: Oxford UP, 2004.
18
- 19 Sørensen, Jesper. "Religion, Evolution, and an Immunology of Cultural Systems." *Evolution and*
20 *Cognition* 10 (3004): 61-73.
21
- 22 ---. *A Cognitive Theory of Magic*. Walnut Creek, CA: Alta Mira Press, 2007.
23
- 24 Sperber, Dan. *Explaining Culture: A Naturalistic Approach*. Oxford: Blackwell Publishers,
25 1996.
26
- 27 Tremlin, Todd. *Minds and Gods: The Cognitive Foundations of Religion*. New York: Oxford
28 UP, 2006.
29
- 30 Tweney, Ryan D., Afzal M. Upal, Lauren O. Gonce, Jason D. Slone and Kristin Edwards. "The
31 Creative Structuring of Counterintuitive Worlds." *Journal of Cognition and Culture* 6
32 (2006): 483-498.
33
- 34 Tylor, Edward B. *Primitive Culture*. Whitefish, MT: Kessinger, 2006 [1871]
35
- 36 Vial, Theodore M. *Liturgy Wars: Ritual Theory and Protestant Reform in Nineteenth-Century*
37 *Zurich*. London: Routledge, 2004.
38
- 39 Whitehouse, Harvey. *Inside the Cult: Religious Innovation and Transmission in Papua New*
40 *Guinea*. Oxford: Clarendon Press, 1995.
41
- 42 Whitehouse, Harvey and James Laidlaw (Eds.). *Ritual and Memory: Towards a Comparative*
43 *Anthropology of Religion*. Walnut Creek, CA: Alta Mira, 2004.
44
- 45 Whitehouse, Harvey and Luther Martin (Eds.). *Theorizing Religions Past: Archaeology,*
46 *History, and Cognition*. Walnut Creek, CA: Alta Mira Press, 2004.
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



177x243mm (72 x 72 DPI)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



156x91mm (72 x 72 DPI)