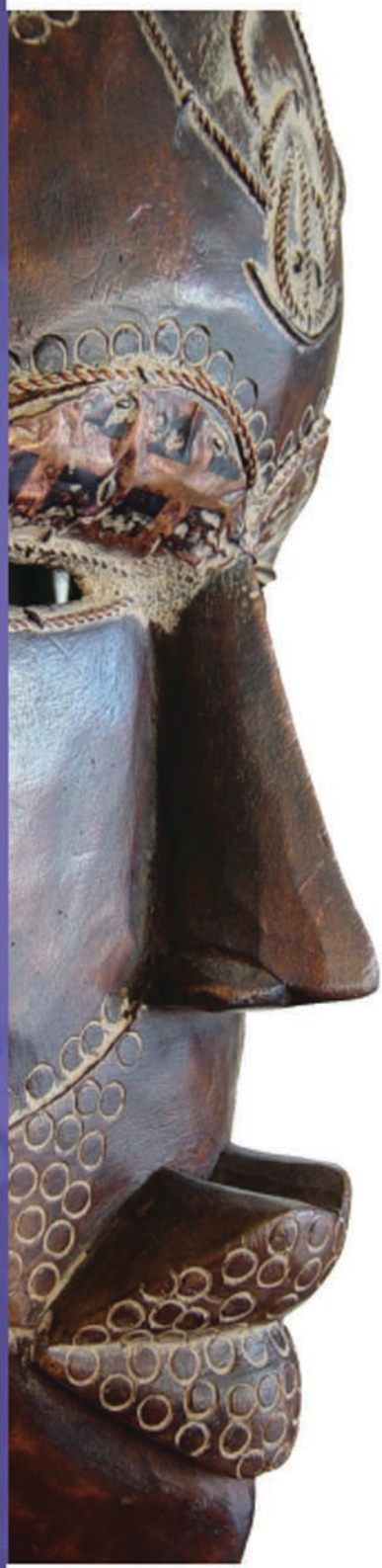
# Mental Culture

## Classical Social Theory and the Cognitive Science of Religion

Edited by
Dimitris Xygalatas and
William W. McCorkle Jr



# MENTAL CULTURE

**Religion, Cognition and Culture**

Series Editors: Jeppe Sinding Jensen and
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This series is based on a broadly conceived cognitive science of religion. It explores the role of religion and culture in cognitive formation and brings together methods, theories and approaches from the humanities, social sciences, cognitive sciences, psychology and the neurosciences. The series is associated with the Religion, Cognition and Culture (RCC) research unit at the Department of Culture and Society, Aarhus University (www.rcc.au.dk).

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# Contents

# List of illustrations

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# 1

# Introduction

## Social minds, mental cultures – weaving together cognition and culture in the study of religion

William W. McCorkle Jr and Dimitris Xygalatas

> Cultures are the collective output of human mental abilities.
> (Sperber 1985a: 3)

The academic study of religion spans many disciplines. Given its thematic rather than methodological orientation, it has always borrowed its tools from diverse academic domains in order to make sense of religious phenomena. And as the field developed in parallel with other social disciplines, it also shares with them common ancestors – some of the founders and greatest figures of disciplines like modern philosophy, psychology, anthropology and sociology are also widely considered to be among the founders of the academic study of religion (McCorkle & Xygalatas 2012).

Cognitive science is also widely interdisciplinary, spanning many scientific domains and levels of analysis, since it emerged as the cumulative result of work in fields as diverse as computer science, linguistics, psychology, philosophy, anthropology and neuroscience. Cognitive science provided a paradigm shift in the study of human behaviour which became known as the "cognitive revolution" (Barkow 2006) and resulted in the abrupt collapse of the previously dominant behaviourist view of human nature. What was revolutionary about this new perspective was that the mind was no longer seen as a blank slate but as a complex computational system that is pre-equipped with universal mental mechanisms that underlie all human thought and behaviour (Pinker 2002). This radically different view of human nature implied a shift not only in theory but also in method. The application of this perspective in the study of religious thought and behaviour brought about the cognitive science of religion (CSR).

The tone was set in the 1970s, once more by social theorists. Cognitive anthropologist Dan Sperber (1975) proposed that symbolism is best

understood not as a system of abstract signs and their meanings with its own rules, but rather as part of ordinary human mental processes of reasoning about the world. Around the same time, scholars of religion inspired by Chomskian linguistics wondered whether a "universal grammar" of ritual action might be uncovered. Thomas E. Lawson (1976) and Frits Staal (1979a, 1979b) both argued that much like language, rituals have a formal structure, and envisioned a programme that would uncover a syntax of human ritual action.

The first comprehensive cognitive theory of religion was outlined by anthropologist Stewart Guthrie (1980), who explained the anthropomorphic character of religion as an evolved, adaptive predisposition to attribute agency and intentionality to ambiguous inanimate objects and events in their surroundings (for more, see Chapter 3 in this volume). With his work on the "epidemiology of representations", Dan Sperber (1985b) once more provided inspiration for CSR scholars. Drawing an analogy between the spreading of ideas and the spreading of viruses in populations, Sperber proposed an "epidemiological" approach to religion, which provides a framework to explore how certain ideas become selected and transmitted over others.

More of the theoretical foundations of CSR were laid during the 1990s. Thomas E. Lawson and Robert McCauley (1990) stressed that the mental processes involved in the representation of religious ritual forms are the same as those required for the representation of any action. They argued that ritual form relies on intuitive perceptions of agent causality and that people have strong intuitions about the structure and the efficacy of a given ritual even in the absence of explicit instruction. Harvey Whitehouse (1992) proposed the theory of "modes of religiosity" to explain the role of ritual in group formation. He argued that rituals typically fall into one of two "modes", one marked by emotional arousal and the other by frequency of performance, each recruiting different cognitive mechanisms for the transmission of meaning and the maintenance of social order. Pascal Boyer (1992, 1994) argued for the "naturalness" of religion: religious ideas are by-products of our natural cognitive capacities; they are selected and transmitted because they successfully trigger and exploit ordinary, domain-specific mental systems. Behind the superficial infinite diversity of religious ideas around the world, Boyer saw a limited number of categories of supernatural concepts, which he called "minimally counter-intuitive". These concepts generally conform to our ordinary mental templates, while violating some of the default assumptions of our intuitive ontologies. Alongside these developments within the study of religion, various scholars working in neighbouring disciplines like archaeology (Lewis-Williams 1981; Mithen 1996), biological anthropology (Deacon 1997) and neuroscience (Donald 1991, 2001) made significant contributions to the formation of the theoretical landscape of CSR.

Until the end of the twentieth century, CSR consisted of a small number of scholars pursuing their work either independently or in collaboration, mostly

on the side of their other academic endeavours and in any case without any institutional structure that would justify the characterization of an academic "field". This, however, changed radically after the dawn of the twenty-first century, when CSR came into maturity. Three main factors contributed to this maturation. First, the core ideas of the pioneers of the field went through intense theoretical elaboration and sophistication. For example, Boyer expanded on his ideas on minimally counter-intuitive concepts by framing them within the modularity-of-mind debate (2002); Whitehouse refined his modes theory on the basis of new ethnographic and experimental evidence (2004; Atkinson & Whitehouse 2011), while McCauley and Lawson offered the "ritual form hypothesis" as an alternative explanation of the bimodal distribution of ritual forms (2002); and Justin Barrett adopted and expanded Guthrie's theory of agency and anthropomorphism (2004a).

The second important factor in the coming of age of the field was the establishment of the first academic institutions dedicated (wholly or mostly) to the cognitive science of religion. In 2004, Harvey Whitehouse founded the Institute of Cognition and Culture (ICC) at Queen's University Belfast, which became the first institution to train PhD students specifically as CSR specialists. Around the same time, Armin W. Geertz and Jeppe Sinding Jensen established the Religion, Cognition and Culture Research Unit (RCC) at Aarhus University. In 2007, Whitehouse moved to Oxford, where he founded the Centre for Anthropology and Mind (CAM) and contributed to the establishment of the Institute of Cognitive and Evolutionary Anthropology (ICEA). Furthermore, the Centre for Religion and Cognition (CRC) was established at the University of Groningen; the International Cognition and Culture Institute at the London School of Economics and the Institut Jean Nicod in Paris; and the Laboratory for the Experimental Research of Religion (LEVYNA) at Masaryk University in Brno. In North America, some of the main CSR clusters developed at the Centre for Human Evolution, Cognition, and Culture (HECC) at the University of British Columbia and Simon Fraser University in Vancouver; the Center for Mind, Brain, and Culture at Emory University; and the Institute for the Biocultural Study of Religion in Boston. Relevant graduate programmes have been established at the University of California Santa Barbara and Western Michigan University. These centres attracted large international grants and produce dozens of graduate students and hundreds of publications yearly. To support this network of scholars, the International Association for the Cognitive Science of Religion was established in 2006 and the *Journal for the Cognitive Science of Religion* was launched in 2012, supplementing existing journals like *Religion, Brain and Behavior* and the *Journal of Cognition and Culture*, as well as book series published by AltaMira, Bloomsbury Academic, Brill and Equinox.

Finally, the third decisive factor in the development of the field was increased methodological sophistication. While early efforts were primarily

concerned with generating theoretical models, the field increasingly began to seek empirical evidence in order to evaluate these models. Thus, in addition to the traditional qualitative methods used in the study of religion, CSR turned towards rigorous hypothesis-testing with the development of experimental studies that expanded across a wide range of methodologies, from priming (Barrett & Keil 1996) to brain imaging (Schjoedt *et al.* 2011), and from computer modelling (Bainbridge 2006; Nielbo & Sørensen in press; Whitehouse *et al.* 2012) to naturalistic experiments (Sosis & Ruffle 2004; Konvalinka *et al.* 2011; Xygalatas *et al.* 2013a).

This methodological pluralism is not a novelty unique to CSR. As we have noted, the academic study of religion is by its nature an interdisciplinary endeavour. CSR drew and continues to draw heavily on traditional social theory and to explore largely the same themes and issues raised by early social theorists, who often had much more to say about cognition than is generally acknowledged. For this reason, the cognitive turn in the study of religion was not a revolution (as for example in psychology), but rather an evolution. CSR emerged from within the humanities, where the seeds were sown a long time ago but lay dormant, and after a long period of drought the cognitive turn simply provided the much needed rain that helped germinate these seeds.

By engaging in the creation of this volume, we wished to stress this continuity and bring together a collection of scholars, both past and present, to connect classical theories of religion with current trends found in the CSR. In many academic courses on religion, the great classical theorists of the past are often presented as intellectually spent, proverbial dead horses to be beaten and replaced in the historical narrative either by updated scientific models or by hermeneutic movements that typically define themselves in terms of an opposition to the past ("post-structuralism", "postmodernism", etc.). Instead of proposing superior models with the benefit of hindsight, this volume aims to acknowledge the contribution of traditional social theories to the study of religion in general and CSR in particular, but also to stress some of the progress that has been made since their formulation. Towards this purpose, we invited and challenged several leading scholars in the Cognitive Science of Religion, who represent a dynamic continuum of backgrounds and research interests, to write specifically about CSR and its connection with classical paradigms in the study of religion. Each author was explicitly asked to write on a classical theory of religion and connect it with current research in CSR. As editors, we hoped to see each chapter paint a comprehensive portrait of a relevant classical theorist, outlining the relevance of their work for the modern study of religion while at the same time suggesting ways in which a cognitive perspective might help build upon and refine their ideas. The response was outstanding, so much that we were privileged to see this volume become a who's who of the field. As a result, the majority of the leading figures in the

field and the major CSR centres around the world are represented in this volume. Furthermore, the collection includes scholars across the cognition and culture spectrum, that is, from more mind-oriented to more culture-focused approaches within the field. We think that this assortment makes both the point of plurality and convergence, showing that despite significant variation in perspectives, a coherent CSR field exists. This field consists of scholars who share the common assumption that we can, and in fact we ought to, pay attention to the workings of the mind if we are to make sense of religious thought and behaviour. After all, as per the quote with which this book began, there is no culture without individual minds.

This last view is often the target of criticism from within the humanities, typically on the charge of "reductionism". This charge is almost always misleading in at least two ways: first, because most of those critics wrongly identify reductionism with eliminativism, which is actually not a common stance at all in CSR; and second, because the fear of methodological exclusivism inherent in that view is not at all warranted. In other words, the cognitive approach to religion does not (and does not claim to) render interpretative approaches obsolete. If anything, CSR has, since its inception, argued against methodological isolationism and in favour of explanatory pluralism (Xygalatas 2010, 2012). To make this point more emphatically, we invited a prominent philosopher of science and leading figure in CSR, Robert McCauley, to write the first chapter of this volume. Although this chapter does not follow the general pattern of the rest of the book, that is, it does not focus on any particular classical theory of religion, we consider it an essential introductory reading for anyone interested in CSR and its relationship to traditional approaches.

As we hinted above, the relevance of cognition for understanding religion is not a modern realization. The role of unconscious mental processes in shaping religious belief and behaviour had already been discussed by philosophers like Benedict de Spinoza ([1670] 1951) and David Hume ([1757] 1957, [1779] 1947). Early anthropologists like Edward B. Tylor ([1871] 1958, [1873] 1970) also foreshadowed the cognitive science of religion in several ways. Unlike many of his forerunners and contemporaries, Tylor argued for the "psychic unity of humankind", the fact that all humans possess the same mental capacities and biases, although he was mostly interested in conscious cognition. And unlike many of his successors, Tylor placed emphasis on cross-cultural patterns of recurrence – human universals. However, perhaps his best-known contribution is his anthropomorphic theory of religion. Tylor held that early humans' anthropocentric view of the world led them to infer agency where there was none (animism) and thus formed the basis for the emergence of religion. Although Tylor's rationalist argumentation (animism as an attempt at explaining causation in the world) did not operate at the level of implicit cognition, his idea influenced several of the precursors and founders

of CSR. In his chapter in this volume, Stewart Guthrie, proponent of the first truly cognitive theory of religion (although too modest to confess that much), outlines the insight of early theorists like Hume and Tylor on the anthropomorphic origins of religion. Following the history of this idea through neo-Tylorians like Robin Horton, Guthrie shows how CSR not only built on but also significantly refined the ideas of those early thinkers by extending from "how" to "why" people reason the way they do about their world and what implications this has for the human propensity towards religion.

Another early theorist of religion, Karl Marx, is rarely associated with CSR. Marx famously saw religion as the "opium of the people", a set of socially constructed myths used by powerful elites as a tool for the oppression of the masses. For this reason, and despite his reductionist perspective and his materialist view of the mind and social consciousness, Marx's views have resonated well among social constructivists of various shades. Jason Slone's chapter shows how some of the tenets of Marxist theory can also be supported or illuminated by evolutionary and cognitive approaches. Indeed, the idea that religion functions to provide comfort is not strange to CSR. Reviewing neuroscientific evidence, Slone argues for the hypothesis of "religion as a pacifier" from a cognitive point of view. At the same time, he raises an evolutionary flag and turns the Marxist view on its head, arguing that the "superstructure" of materiality can be viewed as a by-product of reproductive strategies and that the potential functions of religion may extend beyond its role in providing comfort.

A more explicitly functionalist account of religion was advanced by the one of the founding fathers of sociology, Émile Durkheim, who saw religion as an expression of society itself. For Durkheim, the core characteristic of religion is not belief in the supernatural but that the function of religion is to reinforce social cohesion, most typically achieved through the re-enactment of collective rituals that produce intense emotions and bring people together, a process which he called "collective effervescence". In his chapter in this volume, Harvey Whitehouse traces the legacy of Durkheim and neo-Durkheimians like Maurice Bloch and argues for the potential of cognitive approaches to test and refine some of their ideas within the framework of contemporary social sciences. Specifically, Whitehouse takes the Durkheimian conception of religious transcendence and goes on to review a number of relevant empirical studies within CSR. Based on recent findings on afterlife beliefs, teleological reasoning, and religion and morality, he argues for a fractionating view of the sacred, which can help us provide a fuller account of its contents and "translate the inspiring metaphors of the Durkheimian tradition into the empirically tractable theories of modern science".

Together with Marx and Durkheim, Max Weber can be seen as the third pillar of the historical core of the sociological tradition. Weber argued that the origin of religion lies in charismatic individuals who are thought to possess

extraordinary qualities, like prophets or religious leaders. Although such individuals typically exist within established structures, they are also forces of structural change and innovation, which in turn becomes routinized to form new structures. In her chapter, Ann Taves argues for an extended Weberian "magico-religious matrix" of charismatic power that can be attributed to natural and supernatural agents as well as objects. Weaving together cognition and culture, she stresses the significance of relevance in order for such perceived powers to be effective in exploiting intuitive perceptions of action, intentionality and causation.

Konrad Talmont-Kaminski focuses his chapter on Bronisław Malinowski and B. F. Skinner, two thinkers whose works, as he admits, come from radically different paradigms and have very little in common. However, when it comes to their respective views of religion, it might seem that they were both onto something regarding a theme of central significance in CSR: the appeal of magical practices. Faced with two seemingly antagonistic explanations, magic as an anxiety-reduction mechanism and magic as false causal reasoning, Talmont-Kaminski opts for a synthetic approach. Drawing from error management theory and Stewart Guthrie's theory of anthropomorphism, he shows how an evolutionary perspective can help bridge motivational and cognitive accounts and provide a fuller explanation of magic.

Psychology has provided a great deal of theoretical insights on religion. Sigmund Freud is often regarded to be among the founding fathers of both disciplines. Today, however, Freud is typically known for having provided all the wrong answers about religion (and for that matter, about everything else). Despite that, he did ask some of the most important questions. Joseph Bulbulia, in his chapter, takes on the challenging task of salvaging Freud rather than drive additional nails to his long- and well-sealed coffin. He notes that Freud was interested in proximate as well as ultimate explanations of religion. His proximate explanation of religion as neurosis does have relevance for CSR, as has been convincingly demonstrated by Boyer and Liénard (Boyer & Liénard 2006; Liénard & Boyer 2006), who framed the idea of a link between ritualized behaviour and individual pathology (obsessive-compulsive disorder) in an evolutionary perspective. Bulbulia, however, focuses on certain less-known aspects of Freud's theory of religion, which he terms "proto-evolutionary". Freud asked some profound questions that evolutionary theorists are still asking today regarding the potential functions of religion both in fulfilling psychological needs and in maintaining social order.

Jean Piaget has been as widely read and as intensely criticized as Freud. Unlike Freud, however, religion was never one of Piaget's major theoretical interests. Gordon Ingram shows how Piaget's ideas on morality can be relevant for CSR, as well as how the latter can help fine-tune some of the former. Piaget's two main contributions, the notion of developmental stages

and the idea that development results through the individual's interaction with the environment, are relevant to both sides of the cognition and culture debate. Surprisingly, however, his theory of development seems to have underestimated the role of both cognition and culture. Ingram's chapter presents recent empirical evidence from CSR research and shows how this research can contribute to a neo-Piagetian approach that will be compatible with cognitive and evolutionary theories of social learning.

Tanya Luhrmann focuses on another heavyweight of classical psychology. William James has widely influenced psychologists and scholars of religion alike thanks to his many insights on, among other things, emotion, consciousness, and the relevance of evolutionary theory in the study of human behaviour and cognition. His best-known view on religion, however, has to do with his emphasis on experience, particularly the extraordinary experiences of religious experts, which he saw as the focus of religion. In her chapter, Luhrmann shows how a constructivist account of religious experience still needs a cognitive basis if it is to be productive. She argues that certain states of consciousness, like trance, dissociation and hypnosis, that are characteristic of intense religious experiences, are dependent upon the human capacity to engage in total attentional involvement in imaginary scenarios, a disposition known as absorption. Religious systems and practices often exploit this disposition by training adherents to experience fantasy as reality.

Claude Lévi-Strauss was not a psychologist nor is he typically regarded as a cognitivist. Furthermore, his work never had any profound influence in the study of religion, or more generally in the study of culture. Despite that, he foreshadowed the cognitive approach in many ways. By insisting upon a naturalistic, biologically and psychologically informed anthropology, he was probably too much ahead of his time to make a difference – that, and the fact that his hypotheses were usually mistaken. As Pascal Boyer puts it, Lévi-Strauss was "interestingly wrong in [his] conclusions and quite admirable in [his] assumptions". Using examples from CSR, Boyer discusses how Lévi-Strauss often laid down the tracks but eventually missed the train. In his own words, he shows "what structural anthropology could have become, had it been run as a scientific program".

Whereas Lévi-Strauss is noted for stressing the importance of psychological mechanisms for the study of culture, Clifford Geertz is most often referred to as a representative of an anti-cognitivist position. Armin W. Geertz takes on the task of dispatching what he argues to be a mis-portrayal of Clifford Geertz's stance by some evolutionary psychologists. By quoting Clifford Geertz's own words, from his early through to his last work, Armin Geertz shows how misguided some of this criticism has been. Clifford Geertz indeed explicitly addressed and acknowledged some of the fundamental assumptions and themes of CSR (often using the very same terminology), ranging from the role of innate mental mechanisms to an epidemiological view of culture,

from the rejection of mind-body dualism to the relation between explanation and interpretation, and from the neurological underpinnings of the mind to gene–culture coevolution.

Edward Slingerland's chapter brings us back to early thinkers, via Herbert Fingarette to Confucius himself, as well as to some of the epistemological issues raised by McCauley. In what the author calls "reverse Orientalism", Fingarette over-emphasized the uniqueness of early Chinese thought and denied the very possibility of psychological individuality in it. Slingerland argues against this view by appealing to textual evidence that the view of the mind as revealed in the Analects themselves suggests a strong sense of psychological "interiority". Furthermore, he turns to evidence from cognitive science to argue that Fingarette's claims paint a picture of Chinese people that is so radically incompatible with what we know about human nature that it cannot even be considered as plausible. In addition, Slingerland argues for an applied cognitive historiography of religion, where empirical and experimental evidence from the cognitive sciences may provide a basic framework of human cognition which will inform the interpretative landscape in which historians navigate.

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The idea behind this volume was conceived during a conference of the American Academy of Religion (AAR), where we realized that the cognitive science of religion was seen by most scholars of religion as a new and alien field, unrelated to the humanities and the social sciences. Many colleagues were unaware that CSR was even a field at all, while those who had been exposed to it for the first time were wondering about its relevance to their own work. The most common response was "so how can cognitive science help me study my ethnographic or archival material?" Although Xygalatas hails from Europe and McCorkle from North America, we both conducted our doctoral research at the Institute of Cognition and Culture in the UK and had been exposed to the CSR paradigm long enough to take it for granted, and this response by members of the AAR alerted us to the need for communicating the relevance and relation of CSR to the broader study of religion. This volume is a small step towards making this point. We hope that it illustrates two levels of continuity, one diachronic and the other synchronic. Across the diachronic line, it shows that CSR is not the product of parthenogenesis within the study of religion but that it is firmly grounded in the field theoretically and epistemologically. As such, it does not aim to deconstruct or render obsolete centuries of accumulated knowledge, but to utilize, scrutinize and build on that knowledge while keeping up with new theoretical and methodological developments. Across the synchronic line, we hope that this volume shows that CSR encompasses a variety of approaches that occupy different positions in the cognition–culture spectrum, but that nonetheless share common epistemological assumptions and address overlapping themes and issues.

Together, these two dimensions of continuity demonstrate that the cognitive science of religion is not antagonistic towards other approaches (with the exception of some extreme postmodernist positions that are incompatible with any approach, including their own). To the contrary, it is complementary to other perspectives in regard to its subject matter, each of which provides additional inferential power to the examination of religious phenomena.

The methodological and theoretical variety described above might often be seen as a sign of inconsistency. For example, in the last chapter of this volume, Luther H. Martin and Ilkka Pyysiäinen express their scepticism as to whether CSR is a coherent field, "because of the differing methodological and theoretical emphases". In their view, we are being overly optimistic about the status of CSR, as it "more often serves as an umbrella term for a diversity of research agendas and strategies than for a coherent field of study". On the other hand, Robert McCauley's contribution emphasizes this methodological and explanatory pluralism precisely as one of the strengths of CSR. Pleading guilty to the charge of optimism, we agree with the view of McCauley, who stresses that science is opportunistic and consilient. Let us not forget that there is just as much methodological and theoretical diversity within cognitive science itself, and that makes it no less legitimate as a research programme.

Martin and Pyysiäinen further warn that CSR is yet to be characterized by a "unifying theory of human behaviour". However, if this is a prerequisite for defining an academic field as such, then there would barely be any legitimate disciplines in the humanities and the social sciences. In fact, the only broadly accepted unifying theory of human behaviour is evolutionary theory, which is one of the foundational assumptions of CSR as well. Specifically, and contrary to Martin and Pyysiäinen's view on what they perceive as lack of "any cohesive theoretical framework", there is actually a clear shared set of such assumptions in CSR, which includes: the naturalistic basis of religion (and thus the negation of the *sui generis* argument and the *a priori* rejection of the explanatory relevance of supernatural claims); the material unity of brain and mind; the existence of universal (pan-human) mental capacities and predispositions; the role of Darwinian evolution in shaping human cognition and behaviour; and the interaction between cognition and culture (Xygalatas 2012). Despite differences in the degree or emphasis that exist in any field and that are also exemplified in this volume, these theoretical assumptions are shared among CSR scholars, with very few and marginal exceptions (just like evolutionary theory itself is rejected by very few and marginal biologists).

Of course, we agree with Martin and Pyysiäinen's assessment that CSR is still "a relatively new undertaking that has not yet acquired the overall theoretical and paradigmatic status of a 'normal science'", but we consider that the recent exponential growth, theoretical refinement and methodological sophistication of the field leaves ample space for optimism.

# 2

# Explanatory pluralism and the cognitive science of religion

## Why scholars in religious studies should stop worrying about reductionism

Robert McCauley

Nearly forty years ago when I was a graduate student (at the Divinity School of the University of Chicago) trying to envision how the theoretical tools, the findings and the methods of the cognitive sciences might be brought to bear on religious phenomena, the *universal* response that such speculations elicited was some variation or other on the comment "Oh! … You are a *reductionist*." The comment, uttered with the hint of a sneer, suggested something akin to either disgust or contempt.

Unfortunately, but not surprisingly, it took *leaving* the field of religious studies for me to find more hospitable intellectual environs in which to pursue and develop those ideas. I have spent most of my subsequent career among philosophers and practitioners of the psychological, cognitive and neurosciences. In the 1990s, after Tom Lawson and I (both jointly and individually) had begun to publish our ideas about carrying out a cognitive science of religion, I began, once again, to travel in the world of religious studies.

Lawson and I argued for the interdependence of explanatory and interpretive enterprises in inquiries about human affairs and expressed our concern, simply, to redress what seemed to us to be a serious imbalance in religious studies in favour of the latter (Lawson & McCauley 1990: 13, 22–31). In the twenty-plus years since, wariness about our and others' explanatory proposals persists in many quarters (examples include Buckley & Buckley 1995; Bell 2005; however, see Lawson & McCauley 1995). Fortunately, in the meantime, others have argued for the same sort of *productive* engagement for which we argued between work in religious studies and explanatory projects in the cognitive science of religion (see Tite 2004; Slingerland 2008; Saler 2009).

This chapter is a further attempt to reassure those who are concerned with the religious, the meaningful, the spiritual, the subjective, the conscious, the

experiential, the historical, the sociocultural and the culturally constructed (and with the details of each), that neither the substantial growth of the cognitive science of religion over the past two decades, nor its ongoing progress, poses any threat to their concerns or to their objects of study. The reasons for that are legion; however, here I intend to focus on but one consideration concerning the character of what has traditionally been referred to as "reduction" in science. Specifically, religion scholars' worries about cognitive science explaining away the religious, the meaningful, the spiritual, and so on presume a coarse-grained and unsatisfactory model of cross-scientific relations that has undergone withering criticism in the philosophy of science.

After a preliminary comment criticizing loose talk about reduction in popular discourse, in religious studies, in the humanities and even in some of the social sciences, I shall offer a brief overview of levels of analysis in science and of the models of reduction in science of the logical empiricists and of the New Wave reductionists. Then I will differentiate two different kinds of reductive relations that arise between scientific projects. I will argue that the major worries of scholars of religion about the powers of cognitive theories of religion to eliminate the religious, the meaningful, the spiritual, and so on, confuse these two sorts of reductive contexts. The explanatory pluralist model of cross-scientific relations illuminates the kind of multidisciplinary programmes of research that are pursued both in the contemporary cognitive sciences generally and in the cognitive science of religion.

In a brief final section, I will illustrate the explanatory pluralist's contention that the cognitive science of religion inevitably looks to conventional religious studies for help and guidance, and, thus, show why (a) scientism, (b) methodological exclusivism and (c) worries about eliminativism are so wrong-headed. Explanatory pluralism stresses, first, that science is not the only game in town and that it is not the only way that we acquire knowledge (no scientism). Consequently, second, if they ignore one another, traditional religious studies and the cognitive science of religion will each be done less well than they can be (no methodological exclusivism). And, third, the cognitive science of religion will not eliminate the religious, the meaningful, the spiritual, and so on (no eliminativism). For the sake of brevity, I will focus in the discussion that follows on the religious, since all of the others (the meaningful, the spiritual, the subjective, etc.) have served as the bases for arguments for the uniqueness or the autonomy or the specialness of the religious at one time or another.

What the cognitive science of religion may do on such fronts, if anything, is *vindicate* the key contributions that scholars studying such matters can make to our understanding of the phenomena at issue. What it certainly has done and will continue to do is enrich our understanding of those phenomena by showing how they connect with operations of the human mind/brain, which is both embodied and embedded in traditions, cultures and discourses. The

cognitive science of religion does so by enlisting and integrating both the findings and the methods of at least half a dozen different scientific approaches and their concomitant theoretical perspectives. Those perspectives include the cognitive, developmental, comparative, evolutionary, neural and archaeological, to name but some of the most prominent. Cognitive scientists of religion have begun to deploy those methods to generate all sorts of new evidence bearing on our understanding of both religious systems and individuals' religious cognition and conduct.

## A preliminary

Science is opportunistic. Scientists will consider evidence wherever they find it, and anything that we know about the world may prove relevant to their assessments of any particular scientific hypothesis. Finally, this should be true for any hypothesis (scientific or not), and, just as finally, such attention to bona fide evidence is the mark of the reasonableness of *any* inquiry, not just scientific inquiries. (The salient difference between the sciences and other inquiries concerns their focus on discovering, discerning, collecting, recording, generating, analysing and assessing *empirical* evidence.)

*Special pleading* arises when inquirers in some field abandon such evidential opportunism (Fodor 1983: 106). They seek to insulate cherished commitments from some of, or the entire, evidential onslaught. Various disciplines, including sciences, have had periods when some or even most of their practitioners resorted to special pleading. Examples include protecting vitalism in the biological sciences in the late nineteenth and early twentieth centuries and insisting in the social sciences on the primacy of social facts or thick descriptions (Durkheim 1964; C. Geertz 1973).

Religions famously do their special pleading upfront; so, perhaps, it should come as no surprise that religious studies has been plagued, throughout its history, with a penchant for special pleading too. In its scholarly guise, special pleading in religious studies has taken a variety of forms, beyond those it borrows from the social sciences. These have included claims that religious phenomena are, in all interesting respects, *sui generis* or that inquiries about religion *must* be autonomous or anti-reductionist. Assertions about the need for special methods to study religious phenomena have typically accompanied such claims.

Compared to the blanket anti-reductionism that scholars of previous generations affirmed, more recently special pleading in religious studies has adopted forms that do not appear merely to be benign but to be both true and reasonable as well. These days it turns out that each and every *particular* scientific explanation of religious phenomena just happens to be reductionist

and, thus, unacceptable. In each case the evidence for that charge is that these explanations are insufficient or incomplete. Reductionist explanations, after all, *reduce*! They always remove or ignore something; otherwise, they would not count as reductions. Consequently, critics fault them for failing to supply *full* explanations and, thus, deem them unsatisfactory and even unacceptable. The charges are true, but the conclusions are neither reasonable nor benign.

Whether it employs the older, blanket strategy or the contemporary one of disqualifying each and every explanatory proposal on a case-by-case basis, anti-reductionist special pleading holds, in effect, that *all* scientific explanations are, ultimately, reductionist by virtue of the fact that they all pick and choose among phenomena. Science employs theories and theories are invariably selective.

Note, however, that to be anti-reductionist in this sweeping sense is to be anti-explanatory, anti-scientific and anti-theoretical. It is hyper-anti-reductionism. For the adjective "reductive" to carry any import when modifying the term "explanation", it must pick out some subset of explanations that are objectionable. If the presumption is that *all* explanations are reductive, then opposing reductive explanation is just to oppose explanatory approaches across the board. In the light of the modern sciences' successes with regard to explanation, prediction and control over the past four hundred years, such hyper-anti-reductionism is unreasonable and obscurantist. Arguably, no heuristic of discovery in modern science has been any more productive and successful than reductionism.

The standard rejoinder at this point is to reply that the objectionable subset of reductionist explanations is the subset of those that concern some or all of the religious, the meaningful, the spiritual, and so on. The inevitable selectivity of explanatory theories in these domains, critics avow, disregards or discards something that matters (about us!). Two comments must suffice.

First, hyper-anti-reductionist thinkers are correct that complete, full, sufficient or (fully) adequate explanations in science do not exist. (Ironically, it is only in religion that such explanatory presumptions arise!) But the bad news is that to say, therefore, that an explanation fails to meet such standards, that is, that it is not complete or full or sufficient or fully adequate, is no interesting criticism at all. No scientific explanations meet such standards. In science all explanations are partial. There is no such thing as an exhaustive scientific explanation.

Second, what *matters* is always a function of the interests and problems of the inquirer. What we are inclined to take as criteria for explanatory sufficiency or adequacy are always relative to our interests and the problems that inform them. Basically, the complaints of hyper-anti-reductionists in religious studies amount to pointing out that their interests differ from those who are interested in explanation. Certainly, these anti-reductionists need

not apologize for their interests; however, *nothing* follows about the unsatisfactoriness or the unacceptability of explanatory proposals *qua* explanatory proposals, and to the extent that anti-reductionists' special pleading forestalls not only the checks and balances but, as I shall argue, the opportunities that will arise from integration with other related inquiries, their grumblings fail to advance our knowledge.

## Levels of analysis in science

Less immoderate talk about scientific reduction reliably depends on common assumptions about levels of analysis in science and their hierarchical arrangement. Such talk typically looks to the relations of parts and wholes (i.e. "mereological" relations) in nature and, specifically, to their implications for things' relative sizes. A consequence of using considerations of scale for differentiating levels in nature and levels of analysis in science is that higher-level sciences treat big things and the lower-level sciences treat progressively smaller things. The physical sciences are the most fundamental sciences and operate at the lowest levels of analysis, because they deal with the smallest things that are the parts of everything else. The biological sciences treat larger systems that involve more complex physical arrangements. The psychological and social sciences tackle larger systems still. At least some of the time, psychology examines organisms situated in physical and social environments, and the sociocultural sciences address large collections of psychological systems that are causally connected in sociocultural networks.

Even when looking at the broad families of sciences, an account of organizational levels in nature and of analytical levels in science that appeals to considerations of scale will prove inadequate. Not all big things with many parts (e.g. asteroids and sand dunes) are highly integrated systems that demand higher-level analyses. The physical sciences not only address subatomic particles but avalanches, weather systems and stars. The biological sciences investigate not only molecular genetics but the evolution of populations. The standard conception of analytical levels in terms of the size of the things they discuss fails to situate sciences like meteorology, geology, astrophysics, ecology and evolutionary biology.

Organizational and contextual considerations inspire mechanists' accounts of analytical levels. Mechanists argue that attention to the organization and operations of situated mechanisms and to the local view of analytical levels that results eviscerates presumptions about lower levels' causal closure and the putative comprehensiveness of lower-level explanations (Bechtel 2006; 2007: 182; Craver & Bechtel 2007; Craver 2007). Mechanists are agnostic about the generalizability of the resulting pictures of analytical levels and have

abandoned characterizations of the sciences' connections overall. With their reservations in mind, the question of salvaging any plausible global account of analytical levels looms. Still, whether in scholarly debates or more popular disputations, many controversies that modern science inspires, including those swirling around reduction, presume that a general account of analytical levels is available. The mechanists are unquestionably right that in each case the details matter, but that need not rule out the search for ways to talk more carefully either about those larger issues or the arrangement of the sciences they presume (see Rosenberg 2006: 40).

Three considerations can help with the latter task. These three are independent of one another and each point to roughly similar arrangements among the major families of sciences, at least.

The first looks to a science's comparative explanatory *scope*. The lower an analytical level is, the wider is the corresponding science's scope. All of the phenomena studied at higher levels are describable at lower levels, but the opposite is not true. Subatomic particles are the building blocks of all other physical systems (from atoms to galaxies and from DNA to societies). The range of things a higher level concentrates on constitutes a subset of those dealt with by lower-level sciences. This criterion delineates a salient respect in which lower level sciences *are* more fundamental, since they possess resources for describing a wider range of phenomena.

The order of analytical levels also corresponds to the chronological *order in natural history* that various systems evolved. The lower a science's analytical level, the longer the things to which it primarily attends have existed. For example, the subatomic particles and atoms that are the principal objects of study in the basic physical sciences appeared quite soon after the Big Bang whereas the systems that the biological sciences scrutinize first began to appear (on Earth, at least) but a few billion years ago. Developed nervous systems, brains and the minds that eventually seemed to have accompanied them, by contrast, look to be at least a couple of billion years more recent. And, finally, cultural systems that the sociocultural sciences investigate date from a few million years ago on the most optimistic estimates and, perhaps, no more than some tens of thousands of years ago on more demanding criteria.

A third consideration, the *complexity of phenomena*, is intuitively compelling, even if it defies precise description. The intuition is that each higher level deals with progressively more complex phenomena. Minds/brains seem more complex than cells, which, in turn, seem more complex than molecules. Mereological considerations may point in this direction, but by themselves they are, again, inadequate. Our sense of a system's complexity, regardless of its size, depends on whether or not wholes are notably organized or are simply aggregates of their parts (Wimsatt 1986, 1997, 2007: chapter 9). With neither settled criteria of complexity nor a general measure of systems' comparative

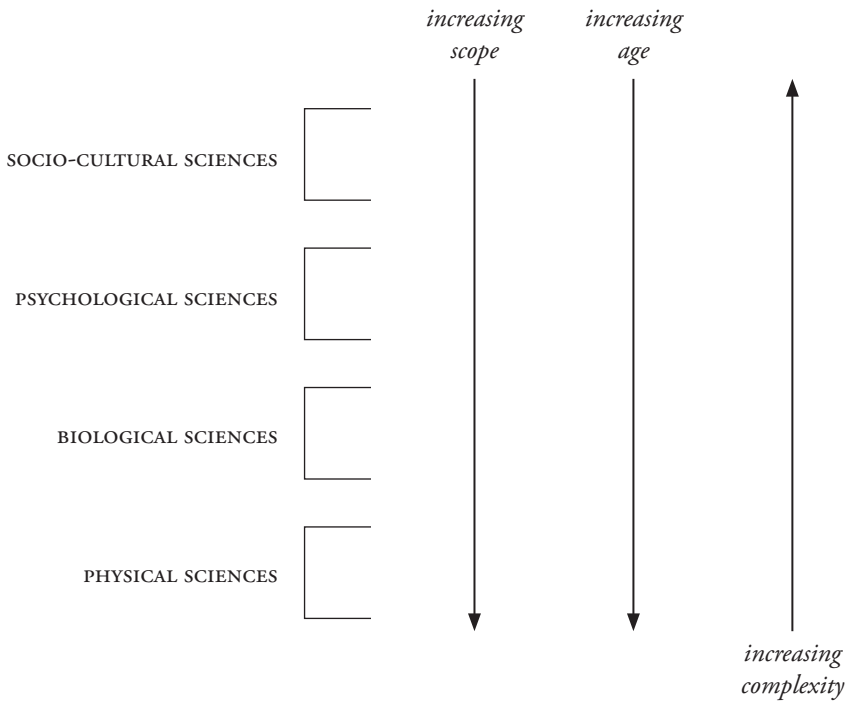


**Figure 2.1** Three criteria for families of sciences.

integration, this consideration remains only a rough intuition for now. It is unclear how much weight it can bear in the discrimination of analytical levels in science, but scholars are bringing sophisticated, new computational tools and models to the treatment of these questions (Mitchell 2009). Figure 2.1 summarizes how these criteria organize the analytical levels of science.

## Traditional reductionism and New Wave reductionism

Some philosophical models of reduction in science would substantiate the fears of scholars in religious studies about the cognitive science of religion, since those models suggest that the cognitive scientists' explanatory proposals might explain the religious, the meaningful, the spiritual and so on *away*. New Wave reductionists (Hooker 1981; P. M. Churchland & P. S. Churchland 1990; Bickle 1998, 2003) offer an *all-purpose*, one-size-fits-all model of reduction. Like the logical empiricists before them, they presume that accounts of the structural relations of scientific theories' explanatory principles (e.g. laws) and of the things that those theories describe exhaust what is of ontological and

epistemological interest in such comparisons. Elsewhere I have argued that New Wave proposals downplay epistemologically significant features of the relevant sorts of scientific research (McCauley 1996, 2007). I have also argued that the New Wave models fail to discriminate between two crucially different classes of intertheoretic relations (McCauley 1986, 1996, 2007). It is this second flaw on which I shall elaborate here, for it motivates the New Wavers' overly broad conclusions about elimination in science that seems to justify the anti-reductionists' fears about the cognitive science of religion.

On the standard logical empiricist model (Nagel 1961), scientific reduction involves deducing the laws of one scientific theory (the reduced theory, e.g. the laws of classical thermodynamics) from those of another (the reducing theory, e.g. the principles of statistical mechanics). This inference requires supplementing the laws of the reducing theory with a set of statements (variously known as "bridge principles", "coordinating definitions" and "reduction functions") that lay out systematic logical and material connections between the two theories' predicates while incorporating the boundary conditions within which those connections are realized.

The standard view construes reductions as a type of explanation in which the item getting explained (the *explanandum*) is *not* some phenomenon but rather some law or other of the reduced theory. A successful reduction demonstrates how the reducing theory's explanatory resources encompass those of the reduced theory. Thus, in effect, the reduced theory constitutes an application of the reducing theory in one of its sub-domains specified by the boundary conditions.

The bridge principles must insure the "derivability" of the reduced theory from the reducing theory by articulating connections between the two theories' predicates of sufficient logical strength to support the derivation. The bridge principles should also justify a metaphysical unity in science. They have to certify substantial links between the entities and their properties that the two theories discuss, that is, to certify their "connectability" (Nagel 1961). Establishing such connections between scientific theories motivates *programmes* for unifying science via "microreductions" (Oppenheim & Putnam 1958; Causey 1977). These programmes fashion a case based on mereological relations for a materialist metaphysics and envision the reduction of entire sciences. They foresee the possibility of scientists eventually abandoning research at higher levels in deference to explanations at lower levels (P. M. Churchland 1979; P. S. Churchland 1986; Bickle 1998, 2003). Proposals differ about the logical and material strength of the bridge principles; however, all foresee a comprehensive mapping of the reduced theory's ontology onto that of the reducing theory (Nagel 1961: 354–5; Causey 1977).

The appeal of the standard model's formality, clarity and precision is uncontested. Philosophers, however, began to realize that its idealized account

of intertheoretic relations came at the price of its ability to capture many cases of intertheoretic relations that did not meet its exacting standards (Wimsatt 1978). The resulting connections frequently seemed capable of sustaining neither the derivation of the reduced theory nor the comprehensive mapping of its ontology on to the reducing theory's ontology. (Contrast, e.g. Patricia Churchland's diverging assessments of the prospects for the reduction of various aspects of consciousness: P. S. Churchland 1983, 1986, 1996.)

This diagnosis is consonant with the impression that the reducing theory's resources often do not merely encompass those of the reduced theory. On the basis of its added precision alone, the reducing theory usually appears to *improve* upon the reduced theory's account of things. For example, the articulated picture of the numerous connections permitting the sharing of information in the processing streams of the "what" and "where" pathways of primate visual systems, as presented by van Essen and Gallant (1994), arguably constitutes a correction of the initial proposal of Ungerleider and Mishkin, which construed these subsystems' operations as basically independent (Ungerleider & Mishkin 1982; Mishkin *et al.* 1983).

On the standard model of reduction, though, if reducing theories *correct* reduced theories, then the reduced theories' laws should *not* follow deductively from premises about the reducing theory's laws and the bridge principles. With some of history's most impressive reductions, the logical empiricists faced the embarrassing dilemma of either repudiating their deductive model of explanation or accepting bridge principles that leave enough semantic slack to render the putative derivation guilty of equivocation (Wimsatt 1976: 218; P. M. Churchland 1989: 48).

New Wave reductionists regard our *inability* to sustain bridge principles capable of underwriting the derivation of the reduced theory's regularities as a *virtue* of any putative reduction that improves upon those regularities. Instead of standing by a formally perspicuous, idealized model of reduction that fails to describe many cases, the New Wavers hold that the reducing theory only explains an *analogue* of the reduced theory constructed within the reducing theory's conceptual framework. This enables the reducing theory simultaneously to correct the reduced theory and to explain at least something very much like it. Moreover, relying on analogy, the New Wave model of reduction apparently accomplishes all of this without needing to specify bridge principles (however, see Endicott 1998: 71–2). The strength of the analogy can vary considerably from one case to another, resulting in a spectrum of analogical strength that ranges from retentive reduction at one end to outright theory replacement at the other (see Figure 2.2).

Although analogies fail to meet the constraints of the standard model, they do undergird a picture of *approximate reduction* that embraces the familiar cases. On the New Wave account, the standard model's ideal designates

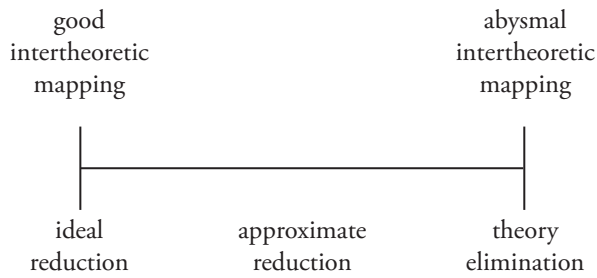


**Figure 2.2** New Wave continuum model.

an end point on the continuum of the comparative levels of isomorphism between reduced theories and their analogues. If even the standard model's parade cases from the physical sciences, in fact, fall short of the anchor point that designates that ideal on this continuum, then that would only underscore the significance of New Wave analyses' abilities to make sense of these many familiar cases of approximate reduction. On the New Wave account, the standard model's parade cases *are* only approximate reductions, since they reliably require counterfactual assumptions (Bickle 1998: 38; 2003: 11).

## Distinguishing cross-scientific and successor contexts

The New Wavers' continuum orders the relative goodness-of-mapping relations possible between reduced theories and their images constructed within the frameworks of their corresponding reducing theories. None of the New Wave reductionists, though, offer any precise criteria for when the slack becomes intolerable, that is, when the theory-analogue's approximation of the reduced theory becomes too loose to make sense of reductive talk (Bickle 1998: 100–101). At some point on that continuum the goodness-of-mapping becomes sufficiently weak that the case for intertheoretic continuity collapses.

According to New Wavers such situations do not yield reductions but, instead, the "historical theory succession" that marks scientific revolutions (Bickle 1998: 101). New Wave reductionists take inspiration from Paul Feyerabend's and Thomas Kuhn's objections to the logical empiricists' standard model (Feyerabend 1962; T. Kuhn 1970). In scientific revolutions the superior theory simply displaces its inferior predecessor. If their intertheoretic mappings are as tenuous as those in uncontroversial historical cases such as between Stahl's account of combustion and Lavoisier's or between Gall's phrenological hypotheses and modern cognitive neuroscience, we are, presumably, justified in speaking of the complete *elimination* of the inferior theory.

As grounds for constructing an analogue of the reduced theory dwindle, cases are arrayed further and further to the right on the continuum in Figure 2.2. On the New Wave account the prospects for retaining either the principles or the ontology of the theory to be reduced decrease as cases exhibit fewer and fewer correspondences. In the right half of the continuum the outlook for reconciling the two theories moves from dim to dismal. New Wave reductionists maintain that the failure of intertheoretic mapping in the dismal cases is so thoroughgoing that the success of the reducing theory impugns the integrity of the reduced theory and motivates its outright rejection. Many of the classic revolutions in the history of science fall here. These include the elimination of the Aristotelian–Ptolemaic cosmology and the gastric theory of ulcers with the rise, respectively, of the Copernican theory and the bacterial theory (Thagard 1992, 1999).

New Wave reductionists, especially the Churchlands, famously argue that many cases of intertheoretic relations at the interface of psychology and neuroscience should be located at this end of the continuum as well. They contend that it will be the psychological theories, especially our folk psychology of beliefs and desires, that will end up on the scrapheap of the history of science, along with other discarded theories about such things as phlogiston, caloric fluid, the luminiferous ether and an expanding and contracting, but otherwise stable, Earth (P. M. Churchland 1989: 1–22; P. S. Churchland 1986: 373).

Such pronouncements rightfully transfix anti-reductionists, including those in religious studies, since, if the Churchlands' claims were true, they would suggest that anti-reductionists' claims on behalf of the religious, the meaningful, the spiritual, the subjective, the conscious, the experiential, the historical, the sociocultural and the culturally constructed would probably face the same fate, even, perhaps, at the hands of the newly flourishing cognitive science of religion.

Although I do not mean to rule out absolutely the possibility of eliminating some cherished conceptions, long deployed in religious studies, I do want to argue, first, that such upheavals would not arise according to the New Wavers' blueprint and, second, that a more satisfactory conception of cross-scientific relations, namely, explanatory pluralism, suggests (of a piece with the principle of evidential opportunism that I highlighted before) that the foremost form of interaction between the cognitive science of religion and traditional religious studies will be one of mutual enhancement.

What is wrong with the New Wavers' blueprint? New Wave models analyse theory succession over time within a science in the same way that they analyse the relations of theories from different sciences at a particular point in time. In short, they ignore the differences between *successor* relations and *cross-scientific* relations. They are wont to ignore this distinction because the New

Wave continuum *can* be deployed in *both* settings and cases arise in both in which the intertheoretic translations are abysmal. But it does not follow that the two settings involve the same dynamics.

*Successor relations* concern changes over time within a science at some level of analysis. As the New Wavers' continuum shows, the mapping of one reigning theory onto its successor can range from smooth to bumpy to no contact whatsoever, short of some overlap in their *explananda*. The changes during such theoretical transitions in a science can be minor or major; they can be gradual or abrupt. The alterations to the account of free fall near the surface of the Earth across the history of modern physical science have been minor and gradual. This is an example of scientific *evolution*. More recent and more *general* mechanical accounts can make sense of and improve upon the earlier notions of free fall. By contrast, when changes are major and abrupt, for example, the change from Stahl's account to Lavoisier's account of combustion, they constitute one of Kuhn's scientific *revolutions* (see Figure 2.3).

Other than the fact that they address many of the same aspects of the world, that is, that they have some common *explananda*, the theories in these cases have so few connections that the triumphant successor does not reductively explain its predecessor. Instead, it eliminates it. Across its history, science has frequently discarded once-honored theories and large portions, if not all, of their ontologies, concerning everything from the crystalline spheres above to the bodily humours within, in favour of new, superior successors. Eliminations can occur in either case, but whereas in the evolutionary settings they only involve small parts of a theory and tinkering at their edges, in revolutionary settings they are overwhelming, if not complete. So, although most of Galileo's mechanical proposals, for example, his concept of inertia, can be plausibly mapped onto Newtonian mechanics, his notion of *natural motions*, which Galileo inherited (and transformed) from the ancients, falls away. By contrast, all of the principles and ontology of Stahl's chemistry are abandoned less than three decades after the publication of Lavoisier's new theory (Thagard 1992).

*Cross-scientific relations* concern arrangements of a very different sort. Cross-scientific relations are those between different sciences with a common *explanandum* operating simultaneously at different levels of analysis either within or across the families of the sciences. Everyone from molecular-level neuroscientists all the way up to the highest-level social scientists seek models for explaining aspects of human behaviour and mentality. Evidential opportunism is not the only kind of opportunism in science. Scientists at any level will have a host of reasons to look to research carried out at another level, whether downstairs or upstairs. They may seek new forms of evidence, new experimental techniques and tools or new theoretical resources. Scientists will borrow useful tools of any sort wherever they can be found. Often they are

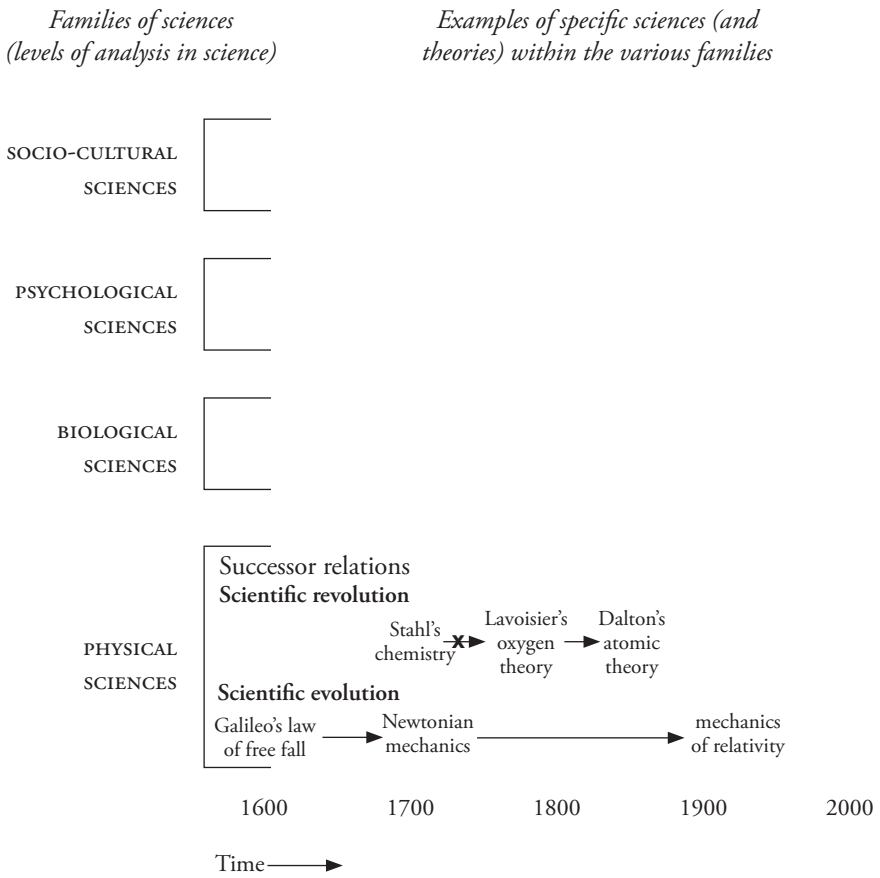


**Figure 2.3** Successor relations: scientific evolution versus scientific revolution.

most easily found among other scientists approaching related problems at a different analytical level.

We call looking downstairs "reductionism". When inquirers discover a pattern among phenomena at one level, a standard explanatory strategy in science is to look downstairs for a mechanism responsible for that pattern. If psychologists find dissociations between people's abilities to locate an object and their abilities to identify that object, it is reasonable to look for separate processing streams for such information in the brain. Or if, across cultures, rituals overwhelmingly cluster around certain attractor positions in the space of possibilities, it is reasonable to look for underlying psychological mechanisms to explain the appeal of the corresponding forms (McCauley & Lawson 2002). Arguably, such reductionism has proved one of the most effective problem-solving strategies in the history of modern science.

As noted, the New Wavers' continuum of intertheoretic mapping can be applied in these cross-scientific contexts just as readily as it can in successor contexts. When the mapping is particularly good, the conditions approximate the logical empiricists' ideal, and the success of the reducing theory at the lower level generally *vindicates* the reduced theory. Physical accounts of atomic structure, for example, sustain the principles of molecular bonding in chemistry. Successful reductive explanation in cross-scientific settings does not supply grounds for replacing upper-level theories and sciences. Rather, what it demonstrates is that in at least one limited area (specified by the boundary conditions that are incorporated either in the traditional model's bridge principles or in the implicit limits of the New Wavers' theory-analogue) the upper-level theory's explanatory principles accurately and usefully summarize the myriad details of the microstructures and processes that the lower-level account captures. Even though they are always context-specific, successful cross-scientific (approximate) reductions provide reasons for *retaining* not only the upper-level theories but the research programmes they inspire, the investigative tools they motivate, the evidence they generate and the ontologies they presume. One illustration of such cross-scientific cooperation is the neurosciences' widespread reliance on the theoretical resources, the experimental designs and the empirical findings of experimental psychology (e.g. Hirst and Gazzaniga 1988: 276, 294, 304–5). Note that rather than explaining away or eliminating the upper-level science or its theories, this is an instance of research in a lower-level science (neuroscience) taking inspiration and obtaining aid from a higher-level science (experimental psychology).

So, if the inter-level mapping is good between claims in religious studies about the religious, the meaningful, the spiritual and so on and cognitive theories of religion, then there are not only no grounds for worrying about the elimination of religious studies' projects but there are also reasons to expect an ongoing cross-pollination between them and those of the cognitive scientists. This, however, is the easy case. What about cases when the connections between religious studies' prized notions and cognitive theories are meagre?

## Explanatory pluralism

Because they do not distinguish between successor and cross-scientific contexts, the New Wavers presume that substantial breakdowns of intertheoretic mapping will *always* end in the eradication of one of the theories in play. The elimination of scientific theories on the basis of cross-scientific comparisons that they envision could lead to the wholesale elimination of the *sciences* from which those theories issue. It would, after all, be forlorn to pursue some line of research dominated by a thoroughly discredited theory. At least some of

the time (P. M. Churchland 1981; Bickle 1998: 205–6; 2003: 110) neither Churchland nor Bickle has retreated in the face of that apparent consequence of their views.

Explanatory pluralism maintains that when the connections between theoretical projects at different levels of analysis are fragmentary, the dynamics of cross-scientific relations differ from those between successive theories within some science (McCauley 1986, 1996, 2009; McCauley & Bechtel 2001; Looren de Jong & Schouten 2007; Dale *et al.* 2009). If we can rule out the New Wavers' one-size-fits-all model of reduction, reductionist research strategies should no longer automatically sound alarms for scholars of religion.

With regard to cases of negligible intertheoretic mapping, the New Wavers' penchant for treating successor and cross-scientific cases in the same way does not square either with the historical illustrations they cite or with the principle of evidential opportunism (or with the broader opportunism) that characterizes scientific inquiries. Neither the historical evidence nor plausible conceptions of science suggest that the New Wavers' eliminativist conclusions in cross-scientific settings are sound.

*The historical argument*: the New Wavers identify no convincing cases from the history of science illustrating their claims for the possibility of eliminations in cross-scientific settings (McCauley 2007). *All* of the illustrations of theory eliminations in the history of science to which the New Wavers point (including the theories of the bodily humours, crystalline spheres, impetus, phlogiston, caloric fluid, the luminiferous ether, phrenological faculties, vital spirits, etc.) have resulted from theory succession within a particular science. *None* of these eliminations have resulted from comparisons of theories in cross-scientific settings, that is, from the comparison of theories reigning simultaneously in sciences operating at different analytical levels and, in particular, across the borders between the major families of sciences (see Figure 2.4). Scientific revolutions and the theoretical and ontological eliminations they underwrite occur between successive theories in a science, not between theories operating at different levels of analysis.

*The normative argument*: explanatory pluralism suggests that the New Wavers' putative cross-scientific eliminations would simply decrease the theoretical, evidential and experimental resources available for science to call upon, and, thus, deprive it of resources for the further testing of theories. The sciences' honorific epistemic status depends in part on their ongoing demand for *new* empirical tests. Much of the evidence that a theory must account for stems from work at other (including higher) levels of analysis.

Contrary to the New Wave picture, explanatory pluralism stresses that cross-scientific pressures do not cause scientific disciplines to disappear, certainly not once they have achieved both intellectual stability based on theoretical and empirical accomplishments and institutional stability based on

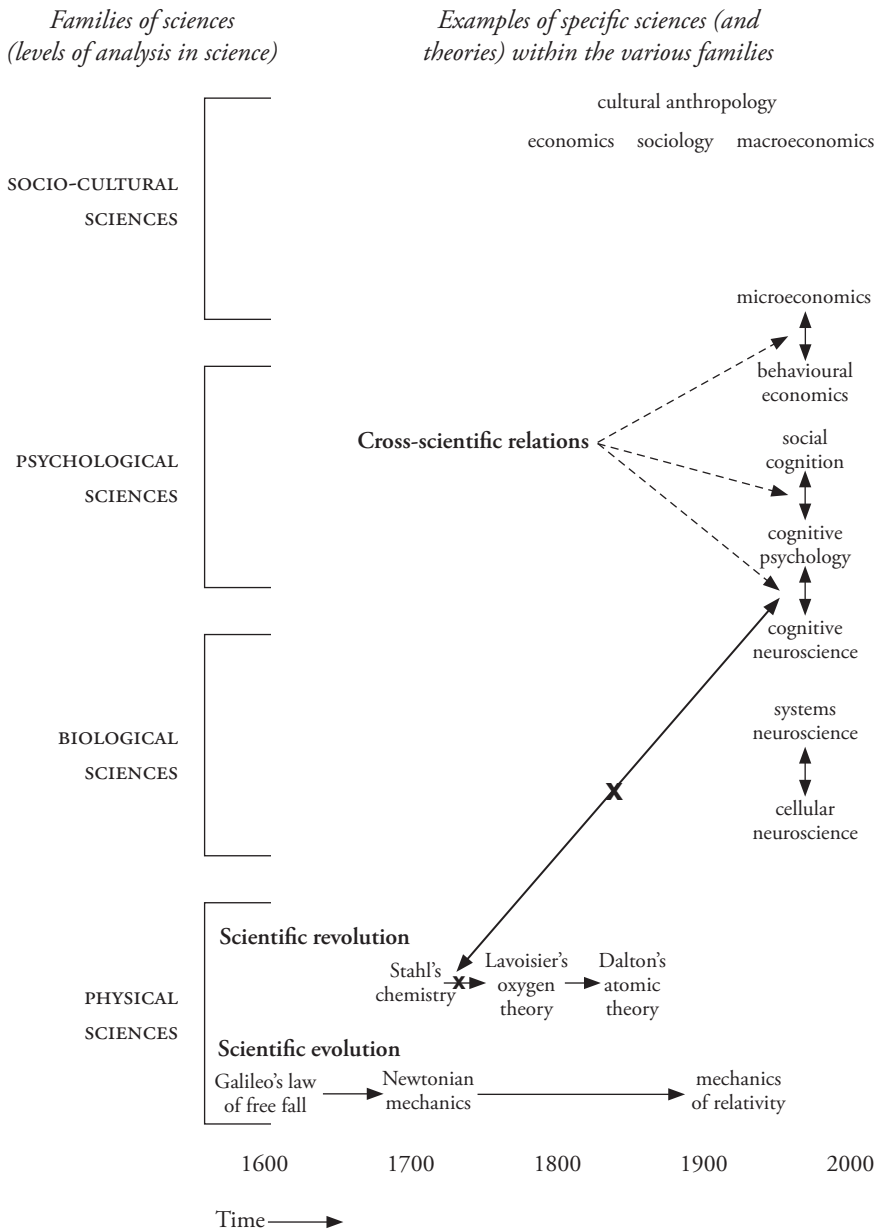


**Figure 2.4** Cross-scientific relations versus successor relations.

professional societies, specialized journals and university departments. Their persistence increases the range of explanations that science furnishes and proffers empirical findings that, consistent with the principle of evidential opportunism, may abet research in other sciences.

Explanatory pluralism does not merely showcase the *reductionist* strategy for integrating the sciences. It also emphasizes the role of a *contextualist* strategy in which scientists use higher-level sciences to explore the settings in which a system may be situated and the various external factors that constrain its shape, its inputs and, therefore, its behaviours (see Craver 2007: 189). Scientists can just as readily look upstairs, exploring some targeted item's place and role in larger systems. They can examine the item's position in, and interactions with, its environment, and they can examine the contributions it makes to the characteristic patterns those larger systems exhibit.

Contrary to the special pleading of anti-reductionists for the autonomy of some inquiry or phenomenon, explanatory pluralism holds that exploring reductive possibilities downstairs, no less than exploring integrative contextualist possibilities upstairs, opens new avenues for sharing both explanatory insights and methodological, theoretical and evidential resources. Anti-reductionists' special pleading not only forestalls the checks and balances that reductive integration imposes, it also blocks opportunities for new investigations at both levels and for collaborative research between them. Concerns for access to the full range of available evidence and problem-solving strategies will – at all levels of scientific inquiry – safeguard (rather than diminish) spaces for reductive explorations. The explanatory pluralist's message is that, unaccompanied by scientistic agendas, those spaces for reductive explorations pose no threats to research carried out at higher analytical levels or, more specifically, to the traditional programmes of interpretive research in religious studies.

Explanatory pluralism also offers a rationale for why, with regard to the putative slings and arrows of reductionism, scholars in religious studies may, perhaps, have *less* to worry about than most anti-reductionists. After all, for more than a century, religious studies has often engaged research from across the sociocultural sciences (Durkheim [1915] 1965; Weber 1964) and the psychological sciences (James [1902] 1929; Freud [1927] 1962). Some scholars in religious studies (e.g. Burkert 1996) have even taken inspiration from the biological sciences, just as the new cognitive scientists of religion have. The point is that for decades religious studies has frequently functioned as an opportunistic enterprise itself, taking inspiration, in particular, from the highest levels of the social sciences, from the psychology of religion and, in the case of Freud, even from the sub-personal psychological levels. The emerging cognitive science of religion facilitates explorations *downward* to new areas of sub-personal psychological research and, at least recently, down further to the findings from the new imaging technologies in the neurosciences (e.g. Schjoedt *et al.* 2009) (see Figure 2.5). Scholars of religion have seen first-hand that progress in the psychology of religion has not put the sociology or the anthropology of religion out of business, no more than the amazing progress

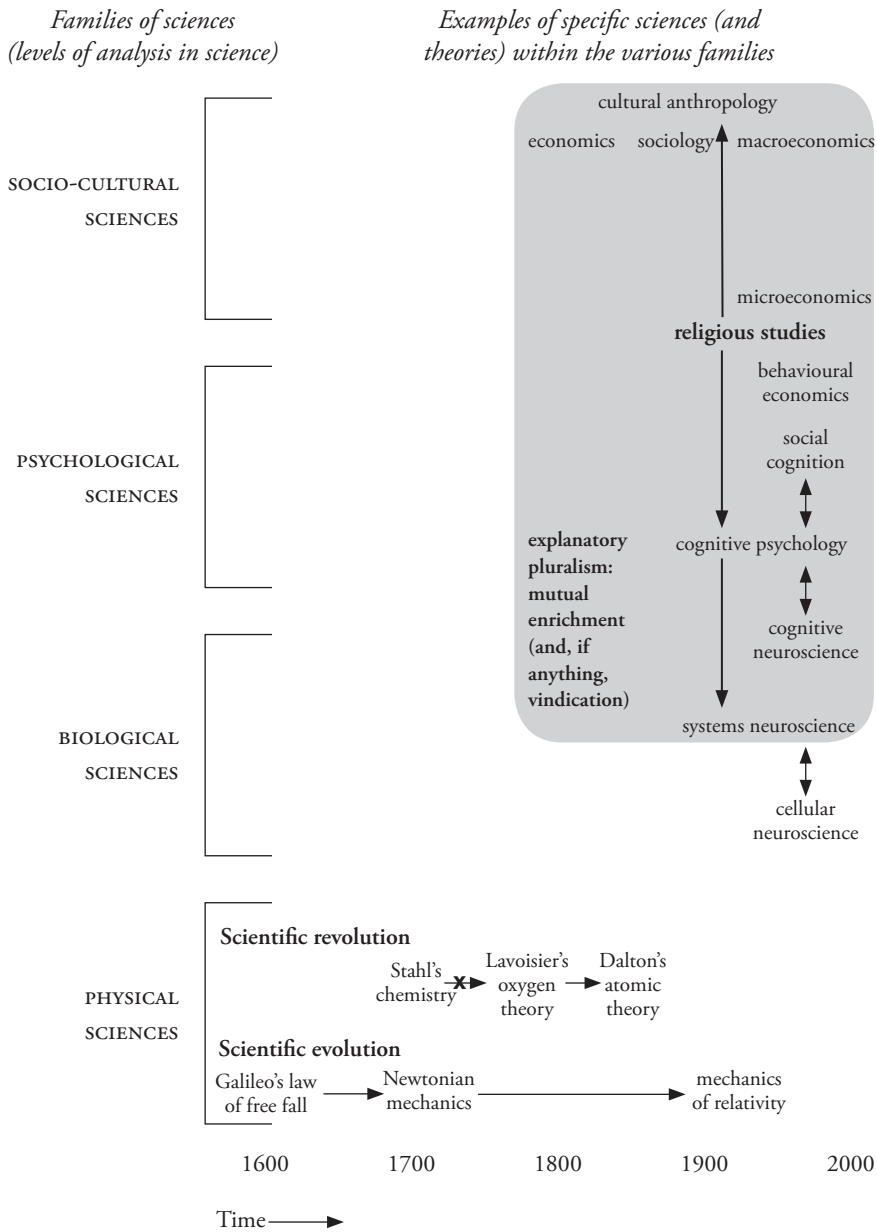


**Figure 2.5** Explanatory pluralism and religious studies.

of molecular neuroscience over the past three decades will put cognitive neuroscience or the psychology of religion out of business.

According to explanatory pluralism, any reductionist impulses exhibited by the cognitive science of religion only promise means for further enriching our

understanding of the religious, the meaningful, the spiritual and so on. The kinds of cross-scientific connections involved do not lead to the elimination of either fields (such as religious studies) or their objects of study.

A footnote: not even scientific revolutions between successive theories within a particular science typically involve the elimination of phenomena. To recognize the theories as competitors depends upon the substantial overlap of their *explananda*.

## Two ways that the cognitive science of religion and traditional religious studies can be mutually enriching

On the basis of a variety of cognitive considerations, my and Tom Lawson's cognitive theory of participants' religious ritual competence draws a major distinction between two major classes of religious rituals (McCauley & Lawson 2002). One of those classes is "special agent rituals". Special agent rituals are those in which agents possessing counter-intuitive properties ("CI-agents" hereafter) serve, either directly or via their ritually established intermediaries (e.g. priests), as the *agents* in participants' tacit cognitive representations of the rituals in question. In religious participants' commerce with the gods, special agent rituals are the religious rituals in which CI-agents do something to religious participants, at least some of whom, in any given case, serve as the patients of these rituals.

By virtue of their counter-intuitive properties CI-agents are capable of doing things *once and for all*. They need not repeat themselves. Consequently, participants typically need to participate in these special agent rituals as their patients only once. Participants typically are baptized only once, go through only one bar mitzvah, are wedded to their spouse only once and so on. Participants may *observe* the various rites of passage and all other special agent rituals (consecrations, investitures, etc.) many times, but the patients of those special agent rituals will change with each performance.

Lawson and I have argued that it is by virtue of participants' cognitive representation of the forms of special agent rituals that they incorporate comparatively elevated levels of sensory pageantry. High levels of sensory stimulation, either positive or negative, across any of the sensory modalities tend to excite human emotions and arouse human minds, which Lawson and I maintain is just the ticket for marking the personal and cultural salience of an event. By contrast, Harvey Whitehouse has, in effect, maintained that the high levels of sensory pageantry are a function of the comparative infrequency with which special agent rituals are performed (Whitehouse 1995, 2004). All three of us agree, however, that special agent rituals inhabit a hotspot within the space of possible ritual arrangements, in which performance frequency is low and

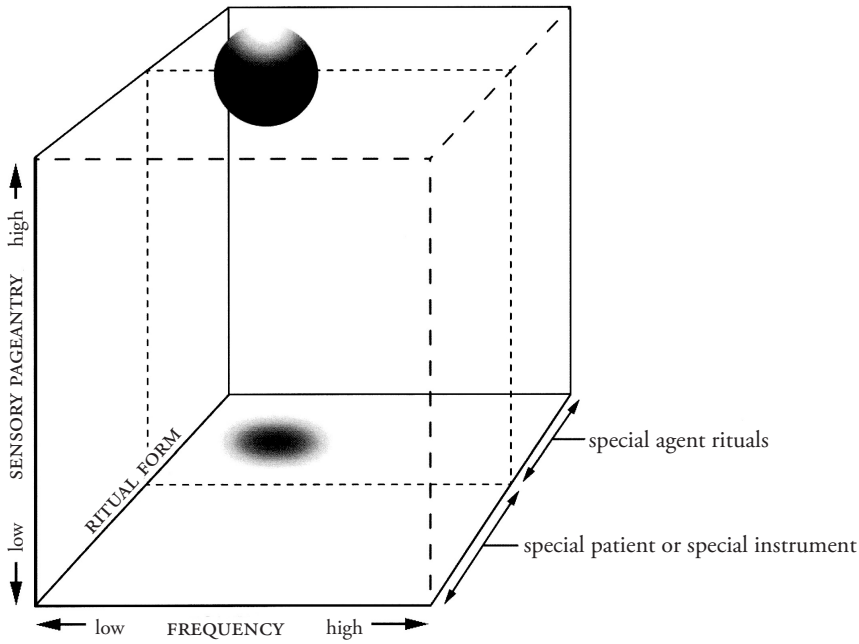


**Figure 2.6** Special agent rituals.

comparative levels of the sensory pageantry associated with such rituals is high (see Figure 2.6). We also agree that in combination with a variety of other factors, these rituals are likely to prove comparatively memorable, meaningful and motivational. Here I wish to highlight that third feature.

Crucially, "motivation" here connotes, among other things, participants' inclinations to transmit their religious representations to others. Since such transmission is a necessary condition for a religion's growth, from the standpoint of cultural evolution these motivational effects of special agent rituals matter (Sosis & Alcorta 2003; Atran & Henrich 2010). A few complications aside (which Lawson and I address at length elsewhere), the more times a participant serves as the patient of a special agent ritual the more likely that participant will be to act on and transmit his or her religious representations (McCauley & Lawson 2002: 124–92; Ginges *et al.* 2009). That observation, though, occasions a dilemma.

The dilemma is that although it is an advantage for a religion to provide a steady regimen of special agent rituals, typically, as I have noted, participants serve as the patients of special agent rituals only once. Because of the expenses involved in producing the elevated levels of sensory pageantry associated with special agent rituals (including such things as special foods, clothing, music, dance, etc.), having a large menu of *different* special agent rituals will quickly

present prohibitively high costs. Consequently, there is an incentive for religions to have some means by which they can *repeat* a more limited list of special agent rituals with the *same* patients.

At least three sorts of ritually extraordinary circumstances permit the repetition of special agent rituals with the same ritual patients, namely, reversals, failures and substitutions. If two people are divorced, they can be remarried. If the ritual practitioner performing the special agent ritual is an imposter, the performance is invalid and must be done again. If one person stands in for another, then that person may undergo a special agent ritual another time.

Substitution in special agent rituals is the best of these options for a host of reasons. Those reasons include negative considerations associated with the first two options having to do with risking the appearance either of fickleness, indifference or impotence among the gods or of iniquity or incompetence among ritual practitioners. They also include positive considerations in addition to the fact that ritual substitution has none of the major disadvantages associated with the other two options. Among those positive considerations are that ritual substitution supplies both prospective and retrospective justifications for repeating a special agent ritual with the same patient and it affords a limitless number of such re-performances. No considerations of ritual form constrain the number of persons for which a participant can substitute.

*Mutual enrichment*: my and Lawson's theory of religious ritual competence not only discloses these social patterns but explains them on cognitive grounds. Having a theory that both ascertains these general patterns across religious systems and illuminates some of the dynamics underlying them certainly endows explanatory insights available to all scholars of religion, regardless of their methodological or theoretical orientations. That is one way the cognitive science of religion can enrich religious studies.

The question remains, however, whether this relatively idealized cognitive theorizing actually squares with the facts on the ground. The account I have sketched above generates at least one prediction, namely that, all else being equal, religions that allow the repeated substitution of the same ritual participants in special agent rituals will enjoy a competitive advantage over those that do not. Scholars of religion, especially historians of religion, can play a vital role here. The obvious questions are: what religions had or have such rituals and did they or do they enjoy such a competitive advantage? I do not wish to be coy here. In a separate paper I note one religion that does employ such ritual substitution and briefly sketch a case for the claim that, *ceteris paribus*, it does enjoy such a competitive advantage (McCauley 2012). Just identifying religions that have incorporated participants' substitution for patients in special agent rituals would be a valuable contribution. Presumably,

no one is better prepared than historians of religion to report on the fate of those religions! That is one way in which religious studies can enrich the cognitive science of religion.

Cognitive scientists of religion welcome such collaboration.

# 3

# Early cognitive theorists of religion

## Robin Horton and his predecessors

Stewart Guthrie

The cognitive science of religion is, on most accounts, only twenty or thirty years old. Its philosophical origins, however, lie at least four centuries back, and its ethnographic origins at least half a century. Its central claims include three made by philosophers, early on. First, religion may best be understood as a result of features intrinsic in human cognition and its epistemic context. Second, these intrinsic features include certain systematic interpretive biases. These may lead us, most importantly, to see the world as more human-like (or "agent-like") than it is. A third tenet, now usually implicit, is that religious thought and action are not *sui generis* but are continuous with secular thought and action.

The strongest early cognitivism regarding religion is that of two philosophers and an anthropologist: Benedict de Spinoza, David Hume and Robin Horton.[1] They claim that religion may be understood not just as an outcome of certain cognitive features, but as itself primarily a cognitive endeavour. It is, in the first instance, an attempt neither to console ourselves (Freud) nor to form social bonds (Durkheim), although its constructs may be so used. Rather, it is an endeavour to interpret and influence the world.

The claim that religion stems from intrinsic cognitive processes originally was largely introspective (as was Kant's assertion that time and space are intrinsic in cognition; De Smedt & De Cruz 2011) but in the twentieth century acquired scientific elaboration. This elaboration began through ethnography, most explicitly in that of Horton. During long-term research and teaching in Africa, Horton has argued that religion has important similarities to science. Both, he writes, primarily are explanatory enterprises. Both originate in practical, common-sense thought that they abstract and modify, and both posit limited entities and forces underlying the endless diversity of

the visible world. Religion then, like science, can best be understood as an attempt to explain and control.

Writing mostly before the flowering of cognitive science, Horton draws on philosophy of science, on published ethnography and on his own extensive fieldwork in Nigeria. His work has contributed to the mainstream of cognitive theory of religion. If his ideas are modified to emphasize that religious models stem not so much from conscious as from unconscious thought, then they fit well both with a major tradition in philosophy of religion and with contemporary cognitive science.

Cognitive theories of religion constitute a continuum. They range from "hardline" (Whitehouse 2007: 248) views holding that conscious thought is an epiphenomenon upon a deep, unconscious base, to rationalistic views in which conscious, analytic thought has its own, more important reasons. Any of these theories is cognitive to the extent that it foregrounds the human endeavour to interpret and influence (in Horton's phrase, "to explain, predict and control") the world in general. Cognitive theories of religion include both intellectualist (or neo-Tylorian) theories such as Horton's, which emphasizes rational construal, and those of predecessors and successors which emphasize non-rational and unconscious thought.

In this sense, cognitive theories of religion did not emerge first in the 1980s. Instead they go back at least to the 1600s and Bacon's observation that human cognition exhibits certain universal biases. That observation helped end a millennium and a half of Aristotelian dominance in European philosophy and aided the rise of modern science. The biases to which Bacon pointed, most saliently our impulse to interpret the natural world teleologically, comprise varied tendencies to see the world as more human-like than it is. Recognition of such biases appears as a common thread through all cognitive theories of religion.

After Bacon, cognitivists such as Spinoza, Hume, Feuerbach, Tylor and Levi-Strauss also described religion as anthropomorphism. Levi-Strauss, for example, remarks that "religion consists in a *humanization of natural laws*" and in "anthropomorphization of nature" (1966: 221, original emphasis), and Tylor endorses Hume's view of religion as an explanation of the world by reference to invisible, human-like intelligence. Robin Horton in turn has continued Tylor's project, although differing from Tylor both in his materials (especially in drawing on his own long-term fieldwork) and in his arguments, which cast a wider explanatory net. Assessing Horton's place among cognitive approaches to religion, and assessing how subsequent cognitive science bears on his work, will benefit from a brief survey of predecessors.

## Cognitive theory of religion before Horton

Cognitivism, surprisingly contemporary and applicable to religion, already is present in the philosopher of science Francis Bacon (1561–1626), who wrote that human perception and cognition are biased. The human understanding is "no dry light, but receives an infusion from the will and affections; whence proceed sciences which may be called 'sciences as one would'" (Bacon 1960: 48–50, Aphorism XLIX).

Our most general bias is to understand nature as we understand ourselves. For Aristotle, Bacon notes, even inanimate things and events try to fulfil themselves. Pendulums strive to come to rest at the bottom of their arc, and pebbles on a beach strive to congregate with pebbles of the same size. Bacon demurs that having goals is human, although we imagine that nature has them as well. We do so because we cannot find good explanations in nature itself and so try to understand it as we do ourselves: "Although the most general principles in nature [cannot] be referred to a cause, nevertheless the human understanding being unable to rest still seeks something prior in the order of nature. And … struggling toward that which is further off it falls back upon that which is nearer at hand, namely, on final causes", that is, on goals (Bacon 1960: 52). It does so in part because it assumes "more order and regularity in the world than it finds". But final causes "have relation clearly to the nature of man rather than to the nature of the universe" (*ibid.*). Bacon's identification of teleology as an intuitive bias, and his consequent rejection of it, were formative for modern science.[2]

The first writer to thoroughly apply this analysis of biased cognition to religion, however, was Benedict de Spinoza (1632–77). Drawing on the Bible, on medieval Muslim and Jewish debates on anthropomorphism, and especially on Maimonides, Spinoza produced the "first and most rigorous early modern discussion of anthropomorphism in religion" (Preus 1995: 1). Applying his theory of religion as anthropomorphism to the Bible, he held that this book ineluctably personifies nature and cannot be rescued by calling it allegory or divine condescension (*ibid.*: 2), a view that led the Catholic Church to ban his works and the Jewish community to banish him entirely.

Like Bacon, Spinoza held that we think that nature is purposeful because *we* are, and think that nature acts "as men themselves act, namely, with an end in view" (Spinoza 1955[3]). Thus people "only look for a knowledge of the final causes [purposes] of events, and when these are learned, they are content". When, contemplating natural phenomena, "they cannot learn such causes from external causes, they are compelled to turn to considering themselves, and reflecting what end would have induced them personally to bring about the given event". Therefore "explanations commonly given of nature … do not indicate the true nature of anything, but only the constitution of the imagination".

Spinoza discovers anthropomorphism not only in teleology but everywhere in human thought. Indeed, our entire picture of the world elaborates our picture of ourselves, and we understand the world as equivalent to its impact on us. This includes, for example, our ethics: we judge what is "good" or "bad" in nature by what is pleasant or unpleasant to us. We do so (as Bacon also said) from ignorance. For Spinoza, this ignorance and our resulting anthropomorphism lead to religion especially when we feel threatened: "Driven into straits … and being kept fluctuating pitiably between hope and fear [we are] very prone to credulity" (Spinoza 1951: 3–4). Thus religion constitutes an explanation, but one motivated as much by emotion as by intellect.

Like Spinoza, David Hume (1711–76) offered a cognitive theory of religion as an anthropomorphizing attempt to understand an uncertain world. His analysis, especially his critique of the argument from design, is considered pivotal in the study of, and destructive to, religion. Despite Hume's caution (his *Dialogues* was published posthumously), he was, again like Spinoza, criticized as an atheist, in his time a serious charge. This notwithstanding, his work contributed substantially to that of Adam Smith, Kant, Bentham, Darwin, Tylor and others. Most relevant here, some philosophers consider Hume not only pre-eminent in philosophy of religion but also a "precursor of contemporary cognitive science" (Morris 2009).

Two works, *The Natural History of Religion* ([1757] 1957) and *Dialogues Concerning Natural Religion* ([1779] 1947) stand out for theory of religion. The first describes the uncertainty of the world, the limits of our knowledge, and our resulting insecurity:

> We are placed in this world, as in a great theatre, where the true springs and causes of every event are entirely concealed from us… We hang in perpetual suspence between life and death, health and sickness, plenty and want; which are distributed amongst the human species by secret and unknown causes, whose operation is oft unexpected, and always unaccountable.
>
> (Hume [1757] 1957: 28–9)

In consequence, we frequently are anxious and always must try to interpret events imaginatively, but often are baffled. For Hume as for Spinoza, we are propelled as much by emotion as by curiosity: "These *unknown causes*, then, become the constant object of our hope and fear; and while the passions are kept in perpetual alarm by an anxious expectation of the events, the imagination is equally employed in forming ideas of those powers, on which we have so entire a dependence" (*ibid.*: 29).

However, one form of understanding does satisfy us:

> There is an universal tendency among mankind to conceive all beings like themselves, and to transfer to every object, those qualities, with which they are familiarly acquainted, and of which they are intimately conscious. We find human faces in the moon, armies in the clouds; and by a natural propensity … ascribe malice or good-will to every thing, that hurts or pleases us. Hence … trees, mountains and streams are personified, and the inanimate parts of nature acquire sentiment and passion. (*Ibid.*: 29)

Thus, behind ambiguous things and events, we discern human minds and sometimes bodies, finding "thought and reason and passion, and sometimes even the limbs and figures of men" (*ibid.*: 30). Reflection cannot eliminate this response: even "philosophers cannot exempt themselves from this natural frailty; but have oft ascribed … to inanimate matter the horror of a *vacuum*, sympathies, antipathies, and other affections of human nature" (*ibid.*: 29–30).

Taken together, these human qualities constitute gods, immanent in our environments, invisible but all too human. Christian conceptions of God, for example, give him "human passions and infirmities [and] represent him as a jealous and revengeful, capricious and partial, and, in short, a wicked and foolish man, in every respect but his superior power and authority" (*ibid.*: 30). Religion for Hume, then, is anthropomorphism, which pervades whatever we do not understand precisely. Religion resolves our interpretive quandary by appeal to the model most familiar to us, that of ourselves.

Assessing religion as a source of morality (a relation tangential to cognition, yet invoked by some modern cognitivists[4] to explain religion's success), the *Natural History* holds that religion is either irrelevant or deleterious. True morality comes instead from secular ties to family and community. The title of Hume's penultimate chapter indicates his opinion: "Bad influence of popular religions on morality."

Hume's second principal work on religion, the *Dialogues*, addresses among other things the argument from design: that since nature appears designed, a Designer must exist. The argument is old and widespread, from Xenophon (*c.*390 BCE) to recent "intelligent design" (Guthrie 2006). Hume writes, as do cognitive scientists (Evans 2000, 2008; Kelemen 2004; Kelemen & Rosset 2009), that our sense that nature shows design is intuitive. It strikes us with a "force like that of sensation" ([1779] 1947: 154ff.).

Hume shows, however, that this intuition and our resulting argument from design for the existence of God are unsound. His analysis is multifaceted and detailed elsewhere (in Guthrie 1993, which holds that the sense of design is an aspect of a more general anthropomorphism); but it is noteworthy that his argument partly anticipates Darwin on natural selection. Hume writes that

over immense periods of time, chance must have thrown together myriads of combinations of physical elements. If even an infinitesimal part of these combinations happens to have been biologically viable, they could have persisted and combined, accounting for the rise and perdurance of life. Thus features of organisms that appear to us as such unlikely accidents as to require a designer may have been produced by blind chance. Why we have such a strong sense that the world is designed, however, remained a mystery. Hume comments that "a theory to explain this would be very acceptable".

E. B. Tylor (1832–1917) famously brought the term "animism" into anthropological and popular usage, and made a theory of religion from the concept. Tylor belongs to the rationalist wing of cognitivism. Despite his familiarity with Hume (whom he credits as the main "source of modern opinions as to the development of religion") he is little interested in irrational biases in cognition, at most attributing them to a "low stage" of culture.

Tylor is, to be sure, aware of unconscious cognition and of resulting anthropomorphism:

> There seems to be mostly, though not always, a limit to the shapelessness of an idol which is to represent the human form; this is the same which a child would *unconsciously* apply, namely, that its length, breadth, and thickness must bear a proportion not too far different from the proportions of the human body … *We all have more or less of the power of seeing forms of men and animals in inanimate objects*. (Tylor [1878] 1964: 96, emphasis added)

Still, unconscious thought is not his main interest. Evans-Pritchard (1965: 26) comments aptly: Tylor "wished to show that primitive religion was rational [and] arose from observations … and from logical deductions from them"; and Lambek says simply, "Tylor was a rationalist" (2002: 20).

Tylor also is well aware of emotion in religion, despite accusations that he neglects it. Even among savages, "religious life is associated with intense emotion, with awful reverence, with agonizing terror, with rapt ecstasy" ([1871] 1958: 444–7, in Lambek 2002: 31). Yet emotion is secondary to cognition and should be treated separately, as it should in considering anatomy: "The anatomist does well to discuss bodily structure independently of the world of happiness and misery which depends upon it."

Religion, then, basically is cognitive. Specifically, of course, it is belief in spiritual beings, for Tylor the minimal definition. A spiritual being is a "thin, unsubstantial human image … the cause of life and thought … mostly impalpable and invisible, yet also manifesting physical power". This resembles Hume's minimal conception of "invisible, intelligent power" in the world; but in certain ways Tylor's is different.

Where Hume saw gods as explaining an indefinite range of phenomena, Tylor saw them as initially interpretations of only two: dreams and death. Spirits are an answer to two questions: what are the lifelike visitations we see in sleep, and what is the difference between a living person and a corpse? The visitations are phantoms, and the difference between a live body and a dead one is the life force. We then imaginatively meld phantom and life force as a single thing, spirit, and think of spirits essentially as disembodied but otherwise human persons. Our ancestors first conceived them as interpretations of human experience of dreams and death, but shortly attributed them to non-human things and events as well.

Although Tylor's central term, animism, is widely known, its meaning varies and his theory is somewhat neglected. However, his (Humean) limited rationalism and scepticism persist, as does his view that religion, constrained by intuitive orientations, originates in only two pivotal experiences. Horton[5] modifies but elaborates Tylor, to the extent that he sometime is called Neo-Tylorian.

## Robin Horton

In a series of journal papers, a co-edited book (Horton & Finnegan 1973) and a collection of thirty years of theoretical essays (*Patterns of Thought in Africa and the West: Essays on Magic, Religion and Science*, 1993), Horton presents arguments that religion and science are much alike. Both explain, predict and control events in the world; both reduce complexity and chaos; and both accommodate ordinary, common-sense thought to esoteric issues. The major difference is not that religious models are personal and those of science impersonal, but that science is subject to systematic criticism and religion is not.

Like Tylor, Horton is a rationalist or intellectualist. While religion may be emotional, emotionality is neither primary nor distinctive. Unlike some others who define religion by strong emotion, Horton agrees with Tylor, doubting that "specifically religious sentiments and modes of action will hold water. Thus … awe and reverence in our own culture are replaced by [different sentiments in] West Africa" (1960: 206–7).

Second, rationalism implies that religious thought may be as reflective and conscious, though not as critical, as science. Unlike Tylor, Horton does not make disembodiment or spirituality, or indeed, any particular ontological status, the definition of a religious object. On the contrary, he asserts that religious objects cannot be assigned such a status. He points out that the Kalabari of the Niger River Delta, his principal ethnographic focus, resemble many other peoples in having certain gods (for them, the Water People) who are thoroughly corporeal. Unlike the Kalabari ancestors and village gods, who are spiritual (though visible and audible to experts who have had appropriate

treatment), the Water People can be "seen, heard, touched, and smelt by anyone who happens to cross their path" (*ibid*.: 205–6). Yet Kalabari treat all three kinds of beings religiously, for example with prayer and offerings. Nor are spirits themselves *sui generis*. They

> fall into an epistemological category with [other entities] which are not religious, e.g. with certain of the theoretical entities of modern science such as atoms, molecules, and alpha particles. These entities are defined as incapable of direct observation, and [can only be] verified by the behaviour of certain characteristics of observable phenomena which are … "symptoms" of variations in the unobservables. (1960: 206)

Epistemologically, "we find the religious side by side with the secular".

In particular, Horton is skeptical of the concept "supernatural" (a concept controversial in anthropology: Lohmann 2003), finding it absent from Africa (as do many other Africanists, e.g. Hallen & Wiredu 2004). African religious thought, Horton writes, "has no place for a dichotomy corresponding to that between the 'natural' and the 'supernatural'" (1984: 424). He writes that African religious explanations of events refer not only to invisible entities but also to visible, tangible phenomena that display the actions or effects of the entities. Similarly, Western science also links invisible entities and events (e.g. massive fusions of hydrogen nuclei) to visible ones (mushroom clouds). "To say of the traditional African thinker that he is interested in supernatural rather than natural causes makes little more sense … than to say of the physicist that he is interested in nuclear rather than natural causes … both are making the same use of theory to transcend the limited vision of natural causes provided by common sense" (1993: 202).

What Horton finds especially useful in Tylor is his parallel between our relations with humans and those with religious objects. If, for Tylor, treating anything religiously is assuming it is, or has, a spirit (a subjective self) and if spirits are human essences, then religion consists in asserting we can have human-like relationships with the biologically non-human world. Horton accordingly defines religion as "the extension of the field of people's social relationships beyond … purely human society" (1960: 211). This definition follows Tylor's in that it "emphasizes belief in extra-human personal beings and action in relation to such beings" (Horton 1993: 5).

Why should people so extend their relationships to the non-human world, if it does not really (in the non-religious view) reciprocate? Horton (1960) says that they do so when human relationships are insufficient. The insufficiencies vary. Small-scale societies provide close, intimate kin relations, but cannot control or predict their environments, while large-scale societies are

good at prediction and control but bad at intimacy. Thus religion in the former aims to get material help, such as economic or medical assistance, but in the latter aims at communion. Although Horton's definition of religion as an extension of human social relationships is plausible and attractive, his 1960 explanation of why we extend them seems a form of the wishful-thinking theory of religion. This is subject to the criticism that religion often is frightening, not consoling, even in large-scale societies (Guthrie 1993: 34).

Later, in "African Traditional Thought and Western Science" (1967, probably his best-known paper), Horton is more purely cognitive. Comparing Kalabari religious thought to Western science as theoretical structures, he says both constitute a "quest for unity underlying apparent diversity; for simplicity underlying apparent complexity; for order underlying apparent disorder; for regularity underlying apparent anomaly" (Horton 1993: 198). Both pursue this by positing a relatively few theoretical entities or forces behind endlessly diverse observable phenomena. Where physicists posit subatomic particles, gravity and the Big Bang, for example, the Kalabari posit village gods, ancestors and Water People. Both draw on models from other, more concrete sources to do so: the solar system as the source for Rutherford's atom, the *uroboros* for Kekule's benzene ring, and lineage elders for ancestors. Both scientists and religious thinkers adapt their theoretical models, especially by abstraction, to expand their range. Subatomic particles, for example, do not have colour, and gods do not have birthplaces.

Thus both science and religion place experience in a broader context than that of common sense. Both account for particular events, such as shark bites, storms and the behaviour of table salt, by more general principles such as relations between humans and gods or between chlorine and sodium. Both deploy nested theories that range from the narrow, specific and concrete to the broad and abstract, and both attempt to interpret the world plausibly, coherently and economically.

Horton not only compares but also contrasts religion and science. Strikingly, his important distinctions include neither anthropomorphism nor the attempts to eliminate it, but only the developed criticism present in science. The personalism of religion, for him, merely is its "idiom". However, it is not accidental. Personalism and religion flourish in societies where technology is simple, non-human events are hard to predict and human relations are intimate and reliable. There, the help that gods give is primarily for problems with nature, not for communion with deities. Societies where religion is on the wane are those with complex technology and turbulent and alienated human relations. Such societies seek communion with deities, but belief in them is threatened because the dominant explanations of the non-human world are mechanistic.

Horton summarizes in three propositions his claim that religious and scientific thought are similar:

> (1) [Both] enter into human social life to make up for the explanatory, predictive and practical deficiencies of everyday, commonsense reasoning. (2) Both perform this function by portraying the phenomena of the everyday world as manifestations of a hidden, underlying reality and (3) both build up their schemas of this hidden reality by drawing analogies with various aspects of everyday experience. (1993: 348)

Horton's view thus is cognitive in the strongest way: religion pursues knowledge of, and action upon, the external world by postulating systematic relations among phenomena. Indeed, he remarks that what most characterizes his approach is its "cognitive foundationalism" (*ibid*.: 381).

Horton means this phrase both as a manifesto and as a description of human thought. He bases his study on "certain techniques of inference (e.g., induction, deduction, analogy), certain procedures for judging empirical validity (verification, falsification), and a certain level of thought and discourse (the primary–theoretical) which functions as a court of final appeal", features that also are "foundational to the human cognitive enterprise" (*ibid*.). Differences in worldviews result from the same cognitive features operating under different technologies, economies and socio-political systems.

Horton contrasts his cognitive foundationalism with cognitive relativism, which he finds inconsistent and internally contradictory. Non-cognitive interpretations of religion are convoluted. They stem from an academic scepticism that finds religious theory too alien to take literally, together with a pious denial that non-Westerners could be so mistaken either. The resulting non-cognitive opinion is that religion must concern something other than knowledge of the world. Horton applies a characteristically pungent phrase ("White Hearts, Brown Noses"; *ibid*.: 352), citing what he sees as varying non-cognitive views of the guiding intentions of religion. These supposed intentions include, in his acerbic view, "achievement and maintenance of communicative success (Habermas); promotion of awareness of the transcendent (Tambiah); communion with the world (Grinevald, Tambiah); … the building up of elaborate self-referential structures, apparently as ends in themselves (Lawson and McCauley); [and] solving semiological and semantic puzzles (Devisch)" (*ibid*.: 349–50).

## Horton and the cognitive science of religion

What is Horton's place among cognitive theorists of religion, past and present, and how does current cognitive science relate to his work? He is a major contributor and, if his rationalism is tempered with the current cognitive-science

view that unconscious thought is central in cognition, still up to date.

First, another brief look back to his predecessors. The major continuity between Bacon, Spinoza, Hume, Tylor and Horton is, unsurprisingly, a broad cognitivism. This appreciates the world's uncertainty and the human tendency to interpret it after a human-like model. With Spinoza and Hume, Horton emphasizes the number, breadth and depth of the epistemic puzzles facing us and the generality both of our explanatory quest and of our human-like models. With Tylor, Horton shares an explicit if limited rationalism, a relative disregard of unconscious thought, an opinion that social relations are the sources of religious models, and an understanding that social relations vary.

In addition to resembling his predecessors, Horton differs from them as well. He pays less attention to cognitive bias than does Bacon, Spinoza, Hume, Nietzsche or Levi-Strauss. Admittedly, he *is* aware both of imagination, as in the metaphoric origins of models, and of cognitive predispositions, as in our desire for unity. He notes that "primary theory" (which resembles cognitive science's "core knowledge") may be innate and associated with specific and distinctive cerebral structures (Horton 1993: 14). He cites Michotte (1963) that perception of causality is constrained and that humans are not general-purpose induction machines. Nonetheless, he is less interested in the biases than in the logic of theory.

On the other hand, Horton is *more* interested than Spinoza, Hume or Tylor in relating variations in religion to those in society. The most striking social variations for him are between societies of small and large scale; but natural environments, economies, and kinship and political systems are relevant as well.

Among Horton's differences from Tylor, three are salient. First, religion is not an explanation primarily of dreams and death, but of an entire world. Horton, like Bacon, Spinoza and Hume, understands the abiding uncertainty and mutability of the world (perhaps helped by his boyhood interest in chemistry) and hence understands our abiding need for theory. Second, his definition of religion is based not on spiritual beings (which he thinks are misleading criteria for religion because some gods are not spiritual but corporeal) but on social relations with a non-human realm. Third, he pays more attention than Tylor to variations in society and their implications for religious belief.

Horton has contributed to cognitive science of religion (CSR) in several ways. First, he helped establish that religious thought is not *sui generis.* Instead, it is continuous with, and draws upon, ordinary thought (Horton 1960). This assertion, while still often considered reductionist in religious studies, has become widespread in CSR (Guthrie 1980, 1993, 2007a,b, 2008; J. L. Barrett 2000, 2004a; L. H. Martin 2003).

It must be noted, however, that a good many CSR scholars (e.g. Boyer 2001; Atran & Norenzayan 2004; J. L. Barrett 2004a; Pyysiäinen 2004a;

Pyysiäinen & Hauser 2010) think religious thought is characteristically counter-intuitive, a position at odds with the claim that it is continuous with ordinary thought. Their position also is at odds with Horton, who sees neither religious nor ordinary thought as typically counter-intuitive. Rather, he sees religion as an attempt to increase the coherence of ordinary thought by abstraction and systematization.

Second, Horton brought cross-cultural data to Spinoza's and Hume's assertions that religion is a process of explaining and controlling phenomena, from his fieldwork among the Kalabari and other West Africans. In doing so, he also broadened Tylor's field of explanation by including all things and events as proper *explananda* of religion, rather than initially only dreams and death. Thus Horton's analysis emphatically made cognition (not, e.g. social cohesion or wishful thinking) central.

Third, expanding upon Tylor's implicit analogy between relations with humans and relations with religious objects, Horton argued (1960) that we should see religion as the extension of human social relationships beyond the realm of the purely human. Variants of this, too, have become common in CSR.

Although they have in these ways promulgated Horton's positions, CSR and other cognitive approaches to religion have also diverged from him in several ways. One of these is not so much theoretical as practical. This is the addition of new methods, especially quantitative and experimental methods, that differ from Horton's qualitative ethnography. Although some anthropologists in CSR resemble Horton in their ongoing engagements with particular cultures and communities (e.g. Emma Cohen in Brazil and Richard Sosis in Israel), others, perhaps influenced by experimental psychologists, have turned to shorter-term experiments.

A second, apparent divergence of CSR from Horton concerns his thesis that science and religion are significantly alike structurally. While no one in CSR has, to my knowledge, refuted this thesis, neither has anyone there championed it (though a philosopher, Barbour [1976], makes much the same argument). McCauley (2000), in contrast, argues that while religion is cognitively "natural", science is unnatural. Still, an important aspect of Horton's theory, that religion shares the logic, and initially the models, of ordinary, common-sense thought ("first-order theory"), is a tenet for virtually all writers in CSR (L. H. Martin 2003: 221).

A third divergence concerns the relative importance of conscious and unconscious thought. While Horton treats cognition primarily as conscious and gives only passing attention to other influences, one of the most important agreements in recent cognitive science is that most cognition is unconscious (Kihlstrom 1987; Hassin *et al.* 2005). As Uleman (2005: 6–9) points out, the new cognitive unconscious is not the psychoanalytic one, with its hydraulic drives and anthropomorphic homunculi, but a more complex one

indebted to a computer metaphor. It contains not only such cognitive work as subliminal perception, but also affect, motives and goals.

The new unconscious also includes theory of mind, centrally that theory's concept of intention and its division of events into observable and unobservable (i.e. behavioural and mental: Malle 2005). This unconscious represents complex social behaviour as well (Bargh 2005: 39). These views of the extent and importance of the cognitive unconscious modify Horton's rationalism, but they do not contradict his central ideas.

A fourth divergence concerns the origins of concepts of spirits, in Tylor's sense of "thin, unsubstantial human image[s] … mostly impalpable and invisible". Horton sees spirits as derived from more concrete concepts of humans by abstraction, much in the way that physicists arrived at electrons without colour or position. In contrast, a view recently emerged in several cognitive-science disciplines derives spirits not from abstraction but from an intuitive mind–body dualism. In this dualism, mind intrinsically is independent of body and has priority over it. The essential human is the mental one (Guthrie 1980; Leder 1990; Lakoff & Johnson 1999; Bloom & Veres 1999; Bering 2002; Bloom 2004, 2007; Koch 2009). Explanations of the existence of mind–body dualism vary, but Hortonian abstraction is not among them.

Last and perhaps most important, there is implicit (and sometimes explicit: Guthrie 1980, 1993, 2007a, 2008) disagreement between Horton and CSR about the origins of human-like models and the reasons for their pervasiveness in thought and action. For Horton, they are empirical and based in observation of social life. Hence they are strongest in small-scale societies, where social relations are intimate and orderly, mechanical artifacts are simple and few, and understanding of physical nature is limited. Where social relations are reliable, they offer a persuasive source of models. Horton's view here resembles Hume's empiricist claim that we use these models because they are the most "intimately familiar".

An alternate view is now common in CSR (and elsewhere, e.g. Epley *et al.* 2007; Foster & Kokko 2008), often under the acronym HADD.[6] This view, advanced in Guthrie (1980), applies the logic of Pascal's Wager to Hume's and Horton's observations that our understanding of the world is limited and uncertain, and concludes that we and other animals respond with an evolved and unconscious strategy.[7] In this view, we use human-like models for the world at large, not so much because they are familiar as because they are uniquely relevant (Guthrie 1980: 188) and because we cannot rule them out. They are relevant both for a pragmatic reason (that humans are the most highly organized and hence powerful phenomena) and for an intellectual reason (that this same organization means that humans are capable of producing an indefinite range of phenomena, and hence constitute productive models).

Indeed few phenomena can be ruled out, *a priori*, as products of human or human-like activity. What humans may produce ranges from tracks (e.g. of bare feet, boots, car tyres, skis, snowshoes, *ad infinitum*, or no tracks at all) to messages in unlimited codes and media (voice, gesture, script, semaphore, Morse, smoke, taps upon our window, plagues and so on) to large-scale seismic and atmospheric phenomena (earthquakes,[8] climate change). Because these phenomena and more can be explained by a human model, that model has unequalled power and parsimony. Centring especially on the human mind and particularly on human symbolic communication,[9] it explains much with little (*ibid*.: 187–9).

The logic of Pascal's Wager, that under uncertainty we should bet on the most important possibility, completes the alternate, strategic explanation of our ready use of human-like models (Guthrie 1980; Dennett [1987] calls this strategy the "intentional stance"). Perception and cognition[10] always are uncertain, from the simplest understandings, such as lines and edges, to the most abstruse, such as gravity. They thus constitute "bets" (Gombrich 1973). The most important possibility is that a given ambiguous phenomenon is human-like, or is a trace of, or message from, a human (Guthrie 1980, 1993). Hence we bet disproportionately on human and human-like possibilities, and secondarily on other complex animals. The logic of the wager is that if we are right, we gain much and if wrong, we lose little.

Anthropomorphism (a residual category of judgments that we later have rejected), or the "personal idiom" as Horton calls it, thus is an inevitable result of our interests together with uncertainty and the cognitive strategy to meet it. An aside: because the notion of projection keeps rearing its head in connection with anthropomorphism, it is worth noting that this notion has no place in the present theory. Indeed, as a psychological concept, projection appears empty (Guthrie 2000). In Harvey's (1997) phrase, it is a metaphor without a theory.

It is at this juncture that contemporary cognitive science most distinctly goes beyond Horton's account and indeed departs from it. Where Horton sees "personalism" primarily as a product of ratiocination, most cognitive psychologists and neuroscientists see it (*pace* Boyer 1996) as a product of unconscious, automatic cognition, that is, as intuitive. Wegner for example writes of

> our extraordinarily compelling inclination to perceive even cartoon geometrical figures as causal agents. The tendency … to anthropomorphize physical objects and events is a further expression of this natural proclivity [and] theory of mind in animals and humans suggests that this faculty for mind perception is a strong guiding force in perception more generally. (2005: 22)

Lillard and Skibbe similarly attribute the fact that "we even apply folk psychology to inanimate entities like triangles" to an "*early and automatic* deployment of theory of mind" (2005: 279, my emphasis). They suspect moreover that this theory is general, not domain specific, since people "say of the sky, 'it wants to rain,' or of the machine on one's desk, 'this computer is stupid'".

Further, our readiness to explain events in terms of invisible entities and forces, for Horton the crucial commonality of religion and science, may stem from the fact that invisible processes are a crucial component of our understanding of other people. This understanding is "called a *theory* of mind because it shares some features with scientific theories …. It postulates unobservables [i.e. mental states and processes], predicts them from observables, and uses them to explain other observables" (Malle 2005: 225, my emphasis).

Other neuroscientists (Mar & Macrae 2006: 118–19) similarly write of "our tendency to innately, automatically, and spontaneously view a broad variety of targets as holding goals and mental states". They suggest (with Guthrie 1980, 1993) that this "low threshold for triggering the intentional stance – a bias toward viewing agents as having goals, beliefs, and desires – provides us with an adaptive heuristic for understanding the world".

Not surprisingly for an evolved behaviour, this better-safe-than-sorry strategy of cognitive interpretation (Guthrie 1980, 1993) appears also in non-human animals (Guthrie 2002, 2007b). Recently two biologists (Foster & Kokko 2008), in "The Evolution of Superstitious and Superstition-like Behavior", have independently presented precisely this analysis of mistaken judgments by non-human animals that another animal is present. Foster and Kokko, citing Pascal's Wager, argue that "natural selection can favour strategies that lead to frequent errors in assessment as long as the occasional correct response carries a large fitness benefit… Behaviors which are … superstitious are an inevitable feature … in all organisms, including ourselves" (2008: 1). Somewhere between the non-human behaviour Foster and Kokko describe and our own anthropomorphism is the behaviour of the presumed Australopithecine who, several million years ago, carried a water-worn pebble with three natural "faces" a long distance into a cave at Makapansgat (Dart 1974; Bednarik 1998; Lahelma 2008).

Finally, a number of cognitive neuroscientists have suggested that our ready use of human-like models has broad and deep neurological causes. One of these causes is a predisposition for "social cognition as the default mode" of the brain (Schilbach *et al.* 2008: 457; cf. Farmer 2010). This disposition stems from a close spatial overlap of the area of intrinsic brain activity with brain areas prominent in social cognition. Functional Magnetic Resonance Imaging shows a constellation of areas, especially the medial frontal and parietal regions, constituting a cognitive default system that is active when we are not engaged in a task.

Schilbach *et al.* suggest that this resting default means that when we consciously are thinking of nothing in particular, unconsciously we are thinking of social relationships. This default, they propose, may be the neural reason why we apply human-like templates to the world in general, and why we "approach the world as if it were full of mental agents" (Schilbach *et al.* 2008: 464).

Other cognitive neuroscientists (e.g. Farah & Heberlein 2007; Phelps 2007) endorse a still more comprehensive neural basis for our human-like models. They note that personhood, a concept foundational to social relations, is represented in not one but a number of brain areas. These are especially the temporoparietal junction, the medial prefrontal cortex, the amygdala, and the fusiform gyri. These areas, they argue, constitute a person-representation system (also called the social brain) for both mental and physical characteristics specific to humans.

Personhood as a concept has defied specific and non-arbitrary definition, but most definitions invoke family resemblances comprising mental rather than physical attributes: intelligence, language, sociability, moral responsibility and a sense of an ongoing self. The person-representation system, however, also represents physical elements, including eyes, faces and whole bodies.

Some of these representations seem relatively modular. Two black spots presented one above the other, for example, mean nothing in particular. Presented side by side, they automatically become eyes. This suggests a module-like restriction of visual "eye" input to a horizontal plane. (Incidentally, we share this sensitivity to eyes with all classes of vertebrates, beginning with fishes: Guthrie 2002; Watson 2011.) Representation of faces also appears modular, as does that for human bodily structure and movements, and human faces are represented by an area separate from that for non-human faces. Mental features, however, do not seem modular since their brain distribution is wide, for example in the temporoparietal junction, amygdala and medial prefrontal cortex.

The person system is autonomous. It may be triggered even when we are unaware of any stimulus, when the stimulus is fragmentary or schematic (as in the Heider-Simmel illusion) and "even when we are aware that the stimulus is *not* a person" (Farah & Heberlein 2007: 42). That is, it is independent of our conscious beliefs about the stimuli.

Like many visual illusions, the illusion of personhood is stubborn. "Knowing about the person network does not eliminate the sense that [the Heider-Simmel] shapes have intentions" (*ibid.*: 45). Moreover, triggering any part of it, with even a stick figure, may make the whole system light up. That is, the person-representation system is automatic, innate and irrepressible. Most important, "our intuitions about who or what has a mind are partly [controlled by] superficial and potentially misleading" triggers (*ibid.*: 44).

That this system is at least partly innate is suggested by much evidence, including the preferences of newborns for even rough, schematic faces. This

early neural emphasis on representations of persons and social relations continues throughout development. "Heavy social biases in perception and attention detectable in infancy are elaborated during normal development into the high-level systems of the social brain" (Farmer 2009: 309), where "by far the largest part of the neocortex is dedicated to … faces, emotions, gestures, language, sexual and social cues [but not to] socially neutral data" (*ibid*.: 301). Thus, in the "brain's default state anthropomorphic models are routinely overextended into the non-human world" (*ibid*.: 309).

Evidence is converging, then, from anthropology, biology, philosophy and neuroscience among others that what Horton calls "personal" models are, as he holds, strategic. They offer plausible, coherent and parsimonious ways to "explain, predict and control". The same evidence, however, shows that these models are not, as Horton thinks, produced by conscious reflection upon experience but rather are intuitive, in Sperber's (1996: 89) specific sense. That is, they are produced by "spontaneous and unconscious perceptual and inferential processes". Indeed aspects of these models, such as teleology and attentiveness to symbolism, very likely are not merely intuitive but also are innate.

By supporting Horton's account of strategy while undermining his rationalism, this evidence contributes to a current debate in CSR about how religion's personal models are generated and sustained. Both sides in the debate widely agree that a general anthropomorphism (often described in terms of its causation by overly sensitive "agent detection": J. L. Barrett 2000, 2004a) is central to religion. However, they disagree about why anthropomorphism arises and persists. Following Bacon, Spinoza and Hume, and followed by the psychologists, neuroscientists and biologists cited, I have held that it arises and persists intuitively, as a by-product of an adaptive, cognitive strategy.

Others specifically deny, against the tide, that anthropomorphism is intuitive. Boyer (1996: 83), for example, devotes an article to the propositions that "anthropomorphism, though widespread, is counter-intuitive" and a "projection", and that counter-intuitiveness makes it memorable and hence persistent. Pyysiäinen (2004a), J. L. Barrett (2004a) and Atran and Norenzayan (2004) among others agree that the success of religious (and hence anthropomorphic) ideas is largely explained by counter-intuition. In contrast, Horton's view of personal models as strategic aligns him with the intuitivists, whom he resembles in seeing religious ideas as products of adaptive cognitive processes and as plausible attempts to interpret and influence the world.

## Conclusion

Convergent interdisciplinary evidence, most importantly from cognitive science, indicates that anthropomorphism is universal in humans, that close

analogues to it are present in other animals, and that these all stem from an evolved, automatic and unconscious strategy. If so, then it appears that Horton is mistaken in calling personal models a mere "idiom" and a product primarily of experience and reflective reason. Instead, personal models typically are not reflective but spontaneous, and they are applied involuntarily. However, Horton's case that using them is strategic, that their use in religion parallels their use in secular life, and that they are used for explanation, prediction and control appears stronger than ever.

I have argued that both Horton and Hume are generally supported by current cognitive science, but that the views of both can be improved by stipulating an evolved, unconscious and generalized Pascal's Wager as a motivation in cognition. This stipulation itself, at the centre of a theory of religion as anthropomorphism, has gained strength from recent cognitive science. In the last decade, much of this theory has been accepted in CSR and advanced elsewhere. The theory stems most immediately from Horton's (Humean) argument that religion is, first of all, an attempt to comprehend an inchoate, indefinite world by postulating a limited number of underlying entities.

Current cognitive science of religion is partly the legacy of this ethnographer of religion, philosopher of science and declared cognitivist. If current cognitive scientists of religion also depart from him in some ways, most importantly in re-emphasizing unconscious thought, they do so after standing on his shoulders.[11]

## Notes

1. I have been unable to find current biographical information, and seem not to be alone in this.
2. Bernard Gilligan, personal communication, notes that non-teleological views of nature also were held earlier, by the pre-Socratic Atomists and then by the Epicureans. These were supplanted, however, by Aristotle's teleology.
3. This and subsequent quotations in this paragraph are from pp. 75–80.
4. Pyysiäinen & Hauser (2010) review some of these cognitivists.
5. E. E. Evans-Pritchard, Claude Levi-Strauss and Ian Jarvie also are notable, rationalist anthropologists who deal with religion, but are excluded here for reasons of time and space.
6. This acronym, coined by Barrett (2000: 31) based on my (1980, 1993) argument, stands for Hyperactive Agent Detection Device. The acronym is well known in CSR but, despite its success, some of its terms may be misleading. "Hyperactive", for example, connotes excess, whereas I argue that our sensitivity is well justified. "Agent" appears too concrete, as our anthropomorphism is diverse and often abstract or indirect (for example, it includes traces of, and messages from, human-like beings [Guthrie 1980, 1993]) and we do not yet adequately know how agency is represented. Finally, "device" suggests modularity, but the immense diversity of anthropomorphism means that it cannot be attributed to a module.
7. Farmer (2010: 292) gratifyingly writes that my assertion of an evolved better-safe-than-sorry strategy now is part of the standard model and is "repeated by many others, including Boyer (2001), Atran (2002), and Dennett (2006)".

8. A recent earthquake in China may have been triggered by pressures from a large dam.
9. Thus religion "may be described as a system of postulated communication at a linguistic level" (Guthrie 1980: 190).
10. I do not assume these are separable.
11. I owe great thanks to Dimitris Xygalatas and Lee McCorkle for the invitation to write this paper, and to two anonymous reviewers and (especially) to Walter Guthrie and Phyllis Kaplan for helpful comments.

# 4

# The opium or the aphrodisiac of the people?

## Darwinizing Marx on religion

Jason Slone

W. H. Auden purportedly quipped, "We are all Freudians now." The same could be said about Marx, who made such signal contributions to our understanding of human socio-economic life that much of what he theorized in the nineteenth century is now taken for granted. Among else Marx showed us that religiosity varies within societies along socio-economic class lines, as the rich and powerful tend to be less religious than the poor and the powerless.

Arguably the most important insight Marx offered for the study of culture is that the rich and powerful maintain their socio-economic privileges not by force alone but also by the construction and transmission of *cultural* myths that rationalize the status quo and disproportionately benefit the wealthy. For instance, in the past thirty years in the United States, "supply side" economic theory has dominated fiscal policy. Supply-side economic theory argues that lowering federal incomes taxes benefits society by enabling all people to keep more of their earned incomes, which they in turn spend, which creates demand, which results in more jobs.

A Marxist would argue, however, that this "low tax" story is a *myth* whose real effect is to disproportionately benefit the wealthy at the expense of the poor. How so? "Equal" reductions in taxes on earned income amount to more savings by those with higher earned incomes than lower incomes (e.g. a 10 per cent tax reduction in taxes paid on earnings of $200,000 nets more savings than a 10 per cent reduction in taxes paid on earnings of $20,000). Working-class voters are thus victims of "false consciousness" if they believe "across the board" tax cuts benefit them as much as the wealthy (R. Frank 2007).

Marx's insights are extremely influential in the humanities today, notably among the so-called "critical theories" like feminism (e.g. de Beauvoir [1949] 1972), gender studies (e.g. J. Butler 1989), post-colonialism (e.g.

Fanon 1965), literary criticism (e.g. Frye 1957; Jameson 1991), postmodernism (Lyotard 1979; Baudrillard 1968) and so forth. These seemingly disparate sub-fields within the humanities share an essentially Marxist orientation in that they share the belief that culture comprises myths socially constructed by wealthy and powerful elites for the purpose of oppressing minorities and maintaining the status quo (Berger & Luckman 1967). Additionally, Marxist thought is influential among social-justice-minded scientists who seek not only to explain the world but to change it (e.g. Singer 2000; Gould 1981). That scholars from all sides of the scholarly spectrum find utility in Marxist thought is a testimony to his impact on the study of culture and religion.

In this chapter I provide an overview of Marxist theory and its contributions to the study of culture and religion. Then I present a relevant case study, of evangelical Christianity in the contemporary United States, to demonstrate how Marxist thought can be applied. Third, I review recent empirical evidence relevant to Marx's theoretical claims. Finally, I highlight central problems with Marx's theory and offer possible ways to resolve those problems. In the end, I argue that it is possible to align Marxist theory with contemporary thinking about human social life from the evolutionary and cognitive sciences. In the end, I argue that Marx's signal contribution was that religion's ubiquity results from its utility as a means to material ends. In other words, religion is a human construction whose central function is to help people, especially those with low socio-economic status (SES), to acquire valuable resources in competitive environments.

## History, capitalism and social structure

Karl Marx was born in the German Rhineland in 1818. His father was Jewish but had converted to Christianity so that he could practise law. Marx appears to have been a precocious young man, eventually enrolling at the University of Berlin in 1836, where students and faculty were gripped by fierce intellectual debates over ideas related to philosophy, politics, economics and social reform (Berlin 1963; Wheen 1963).

During Marx's time at the University of Berlin a leading intellectual movement was the "idealism" of the philosopher George Wilhelm Friedrich Hegel. Hegel had argued that history progresses through stages of development based on a process of "dialectical idealism", whereby an idea, or thesis, is countered by an alternative idea, or anti-thesis, and progress is made when someone combines the best of both into a third idea, or synthesis. Over time, Hegel argued, this dialectical process produces the types of great ideas that motivate people to change the world. Thus in Hegel's philosophy ideas move history (Hegel 1977).

Hegel extended this theory into a quasi-theological philosophy of history. Hegel argued that, throughout history, humans have suffered from feelings of alienation. However, given the dialectic process, the world is progressing towards an ultimate state in which all of humanity will delight in total self-consciousness. Indeed, Hegel implied, this progress towards perfection is almost inevitable, given the power of the dialectical process, and thus there is a kind of "world spirit" (*Geist*) moving history towards perfection.

By Marx's time in Berlin the followers of Hegel had split into two camps over the status of human progress. The conservative "right-wing" Hegelians believed that they had already achieved perfection in the state of Prussia and so they sought to conserve the status quo. However, the liberal "left-wing" Hegelians (sometimes called "young Hegelians") believed that the pinnacle of human social life had yet to be realized and so they championed social reforms as liberation from the existing social order.

Marx was squarely in the latter camp, as was another philosopher whose ideas greatly influenced Marx, Ludwig Feuerbach. Feuerbach argued that Hegel's philosophy of history was theological, not empirical (Feuerbach [1841] 2008). That is, Feuerbach argued that Hegel robbed humanity of its rightful place in history by shifting the purported cause of social reform to that of *Geist*. According to Feuerbach, and later Marx, historical progress was actually the result of human effort, and to give *Geist* credit was not only empirically suspect but also psychologically deflating, because it (ironically) alienated humans from their labours. Indeed, Feuerbach argued, Hegel's philosophy of history was like religion in that it *restricts* human progress by discouraging people from acting. Instead, people wait for God, or the *Geist*, to act on their behalf. As a result, religious people perpetually live in a state of alienation from themselves.

Marx was deeply influenced by both Hegel and Feuerbach. In fact, Marx's theory is ultimately an attempt to synthesize his own ideas with those of Hegel and Feuerbach. Working with Friedrich Engels, Marx eventually came to believe that Hegel was correct in thinking that human society progresses throughout history but that Feuerbach was correct about how the process happens. Social progress, Marx came to believe, progresses not because of God's spirit in the world, but because of human effort (Stevenson & Haberman 2009: 163–80).

Marx's contribution to this issue was that humans are not motivated by grand ideas but instead by the more basic need to improve their economic conditions. In turn the motivation to change the material conditions of one's life, Marx argued, is the driving force of all of history. As such, Marx reformulated Hegel's dialectical idealism into a philosophy of dialectical materialism (Cohen 1978). To support his claim that the material conditions of life motivate social reforms, Marx noted that the stages of history which Hegel

had identified could be re-categorized according to the socio-economic systems that controlled material resources at that time. Marx argued that human history had evolved from tribalism to absolute monarchy to the feudal system and then to the stage in which Marx's own society found itself, industrial capitalism. Importantly Marx didn't merely re-categorize historical change; he redefined its causes.

The core of Marx's theories critically addresses industrial capitalism. According to Marx, the characteristic flaw in industrial capitalism is that the modes of production are owned and controlled by a small privileged class (the "bourgeoisie") who enjoy asymmetrical socio-economic status (SES) advantages. In prior eras, Marx argued, individuals controlled their own means of production (e.g. farmed their own food) but in the industrial-capitalist era people who do not have enough capital to own businesses (the "proletariat") have to work in factories that manufacture goods sold for profits that go to the owners of the manufacturing. Thus the central problem of industrial capitalism is that the majority of people work hard yet live in relative poverty. Furthermore, these unjust economic conditions lead to severe psychological distress for the proletariat because the system leaves them alienated from the fruits of their labours.

Marx found the system of industrial capitalism not only to be unjust, but also unsustainable. Given that the proletariat significantly outnumbers the bourgeoisie, he assumed that the system would eventually be overthrown in a revolution of workers against owners. In fact, he wondered why it had not happened yet. Why is the proletariat so passive in accepting this obviously unjust economic system where the rich get richer while the poor stay poor? The answer, Marx came to believe, was that the bourgeoisie also control the production and transmission of ideas in society (via government, newspapers, churches, schools, etc.) and they strategically construct ideas that convince the proletariat (falsely) that the system works on their behalf. That is, the ideas that elites construct are actually ideological myths designed to create in the proletariat a "false consciousness" that the system is good for them. Therefore cultural ideas have the effect of pacifying the proletariat into accepting the status quo. Importantly, for our purposes, Marx argued that some of the most powerful myths that rationalize the status quo are *religious* myths.

Marx dubbed culture the "super-structure", which he asserted maintained the "base" capitalist system by convincing people to acquiesce to the status quo. *A la* Feuerbach, Marx argued that religion "naturalizes" the socially constructed capitalism system by mythologizing it. In other words, religion pacifies the proletariat by convincing them that their lot in life is all part of God's plan, and so if the proletariat abide by the rules of the system then they will be rewarded for their good behaviour in heaven (and, of course, vice versa). Religion thereby functions as a tool of economic oppression created by enforcing social conformity among those that are exploited by capitalism.

The obvious question then becomes why the proletariat readily accepts these socially constructed and counter-productive myths as true. The answer is that the proletariat believes religious myths because religious myths are, *by design*, highly seductive. Indeed, religious myths that promise relief from earthly pain and eternal reward for good behaviour are addictive because they are so psychologically soothing to the economically oppressed. As such, Marx famously analogized, religion is like a drug:

> Religious distress is at the same time the expression of real [economic] distress and the protest against real distress. Religion is the sigh of the oppressed creature, the heart of a heartless world, and the soul of soulless conditions. It is the opium of the people. The abolition of religion as the illusory happiness of the people is the demand for their real happiness. The demand to give up the illusion about its condition is the demand to give up a condition which needs illusions. (Marx & Engels 1964: 41)

It is noteworthy that Marx chose *opium* as his analogous drug of choice. Opiates (e.g. morphine, a type of opiate which was widely used in Marx's day) induce a mental fantasy that enables the user to experience a kind of mental escape from the problems of reality (see Dalrymple 2008). For Marx, the proletariat use religion for the same reasons people use opiates: to dull the pain of an existentially painful life characterized by alienation and socio-economic inequality.

The problem with consuming the opiate of religion, of course, is that one becomes mentally disabled and incapable of rational acts, such as uniting with other workers to change the economic system. Thus for Marx religiosity is a symptom of the proletariat's psychological alienation that results from the economic inequalities of industrial capitalism.

## Marxism and Critical Theory

Marxist theory continues to have strong currency in the humanities and in some areas of the social sciences (see, as examples, de Beauvoir [1949] 1972; Baudrillard 1968; Berger & Luckman 1967; Butler 1989; Fanon 1965; Frye 1957; Lyotard 1979; Jameson 1991). Marxist theory is applied to critiquing a wide variety of cultural narratives and institutions that exploit particular groups of people (women, minorities, GLBT, colonized subjects, etc.). On the other hand, Marxist theory can be applied to the cultural forms themselves that are responsible for doing the exploiting, such as books, films, works of art or museums. Though varied in topic and foci, these disparate approaches share the common belief that we still live in an industrial-capitalist world and that

culture still functions as a super-structure that maintains an unjust economic system. What is different about today's Marxist thinking, though, is that there are many different groups of oppressed people besides just the poor, including women, homosexuals, minorities, the colonized and so on (see Ryan 2008).

Similarly, scholars studying religion have applied Marxist theory to the critical study of religion. Catholic "liberation theology" applies Marxist theory to criticizing global economic structures that oppress the poor (e.g. Gutiérrez 1988). Feminist scholars of religion have applied Marxist thinking to the critique of andro-centrism in religious systems (e.g. Gross 1996). Postcolonial scholars have used Marxist theory to criticize the role of Christianity in the Western imperialistic enterprise (e.g. Said 1979). Ethnic studies scholars have used Marxist theory to criticize the role that Christianity played in justifying slavery (e.g. Wood 1998). Historians of religion have even used Marxist theory to question the very notion that "religion" is a real thing that exists in the world, and not merely the invention of elitist scholars seeking to create and maintain a privileged niche in academia (e.g. McCutcheon 2003).

Marx's theories of religion seem to be particularly useful for scholars studying Western religions, and US Christianity in particular. There are several peculiarities of US Christianity that Marx's theory seems to explain. An obvious case of using religion to maintain harsh socio-economic inequalities is the use of Bible passages by colonial Christians to justify slavery. However, Marx can also be used to make sense of contemporary features of Christianity in the USA such as (1) why the United States continues to be the most religious country in the developed world (Paul 2009) and (2) why the poorest regions in the United States are the most religious (T. Frank 2004).

## Marx applied

Marx may help us to understand why religion has not diminished in the USA (compared to other developed nations) despite a significant expansion of the US economy and the subsequent increase in GDP and other measures of personal wealth (e.g. equity ownership). This is a surprising fact given that sociologists predicted long ago that as a society's middle-class wealth increases, religiosity should decrease (see D. Martin 2005). If wealth is measured by GDP, then this "secularization hypothesis" predicts that the USA should have secularized at roughly the same rate as, if not faster than, many European nations and Japan have, given their relatively similar growth trends. However, this has not been the case. While most European countries and Japan have largely secularized in the second half of the twentieth century, the United States has actually seen a religious "revival" of sorts and is today the most religious of all the developed nations of the world (Berger *et al.* 2008).

In a compelling recent study in *Evolutionary Psychology*, G. Paul (2009) offered a Marxist explanation for why the USA is very religious relative to other developed nations. Paul showed the key predictor of religiosity in a country is not adjusted GDP, which is an average number, but rather the level of income inequality, namely the gap between the highest and lowest incomes. Paul showed that there are positive correlations between the relative economic equality and low rates of religiosity in developed countries worldwide; where there are smaller gaps between social classes, religion seems to diminish. In contrast, when there are large gaps between social classes, as in the United States, religion seems to flourish. The United States stands out among other developed nations in that while it has high adjusted per capita income levels and high employment levels it is also high on the GINI Income Inequality scale (relative to other developed nations). In other words, though the average income level in the USA is quite high, that number is misleading because the income inequality (relative to other developed nations) is severe. Thus the high average income must be skewed by the extremely high incomes of the affluent (see also R. Frank 2007).

Not surprisingly, according to the Marxist theory of religiosity, the USA is also astonishingly high on the scale of popular religiosity vs secularism. Combined, Paul concludes, the unusually high rates of religiosity in the USA are a psychological response to the social dysfunction that results from large income inequality: religion is widespread in the USA because there are so many relatively poor people. Paul writes, "popular religion is in the main a superficial psychological response that seeks the daily aid and protection of supernatural entities to alleviate the stress and anxiety created by a sufficiently dysfunctional social and especially economic environment" (Paul 2009: 427).

The second feature of US religion that Marx's theory may explain is regional and cultural variation. In the past forty years, the USA has seen the rise of a "religious right" among evangelical Christians, particularly in the south-eastern and Midwestern states that constitute the "Bible Belt" (W. Martin 1997; Wilcox 1996). Led by evangelicals like Jerry Fallwell and the "Moral Majority" movement, and later Pat Robertson's Christian Broadcasting Network, the Christian right emerged as a powerful socio-economic force in the USA in the 1970s and 1980s. In part, the Christian right emerged in response to a variety of social changes that challenged conservative religious values. Among those agents of change were the Civil Rights Act of 1964, which forced racial integration, the spread of liberal sexual mores as a result of the invention of reliable and affordable contraception, legalized abortion (i.e. *Roe* vs *Wade*), the 1960s counterculture movement (i.e. the "hippies" and "flower children") and what was seen as an attack on Christianity in the forms of removing prayer from public schools and integrating evolutionary theory into high school biology curricula (W. Martin 1997; Humes 2008).

Sensing a political opportunity to capture disillusioned Southern Democrats after the 1964 Civil Rights Act, conservative strategists in the Republican party wooed the emerging grassroots Christian movements into forming a socio-political alliance based on three principles: small government (e.g. dismantling of "welfare" programmes and supporting local control of education), supply-side economics (e.g. low taxes, deregulation of commerce and liberal lending by the Federal Reserve Bank) and strong national defense.

Support for the first and second of these policies by those who live in the poorest region of the United States is puzzling (T. Frank 2004). In fact, a Marxist might say, working-class support of policies that clearly benefit the wealthy is suspicious. Why would the poor, who would benefit most by liberal policies like progressive tax structures, social welfare programmes, equitable public education and so on, support policies that are designed to benefit the wealthy (regressive taxes, low federal spending on welfare programmes, etc.)?

For a Marxist, the answer is obvious. Conservative evangelical Christians are victims of false consciousness. They have been convinced that progressive economic policies which favour them are not important; values purported to be consistent with their religious beliefs are. For instance, the working class has accepted the seductive but misleading bourgeoisie ideology that lowering taxes puts more money in everyone's pockets, a rising tide lifts all boats. In real economic terms (e.g. purchasing power) the poor and middle classes do not benefit from low or "flat" tax policies when the benefits of wealth are measured in relative rather than nominal terms.

Consider the case of a reduction in earned income tax rates by two different families, Family A and Family B, in two different tax brackets. Family A earns $20,000 per year and so is taxed on 15 per cent of their earned income. So they are responsible for paying $3,000 per year in federal taxes (assuming, for the sake of discussion, that they have no deductions or credits) leaving them with $17,000 in net income. If their income tax rate was reduced from 15 per cent to 10 per cent, they would pay only $2,000 in taxes rather than $3,000, leaving them with $18,000 of net income and thus a net income increase of $1,000 per year.

In contrast, consider Family B, who earns $2,000,000 per year and is therefore taxed on 35 per cent of their earned income. Family B is responsible for paying $700,000 in taxes, leaving them with $1,300,000 in after-tax income (same assumptions as Family A). If Family B receives the same rate reduction as Family A, then Family B would pay 30 per cent on $2,000,000 or $600,000 in taxes for a net income increase of $100,000. Thus although both families received the "same" tax cut, Family A saves $1000 in taxes while Family B saves $100,000. In real dollars, Family B benefits from the "same" tax cut by a factor 100 times (!) greater than Family A. "Across the board" tax cuts are seductive to the working class because they purport to help everyone

and therefore are fair and equal, but in reality these "fair and equal" tax cuts are actually regressive because they disproportionately benefit the wealthy.

The fiscally conservative "low tax" ideology is seductive to a person of modest means. However, Marxists would note, it is an ideological lie that benefits the wealthy at the expense of the poor. Yet the poor have been misled to believe that it benefits them, which is why the poorest regions in the United States continue to vote for politicians who enact economic policies that worsen their relative economic situations (T. Frank 2004). This is why, as economist R. Frank has noted, despite unprecedented levels of wealth in the USA, as measured by GDP, the poor and the middle class are struggling to make a living (R. Frank 2007). Given their dire economic situations, it is no wonder that poor people in the USA "cling to religion" (as US President Barack Obama recently stated).

## Evaluating Marx with empirical evidence

Marx claims that the bourgeoisie are religious because religion makes them feel better. This is an empirical claim that can be tested, and a host of recent neuroscientific studies have sought to do just that. Reviewing these data helps us to evaluate the theoretical claims Marxist theory assumes.

Recent advances in evolutionary endocrinology have shown that when humans are faced with stressful environmental scenarios the body releases strong doses of hormones (e.g. cortisol, growth hormone [GH], norepinephrine) that enable it to respond appropriately. Presumably this functional feature of our endocrine system evolved as a survival aid, allowing us to flee predators or fight competitors as needed. In today's modern environment, most of the threats we face are non-lethal (e.g. being "downsized" at work); nonetheless our bodies still release "stress" hormones in large doses, acting as if the body is in lethal danger (Sapolski 1994). In other words, in today's world we do not necessarily hunt for game or face the risk of being eaten by a large predator, but instead our stresses are socio-economic in nature, just as Marx said. Moreover, unlike the predatory threat of large animals, today's stresses are long-lasting. While a zebra might need rapid and large doses of stress hormones during a panicked fifteen minutes of avoiding a predator, in the modern human world a person can spend years in stressful situations. We are much less likely to get eaten by a lion and much more likely to get stressed sitting in traffic jams or growing up in poverty or stuck in an unfulfilling job (Sapolski 1994).

Consider the socio-economic trajectory of modern humans. It takes roughly four years to earn a college degree, which involves acquiring unnatural material (McCauley 2000), studying for stressful tests, quizzes and assignments,

dating and "breaking up" (Fisher 2004: 153–80), navigating new friendships and so on. Upon graduation, one must find a job, a process that itself can be quite stressful, and then work long hours, figure out how to perform well, avoid being fired, get promoted and so on. Additionally, we face the ongoing stresses of finding, securing and maintaining a mate, having and raising children, buying a home and paying the mortgage, funding a retirement plan, staying in good health, caring for elders, mowing the lawn, getting the car fixed and so forth and so on. As a result our bodies are under constant stress and saturated with stress hormones, which can cause severe long-term health problems like heart disease, high blood pressure, diabetes and ulcers (Sapolski 1994).

Thus if religion reduces stress for people, then religiosity ought to act on the endocrine system is some significant way, for example, reducing cortisol levels in the brain. Using imaging technologies like Single Photon Emission Computed Tomography (SPECT), Positron Emission Tomography or Functional Magnetic Resonance Imagining, neuroscientists have been studying "the brain on religion". The results suggest that there may, indeed, be mental-health-promoting benefits from religiosity (see Koenig 2008; Ellison *et al.* 2009; Schjoedt 2009).

Arguably the most popular research on religion and the brain has been conducted by Andrew Newberg and collaborators (see Newberg & Waldman 2010). Based on SPECT scans of a few Tibetan Buddhist monks (among others, e.g. Fransiscan nuns), Newberg and colleagues have shown that the religious practice of meditation actually induces an altered state of consciousness in a practitioner's brain. Specifically, meditation overloads the limbic system and thereby prevents perceptual inputs into the posterior superior parietal cortex, the region of the brain that represents spatial differences between one's self and the world (including other people). Hence the meditator's sense of "unity" with the world is the result of brain changes from religious practice (see also Austin 1999).

Similarly, using electroencephalography studies, Herbert Benson has shown that religious practices can promote health by helping practitioners to relax (e.g. Benson *et al.* 1990). Also testing Tibetan Buddhist monks (among others, e.g. Kundalini yoga practitioners), Benson argues that religious practices like frequent use of repetitive prayers, rituals and meditation help individuals relax. Relaxation has been shown to reduce oxygen intake, slow heart-rates and thereby decrease metabolism. Most interestingly, Benson notes that the effects of religious belief may be similar to the "placebo" effect found in many medical trials. As such, religion might work even if it is false, just as Marx suggested.

These studies appear to provide neuroscientific empirical support for Marx's theory. Religious belief and/or practice may indeed help believers to

manage stress as Marx claims (as does Paul 2009, noted above). However, it is also the case that studies might not provide empirical support for Marxist theory, because there are several ways in which the studies themselves may be flawed. First, imaging techniques themselves are methodologically suspect because what people's brains do under scanning machines might not be the same as what their brains do in natural settings. Scanning studies take place in hospitals and require the subject to remain motionless in a confined technical space for extended periods of time. In other words, scanning studies lack ecological validity.

Second, interpreting the results of scanning studies is difficult. Since the brain is in constant motion, it is difficult to establish a baseline against which manipulations can be measured. Further, the raw data obtained from scanning studies must undergo significant transformation (from images to numbers) before being able to be statistically analysed. Thus the results of a scanning study are merely indirect measures of brain functioning, at best (Schjoedt 2009).

Third, due to the constraints of scanning technology (e.g. cost and time [only one subject at a time]), these studies often rely on a small subject-sample size. Moreover, as is the case with studies of meditating monks, the subjects studied are religious elites (e.g. experts at meditation). Thus it is difficult to generalize from a few studies of a small number of elites about the impact of religiosity on the majority of religious people. Indeed, one could argue that "meditation" is not even a religious practice at all since it does not necessarily involve the invocation of supernatural agents.

In short, while neuroscientific studies to date might suggest that religion helps people manage stress, those studies are inconclusive. More research is needed.

## Darwinizing Marx

Where does Marxist theory stand today within evolutionary psychology? A central feature of science today is what E. O. Wilson (1999) called "consilience", whereby theories at all levels of scientific analysis should be hierarchically consistent with each other. In other words, sociology should be consilient with psychology, which should be consilient with biology, which should be consilient with chemistry and so on. To bring Marx in line with contemporary thinking on religious behaviour requires his sociological analysis to be consilient with evolutionary psychology. Is it?

The answer is: somewhat. Drawing on Malthus's (1798) work on population pressures, Darwin conceived of evolution as a process of competition for survival and reproduction among organisms living in a world of finite

resources. Those organisms that possess traits well "fitted" to securing the resources from their environments that are necessary for survival and reproduction will out-compete those with traits ill-fitted to their environments. Thus, over time, nature selects for organisms that are adapted well for survival and reproduction and selects against those that are not (Darwin [1859] 1911).

Modern evolutionary theory combines Darwin's theoretical framework with genetics, the sub-discipline of biology that examines the mechanisms of inheritance. The combining of the "macro" processes of evolution noted by Darwin with the "micro" processes of genetics is known as the "neo-Darwinian" synthesis. Crucially, advances in genetics have led biologists to believe that genes, not organisms *per se*, are the units which get selected for or against. This new "gene's-eye view" paradigm, popularized by R. Dawkins's (1976) now classic work *The Selfish Gene*, helps to account for a great deal of sociobiological phenomena biologists struggled to explain before (e.g. why ants, bees and other "social" animals engage in behaviours that benefit the group at the expense of the individual). In short, organisms are vehicles for genetic replication and genes often cause organisms to engage in behaviours that benefit the genes (which are shared among colonies or kin) at the expense of the organism.

The gene's-eye view of biological behaviour helps to explain kin altruism in humans. It is a well documented fact that humans tend to behave more altruistically towards relatives than towards strangers. Two seminal papers on human social behaviour by W. Hamilton (1964) and R. Trivers (1971, 1972) explained the evolution of social behaviour using the logic of the gene-centred view of evolution. First, Hamilton , drawing on earlier work by R. Fisher and J. Operane, noted in his theory of "kin selection" that a gene which causes behaviour that lowers the fitness of an individual actor can still increase in frequency if relatives carry it (hence "kin" selection). Importantly, the higher percentage of genes shared by two members of the same family, the higher the likelihood of altruism. This is known as "Hamilton's Rule" in biology, and is formalized as $[C < R \times B]$ where C is the cost in fitness to the actor, R the genetic relatedness between the actor and the recipient and B is the fitness benefit to the recipient. For this reason, Trivers noted (1972), parents invest more in their children than in their cousins simply because they share more genes.

Further, Trivers (1971) noted that genes for "altruistic" behaviour costly to the actor and directed at non-kin could also increase in frequency if one can reliably expect the "favour" to be returned at a later date. As such, altruistic acts are ultimately selfish acts in that they store favours that may be returned at a later date. Thus the only act of "true" altruism that occurs among humans is between non-kin, because acts of altruism towards kin have the effect of helping one's own genes.

Note that the result of this work (among others) is that evolutionary success is defined largely in terms of fecundity, or reproductive success, not just survival. It is the replication of the gene that matters most, not the organism. If reproductive success through genetic replication is the ultimate goal of evolution, then resource acquisition can be seen as merely a means to an end. It is in this sense that Marx was wrong (or at least incomplete) in his theory.

A great deal of contemporary work on human social behaviour, including religiosity, employs the "social evolution" framework outlined above. Of course, genetic replication in humans occurs through sexual reproduction and so significant features of human minds evolved, presumably, for the purposes of attracting and securing mates (Buss 1994; Miller 2001; Ridley 1994). Humans are heterogamous, meaning that genetic replication occurs with the fusion of two dissimilar gametes (sex cells). In heterogamous species like ours, females have larger gametes than males; indeed, this is what defines "femaleness" in biology. The average ovum in a human female is 150 μm while the average sperm is 2–3 μm wide and 5–7 μm long. With such relatively large gametes, females can only produce and store a finite number of eggs. On average, even though many more are present at birth, a female has 400 reproductive *opportunities* for genetic replication in a lifetime. In contrast, estimates are that the average human male produces over 500 billion sperm in a lifetime, and can release between forty million and one billion sperm in a single ejaculation. So males can produce hundreds if not thousands of offspring in a lifetime, assuming they are able to convince a female to mate. And this is the key insight for understanding human behaviour. Since sperm are "cheap" and eggs are "expensive", females choose and males woo.

In addition to the significant difference in reproductive opportunities between males and females, there are significant differences in reproductive costs. Women bare all of the biological burdens of gestation, birth and nursing, while males have little necessary direct parental investment. Should they choose to do so, in fact, soon after reproducing with one female, males could continue to reproduce with other females. In contrast, once pregnant, a female cannot reproduce until months later. Thus the record for the most children sired by a female is purported to be sixty-nine, sixty-seven of whom survived infancy. In contrast, Mulai Ismail, the last Sharifian Emperor of Morocco, is believed to have sired over 1,000 children.

Given these biological realities, males and females employ different reproductive behavioural strategies. In general, females are choosier than men because the costs of reproduction are so high (there are only a few opportunities in a woman's lifetime). What follows is an evolutionary "arms race": intersexual competition, driven by female choice. Women want certain qualities in a mate, and men engage in behavioural displays which signal that they possess those desirable traits. Women in turn must judge whether the male's displays

are honest or deceitful. In other words, women know what they want, men claim to have it and women have to figure out if they are telling the truth. This is the evolutionary arms race between the sexes (Baker 1999).

Moreover, human mating psychology is equipped for intra-sexual competition. Males compete with males for access to females, and females compete with females for access to desirable males. Given that *female choice* is central to heterogametic reproduction, intra-sexual competition is fiercest among males, which is why in most heterogamous species males have larger and more ornate displays (D. Geary 2009). Biologists Amotz and Avishaq Zahavi (1999) have noted that growing large physical displays, such as a peacock's tail, or engaging in costly behaviours, such as birdsong or bower building, is a strategy to "handicap" rivals. Only males with the highest quality genes can afford the costs of large plumage or risky behaviours, and costly displays are hard-to-fake signals of genetic quality.

These facts of evolutionary biology may ultimately explain all of human behaviour. Indeed, if genetic replication is the sole goal for which all organisms are designed, everything else is a means to that end, religiosity included. Religiosity may be a *reproductive strategy* (among others; see McCauley 2003). New research indeed suggests that it is.

Buss (2002), Blume (2009), Slone (2008) and L. H. Martin (forthcoming) all have put forth evolutionary explanations of religiosity based on the logic of sexual selection theory. The theory, in short, is that religiosity is display behaviour designed to solve adaptive problems related to mating and reproduction. For example, Weeden *et al.* (2008) found the strongest predictors of attending church were those related to sexual and family values, and thus attitudes about sex and family are causes, not effects, of religious attendance. Further, in experimental studies by Li *et al.* (2010), people reported higher religiosity after looking at mating pools consisting of attractive people of their own sex compared with attractive opposite-sex targets, suggesting that both men and women become more religious when seeing same-sex competitors.

What does this have to do with Marx? The answer is this: low-status individuals might not be using religion as an opium for escape, but rather as an aphrodisiac for attraction.

# 5

# Immortality, creation and regulation

## Updating Durkheim's theory of the sacred

Harvey Whitehouse

Émile Durkheim argued that in all or most societies, from simple hunter-gatherer bands to modern states, certain ideas and practices are treated as 'sacred', set apart from more mundane or 'profane' aspects of human existence.[1] According to Durkheim, the sacred everywhere involves a notion of a vast energy active within all sorts of things, in some sense eternal, a creative cosmic force and a regulatory but also an inspirational moral power. Can these claims be rendered in a precise and testable fashion and if so do they find support from the cognitive sciences?

In recent years cognitive scientists have sought to demonstrate the naturalness of religion, its rootedness in universal patterns of human thinking such as: perspective-taking (needed to build a range of religious concepts, from morally concerned deities to spirit possession) (Bloom 2004; Cohen 2007), promiscuous teleology (undergirding creationism and notions of a purposeful life) (Shariff & Norenzayan 2007), moral reasoning (e.g. enabling notions of sin and expiation, of supernatural punishment and reward) (Kelemen 1999b; Evans 2001), hazard-precaution (shaping many recurrent aspects of ritualized behaviour) (Boyer & Lienard 2006) and interpretation of functionally opaque actions (prompting the attribution of exegetical meaning to rituals) (Whitehouse 2004). Adopting this general strategy has led many to believe that religion is little more than a rag bag of unrelated traits, each of which needs to be explained somewhat independently. Durkheim had a rather different conception of religion in which sacred forces, gods, ancestors, creator beings and rituals were all facets of a common underlying set of principles. It is argued here that the cognitive science of religion can help to account for some of the regularities of religion that Durkheim identified but that this involves reworking his sacred/profane distinction and developing more precise formulations.

## A Durkheimian view of the origins of religious thinking and behaviour

Durkheim argued that people everywhere are aware, if only obscurely, of a complex and dramatic internal battle raging within them, rather like the struggle between Robert Louis Stevenson's celebrated fictional characters, Dr Jeckyll and Mr Hyde. Durkheim famously characterized our species as *homo duplex* (Durkheim [1915] 1965), forever torn between egoistic psycho-organic drives and impulses and the obligations and duties incumbent upon us by virtue of station and office. As the bearers of social roles, we defer to a social order that requires sublimation of our antisocial tendencies for the betterment of all.

But there was also another rather less Hobbesian aspect to Durkheim's conception of *homo duplex*. Durkheim located embodiedness, in all its aspects, at the core of what is everywhere recognized as profane, transient and worldly. By contrast, social groups, such as the clan, have a notional permanence: individual clansmen die and have to be replaced but the clan itself persists. According to Durkheim, religion provides a way of conceptualizing and cultivating attachment to the permanent, transcendent quality of society. Religious concepts, on this view, arise partly as ways of grappling with a sense that social groups transcend the people they comprise. They transcend us in three senses: they outlive us; we are socialized into them rather than creating them ourselves; they regulate our behaviour.

Religious ideologies persistently dwell on notions of a state of permanent and transcendent order: forces more powerful than the individual, conceived as the ultimate source of creativity in the cosmos, and unchanging, liberated from the transience of worldly activity, growth and decay. For Durkheim, these qualities encapsulated the essence of sacredness. Following this reasoning, religious imagery portrays a mirror image of biological reality. It postulates a spiritual dimension in which there are no bodies and no sense of processual change. But these religious images merely symbolize the unchanging and transcendent order of society itself. For this reason, Durkheim is often described as the founder of the "symbolist" perspective on religion.

Durkheim's ideas were developed in novel directions by subsequent generations of anthropologists. For instance, in the early twentieth century the French sociologist Robert Hertz published an influential essay in France, later translated into English under the title of "A Contribution to the Study of the Collective Representation of Death" (Hertz 1960). Hertz's primary interest was in the quite widespread Malayo-Polynesian practice of double burial, whereby corpses were not immediately taken to a final resting place but instead placed in a temporary location such as the family house for a period of time. It was said that the corpse should not be permanently buried until it had thoroughly decomposed so that only the bones remained. Bodies

allowed to rot in this way were sometimes sealed in coffins and the putrefying liquids drained from time to time. In certain parts of Borneo relatives of the deceased mixed this decomposing material with rice, eaten during the period of mourning. Hertz observed that the condition of the corpse corresponded to the imagined condition of the dead person's soul. While the corpse was rotting, the soul was considered to remain in a kind of limbo and could not find rest until the decomposing material had drained away, leaving only the dried skeletal remains. By eating the fleshy part of the corpse, mourners hoped to expedite the process of drying out considered necessary for the release of the soul, but these acts of endo-cannibalism also provided a means of consuming the vitality of the corpse, the flesh that made the person strong and active during life but which must now be left behind. This vitality is of value to the living inasmuch as society requires strong and healthy members if it is to survive.

Hertz's understanding of the cultural logic of double burials drew heavily on Durkheim's notion of *homo duplex*: a distinction between the person as a physically and psychologically distinct being and the person as the bearer of social roles. When a person dies, his or her body is destroyed and along with it the particular hopes, fears, loves and hates of the individual. But what of the social roles and obligations that person had acquired over the course of a lifetime? These must somehow be redistributed and preserved. The transition may be awkward, however. If the deceased was a pillar of the community, upon whom many depended, death would be a source of major social disruption. Hertz believed that in the small-scale societies of Borneo, where social cohesion was strong, the disruption caused by death was experienced as kind of outrage against the group itself. Death destroyed not only the profane, biological part of the person but also the social or sacred aspect, and the purpose of the double funeral was to correct this outrage, to respond to the sacrilege of death. This logic was plain to see, Hertz argued, in the symbolism of double burials. Recall that the corpse was separated into two parts: the flesh (symbolizing the profane, psycho-organic aspect of the individual) which must be pared away, its destruction being of no consequence to society; and the dried skeleton (symbolizing the sacred aspect of the individual, his social roles) that must be preserved after death. Thus, according to Hertz, the bones represented the everlasting soul but the root of this symbolism was the social organization itself. The "other world", to which the souls of the dead ultimately repaired, was in reality the social order itself, a way of conceptualizing the everlasting nature of society.

More than half a century later, Hertz's ideas were taken up by anthropologists Maurice Bloch and Jonathan Parry in an attempt to develop a comparative theory of funerary rituals and, more ambitiously still, a general theory of ritual symbolism (Bloch & Parry 1982). While rejecting Hertz's seemingly

anthropomorphic conception of society as being in some sense outraged by the death of its members, they argued that funerals provide an occasion for dramatizing and re-establishing the transcendence of society.

According to Bloch and Parry, the notion of transcendence as super-permanence (the idea that both social institutions and the sacred realm are conceptualized as timeless and unchanging) is expressed in mortuary symbolism in three particularly common ways. First, it is expressed as a denial of our subjective experiences of time as linear and irreversible: funerary rituals portray the other world as frozen or as participating in a cyclical process of death and rebirth. Second, the permanence of society is symbolized through the imagery of durable objects: gravestones, tombs, pyramids, dried skeletons and other durable artefacts featuring in mortuary rituals to convey a sense of the permanent, unchanging nature of the sacred realm. Third, in many patrilineal societies mortuary rituals use images of masculinity to emphasize the permanence of the sacred order. In such societies male substance is the stuff of everlasting descent-groups in contrast with the worlds of women, dominated by biological reproduction and child-rearing. Whereas households are merely transient groupings, the descent group is conceptualized as a permanent entity, a masculine realm that epitomizes the permanence of the ancestral world.

Another aspect of the transcendence of society and the sacred realm concerns the location of creativity. In traditional, repetitive social systems, we do not on the whole see ourselves as creating society but rather as being born into it. Correspondingly, we envisage the sacred realm as something already there, rather than being our own creation. In fact, religious dogma widely proclaims that we are the creations of gods, or other supernatural forces, and not the other way around. According to Bloch and Parry, this idea is most commonly expressed in mortuary rituals through the use of fertility symbolism emphasizing the idea that death is really a kind of re-birth and that the soul of the dead person is now embarking upon a new phase of existence. Thus, mortuary rituals often focus on images of birth and fertility asserting that although a body has been destroyed an ancestor has been created. This, of course, involves seeing death as a highly creative event. And the creation of ancestors is upheld as superior to the act of biological reproduction.

A further point about the transcendence of society and of the sacred order concerns their moral control over our lives. Durkheim understood this as a process by which our biological drives are thought to be regulated by social forces acting on us from above. According to Bloch and Parry, mortuary symbolism is fundamentally concerned with underlining the authority of the sacred order and the superiority of the sacred over the profane. At funerals, cyclical time is portrayed as superior to linear time; durable objects, like bones and tombs, are superior to perishable objects, such as flesh and skin;

masculinity and male solidarity are superior to femininity and family life. Thus, mortuary symbolism is not only concerned with constructing images of permanence, but it also emphasizes the transcendence of these permanent objects over transient ones.

A recurrent thread in these Durkheimian studies of rites of passage has been the changing balance between physical and spiritual aspects of the person over the course of the life cycle. In the case of funerary rituals, this transformation is especially dramatic: the physical aspect of the person is destroyed and discarded leaving only the everlasting spirit. In many other rites of passage, such as initiations, a less radical kind of change is supposed to take place: the spiritual side of the person is enhanced, without destroying the body. According to Durkheimian logic, spirit substance and sacredness are really just symbols of the abiding authority of society. Society has to be seen as more powerful than the individual in order to regulate people's anti-social tendencies. A convenient way of conceptualizing this is through religious symbols and so people are seen as becoming increasingly spiritual as they get older. When they end up in the ancestral world, they are completely sacred and represent the authority of the social order in the purest and most total sense. So one might imagine the life cycle as a process of accumulating spirit substance: as an infant, one has only a little of this substance but it grows over the course of the lifespan so that, at death, one ends up being an entirely spiritual entity. Each rite of passage delivers another "dose" of spirit substance.

Following the logic of Hertz's Durkheimian interpretation of double burials, Maurice Bloch has argued that the accumulation of spirit substance over the course of life symbolizes the acquisition of rights, obligations, social roles and responsibilities (Bloch 1992). When we start out, as babes in arms, our psycho-organic demands are incessant but our contributions to society negligible. As we mature, assuming roles and obligations, we wield greater authority in society (conceptualized as an increase in sacredness or spirituality). But as this authority grows, our vitality diminishes. The older we get, the more powerful we may be in social life, but the weaker we become physically. In very old age, there is hardly any of our physical vitality left. Our bodies crumple and diminish and the process of decay is drastically accelerated after death, as we become completely spiritual. We enter the world of the ancestors, a world without bodies, without processual change and without reproduction.

This logic would help to explain why spiritual authority is invested in older people in many traditional societies and why ancestors are venerated. Authority is measured in terms of spiritual purity. The most powerful authority is that of pure spirits, the ancestors, who confer misfortune on the badly behaved and who are seen, more positively, as the mystical source of continuity in the world. Elders are closer to the ancestors in the way they are constituted, so they are naturally the holders of authority in "this world".

Growing old is only one way of being close to the ancestors; another possible way is to become a chief or a king. Such figures are usually seen as vehicles for the will of the ancestors, and they have to undergo special rituals to assume this high status. It is thus the imagined balance between bodily and spiritual attributes that warrants how much authority the individual can assume in society. The more spiritual you are, and therefore the less physical vitality you possess, the more powerful your position in the world.

Following this general line of reasoning, Bloch has advanced a general theory of "rebounding violence" in ritual symbolism, suggesting that funerary rituals are essentially truncated versions of initiation rites. Initiations typically begin by caricaturing the bodily aspects of people and then contrasting this caricature with images of the spiritual world, portrayed as much more powerful and desirable. A particularly common way of expressing this idea is that novices undergoing initiation are symbolically killed, their flesh beaten, lacerated or mutilated, before being sent to a place of seclusion (often explicitly analogous to the place of the dead). The same kind of process is enacted at funerals. In Borneo, as Hertz observed, the corpse is dried out by draining off rotting material and only when the bones are completely dry can the deceased enter the realm of the ancestors. The difference between funerals and initiations is that mortuary rituals end at the point when the human object has been totally transferred to the spirit world; novices in an initiation have to be brought back from the dead. Bloch refers to this as the as "rebounding violence". Novices cannot leave "this world" behind forever, unlike a corpse that can and must. The re-entry of the novices is not simply a matter of returning, but of coming back as conquerors, more powerful than before, and asserting dominance over the people they once were. Much the same may be said of other rituals that confer authority and sacredness by symbolically destroying the body and then establishing the dominance of the social/spiritual order over it, such as royal rituals and installations whereby the office-holder must be sent (at least symbolically) into the realm of the sacred, later returning violently to regain control over his earthly body but with a new balance of sacred and profane (the former now enhanced and the latter conquered and controlled). *Homo duplex*, it would seem, is a dynamic conception of the person, a progressive victory of Dr Jeckyll over Mr Hyde, performed through a series of ritual dramas from cradle to grave.

The Durkheimian view of religion has prompted anthropologists to postulate a series of cross-culturally recurrent contrasts between sacred and profane characteristics (contrasting body and spirit, birth and death, vitality and stillness, heat and cold, wetness and dryness, left and right, femininity and masculinity, pollution and purity, nature and culture, consumption and abstinence, moon and sun, flesh and bones, etc.). It is has been suggested that the way these characteristics are portrayed in rituals conforms to widely replicated

patterns, an argument formulated perhaps most sharply in Bloch's theory of rebounding violence. According to this theory, rituals endow us with sacredness, justifying our exercise of authority in this world by demonstrating that it originates from a transcendent source.

The evidence for this general argument and its more detailed components has yet to be systematically gathered and presented. This is regrettable because in principle the hypotheses advanced by some Durkheimian scholars are bold and potentially testable cross-culturally. Bloch made a valiant effort at comparative testing in his short book *Prey Into Hunter*, but the case studies are too few and inconclusive to ward off the challenge of cherry-picking and interpretive bias. What is really needed is a large-scale comparison of rites of passage across a carefully constructed sample of language groups, based on blind-coding of relevant features and statistical analysis of the resulting patterns. In the absence of that kind of evidence we must proceed cautiously. But anybody who has read widely in social and cultural anthropology will likely concede that at least some of the patterns outlined above are discernible in the religious symbolism and discourse of populations all around the world. For the sake of argument, let us imagine that the evidence is somewhat more systematic than it is at present and consider how a Durkheimian conception of religious transcendence might be developed in a more precise and testable fashion within the framework of contemporary social sciences.

## Transcendence as immortality

Cognitive research has made notable progress uncovering the psychological foundations of mind–body dualism, suggesting that notions of immortal bodiless agents have at least some intuitive features.[2] Some of the latest research in this area indicates that we make the spontaneous inference that dead relatives and friends are still in some sense around even in the absence of cultural inputs to support such ideas. Psychologist Jesse Bering, for instance, has conducted experiments with children (Bering & Bjorklund 2004) and adults (Bering 2006) in which participants are presented with scenarios in which specified agents (puppets in the case of the child studies) experience various sensations, emotions and thoughts prior to death (e.g. before being gobbled up by a crocodile-shaped puppet). Participants of all ages tend to infer that a dead agent would immediately lose all sensory-motor and perceptual capacities (the abilities to walk, taste, smell, feel hungry, etc.), coded as "discontinuity judgements", but at the same time to reason that higher-level cognitive functions, such as memories, emotions and beliefs, would continue to function normally, such responses being coded as "continuity judgements". Most strikingly of all, this pattern seemed to be stronger in younger children, so that discontinuity

judgements across all faculties gradually diminished with age. These findings suggest that continuity judgements with respect to some cognitive capacities after death arise somewhat naturally and only diminish with enculturation (e.g. secular education). Presumably, the opposite finding would be expected in societies where the dead are thought to be ever-present, the prevalence of such discourse likely accentuating and enriching intuitive judgements about the dead as children mature.

Bering's explanation for these psychological findings hinges in part on what he calls the "simulation constraint hypothesis", which holds that while we can simulate the loss of perceptual capacities like sight and hearing simply by covering the relevant organs (the eyes and the ears) we cannot simulate the absence of thoughts, desires, memories and so on. We can quite easily represent notions of unconsciousness, of mental blankness, but to simulate that blankness is much more challenging. Consequently, it is easier to represent minds as persisting irrespective of what happens to the body. Even people who hold explicitly extinctivist beliefs (e.g. most atheists) tend to reason in the laboratory that dead agents continue to experience sorrow or a desire for revenge or remembered past events, even if this prompts surprise and laughter at their own inconsistencies in this regard. The root of this, Bering argues, is that humans have dedicated cognitive machinery for reasoning about mental states (what psychologists call naive psychology or "theory of mind") which, unlike our capacities for reasoning about mechanical and biological properties of bodies, cannot conceptualize total system-failure. Thoughts just go on and on, even if the bodies in which they occur become inoperable.

## Transcendence as creation

Experimental psychologists have provided some compelling evidence that creationist thinking originates in early-emerging intuitive reasoning (e.g. Kelemen 1999b; Evans 2001). A particularly fertile line of research suggests that children are prone to apply teleological reasoning promiscuously, that is to say not only to artefacts (which typically are designed with particular functions in mind) but to a much wider range of phenomena, including the natural world. For instance, when confronted with multiple accounts of why rocks are "pointy", children would tend to reject explanations that appeal to the effects of long-term erosion by wind and rain and prefer functional account such as "rocks are pointy to stop elephants sitting on them". The idea that clouds are "for" raining or that rivers are "for" bathing would seem to arise more naturally than alternative, non-teleological explanations for their existence (Kelemen 1999c).

Although it may be tempting to think that this creationist bias is attributable simply to cultural learning (e.g. regular retellings of the Genesis story),

several new bodies of evidence suggest otherwise. For instance, younger children of both young Earth creationists and of parents who endorse evolutionary accounts of the origins of life show equal preference for teleological explanations of natural phenomena and only later in development do the children of non-creationists align their beliefs more closely with those of their parents (Evans 2001). Studies conducted with Romany Gypsies, lacking significant understanding of scientific accounts of evolutionary origins, demonstrate persistence of promiscuous teleological reasoning into adulthood (Casler & Kelemen 2008). Moreover, elderly patients suffering from Alzheimer's Disorder, a condition that erodes semantic memory (including scientific schemas), show a renewed preference for creationist accounts of the world in contrast to beliefs held earlier in life (Lombrozo *et al.* 2007).

Creation myths have been recorded extensively in all the major ethnographic regions of the world and in many religious traditions such ideas are highly elaborated.[3] Research on promiscuous teleology would help to explain why people in so many different parts of the world have come to the conclusion that at least some features of the natural world, often including human beings themselves, are the creations of intelligent designers.

## Transcendence as regulation

Some considerable efforts have been made by cognitive scientists to explain our tendency to think that the egoistic and antisocial Mr Hyde (the psycho-organic side to Durkheim's *homo duplex*) must be punished and thereby regulated by super-ordinate mechanisms of a supernatural kind. In a recent survey of the literature on religion and morality, Norenzayan and Shariff review five main sources of evidence: sociological research recording higher levels of self-reported charitable giving among religious as compared with non-religious people (Monsma 2007; Brooks 2006); experiments showing that religion only enhances prosociality when reputational concerns are also activated (Batson *et al.* 1989, 1993); experiments showing that cheating is reduced and altruism increased by religious thoughts (Bering 2006; Randolph-Seng & Nielsen 2007; Shariff & Norenzayan 2007); experiments showing that we are more trusting of persons who display signs of religious devotion (Edgell *et al.* 2006; Berg *et al.* 1995); and ethnographic evidence of a correlation between increasing group size and the presence of morally concerned gods (Rose & Raymond 2003; Snarey 1996).

Each of these bodies of evidence has been gathered based on somewhat different conceptions of what constitutes prosociality (e.g. generosity, empathy, trust, fairness) and of what are the salient features of religion capable of promoting it (e.g. displays of devotion, religious thoughts of various kinds, a

belief in moralizing gods). Despite this diversity of starting points, and lack of close attention to the salient differences among them, this research taken in the round does seem to support the idea that religion counteracts egoistic and antisocial tendencies, facilitating cooperation and trust within groups.

Recent efforts to demonstrate the effects of religion on prosociality have mostly been pursued within an evolutionary framework. Currently opinion is divided among those who argue that religion is an adaptation (the proper function of which might have been, for instance, to promote prosociality among Pleistocene hunter-gatherers) (Bering 2006) and those who argue that religion is a by-product of cognitive machinery whose proper function was to promote neither religiosity nor prosociality but to deal with quite different problems (e.g. predator detection) (Boyer 2001). But perhaps the most compelling story to tell about the relationship between omniscience beliefs and religion would be one that focuses not on genetically pre-specified brain mechanisms (and thus on biological evolution) but rather on the innovation and spread of religious beliefs and practices (and thus on sociocultural evolution). The notion of all-knowing, moralizing gods is probably quite a recent invention, appearing long after fully modern humans had spread out of Africa and colonized several continents. And this notion would seem to have emerged and spread only in certain kinds of societies, remaining absent in all or most small-scale traditional societies (at least until missionaries became widely established in colonized territories during the past couple of centuries) (Rose & Raymond 2003). As such, even if a faintly paranoid sense of being watched has some innate components, omniscience beliefs would seem to be doctrinally elaborated and disseminated only in particular ecologies. But what might have been the benefits of such beliefs where they occur? Were the individuals who believed in omniscient deities especially fertile, passing on their god-concepts to growing numbers of offspring, like the patriarchs of the Old Testament? Or were groups that adopted these kinds of beliefs more successful in their spread across the landscape, absorbing converts on the way? As yet these fundamental questions remain unanswered.

## Are the three kinds of transcendence linked?

Research in the cognitive science of religion suggests that afterlife beliefs, creationism and fear of supernatural punishment are outcomes of quite distinct clusters of intuitive systems. The notion of transcendence as permanence would seem to arise from the way our folk psychological capacities are organized; the notion of transcendence as creation arises from the tendency to apply teleological reasoning to non-artefacts; transcendence as regulation would seem to originate in the cultural evolution of novel methods of reputation management

and coalition building, for instance utilizing notions of morally concerned deities. But for Durkheim and the tradition he inspired, the three kinds of transcendence are just aspects of a common idea: that of a "sacred" domain set apart from the everyday world of birth, change, death and decay. This raises some thorny questions: why are the immortal ancestors imagined to be the ultimate source of creativity in the cosmos? Why conjoin the ideas of immortal agency and creation at all? If we can demonstrate the link between notions of supernatural agency and cosmic origins, might that help us to understand why the gods and ancestors are also often upheld as an ultimate source of authority, to be tapped and channelled by the living?

For Durkheim, religious notions of transcendence were ultimately ways of conceptualizing (albeit in a highly coded fashion) the transcendence of the social order: the fact that social groups outlast us, endow us with identities and in that sense "create" us, and regulate our behaviour. And one of the most striking ways in which these forms of transcendence become apparent is through participation in rituals.

Many of the rituals recorded by anthropologists and historians maintain imagined relationships between humans and immortal beings, locate creativity beyond human agency, and reproduce systems of regulation. So perhaps, following Durkheim, we should look to the performance of rituals to discover whatever it is that binds together our three kinds of transcendence. Here too, recent work by cognitive scientists has a potentially valuable contribution to make. A starting point for many researchers on this topic has been the observation that the relationship between component actions in a ritual sequence and the stated goal of the ritual (if it is stated at all) is opaque (Sørensen 2007; Whitehouse 2000, 2004; Humphrey & Laidlaw 1994). The component elements of a ritual action sequence are assumed by participants to lack a physical–causal rationale (in contrast with technical procedures where each element of the action sequence is assumed to contribute rationally to the realization of the end goal) and for this reason we may describe ritual actions as causally opaque. Nobody can specify exactly why a prescribed action sequence should be said to accomplish a given set of stated outcomes (e.g. crop fertility, curing of disease, revelation, de-activation of witchcraft). All efforts at explanation among participants are inevitably *post hoc*, at best being credible only on the basis of associational or thematic principles rather than causal ones. The question as to how rituals might be thought to have palpable effects on the world is unanswerable in rational terms and so perhaps quite naturally prompts a search for supernatural explanation. If our stock of ideas about supernatural causation is already populated with notions of ghosts, ancestors and deities then the causal opacity of ritual might readily trigger ideas about the intervention of supernatural agents in preference to other kinds of interpretations.

The causal opacity of ritual may prompt other questions. Who decided that the procedures should take this form rather than that, and why? Clearly the answers do not reside in the intentionality of the present ritual actor or even in the actor immediately preceding him, but somewhere further back in the mists of tradition. Reflecting on the meanings of rituals invites an infinite regress in search of original intentions and, as such, triggers a hunt for primordial ancestors and creator beings. So rituals may trigger at least two of Durkheim's principles of transcendence: the permanence of sacred agency and ancestral creativity. But what of the third principle, regulation?

The causal opacity of ritual has a number of significant consequences for social regulation. For a start, it makes ritual uniquely suitable as a marker of group identity. Human populations living side by side may have much in common, adopting the same basic techniques of production, using similar tools, exploiting similar natural resources and foodstuffs, living in similar kinds of houses and so on. Indeed, at the level of practical affairs and day-to-day life there may be little to tell them apart. People cannot distinguish themselves from their neighbours by continually inventing new ways of tackling the technical challenges of life; useful inventions typically appear slowly and their spread is difficult to control. But the arbitrariness of ritualized behaviour makes it extraordinarily easy for a group to differentiate itself from others. Social scientists even pre-dating Durkheim have long appreciated that rituals bind groups together (Robertson Smith 1889). Recently, anthropologists and psychologists have assembled systematic evidence that ritual participation increases trust and cooperation among participants, by acting as a costly and therefore hard-to-fake signal of commitment to the group (Sosis & Alcorta 2003; Sosis & Bressler 2003).

Finally, the causal opacity of rituals enables us to invest them with a great variety of potential meanings, emotions, moods and associations. The fact that the ritual actions are not transparently linked to any particular function or meaning paves the way for many possible interpretations (Whitehouse 2004; Richert *et al.* 2005). In so far as people reflect on exegetical matters at all, the resulting meanings may be quite idiosyncratic. But if interpreters do not know very much about what others are privately thinking, they can easily form the impression, however illusory, that what is personally meaningful and motivating about the ritual experience is shared by all other participants. This point too has long been recognized by social scientists, arguing that the common experience of publicly observable aspects of ritual (such as the actions and props) fosters the illusion of collective emotion and interpretation.

For all these reasons, rituals promote social cohesion, demarcating groups and binding members to each other and to their collective goals. Durkheim referred to this as 'collective effervescence' and argued that it was "out of this effervescence itself that the religious idea seems to be born". Contemporary

cognitive science provides a more precise and testable set of theories on these topics.

## Conclusions

In approaching the study of religion, cognitive scientists have adopted a "fractionating" strategy, realizing that the intuitions undergirding our conceptions of gods, ghosts, creation and ritual, along with other features of the universal religious repertoire, are numerous and diverse. Religion in all its highly elaborated manifestations is shaped and constrained by implicit, pan-human hunches about the way the world works and these hunches derive from many different psychological systems rather than just one. Fractionating religion in this way, however, presents a problem. The cultural traditions that we call religions (not only the world religions but the many thousands of smaller cults and regional movements that are studied by religion scholars) present notions of deities, ancestors and rituals as inextricably connected and set apart from more mundane aspects of daily life.[4] Durkheim characterized this dual nature of social existence in terms of a distinction between the sacred and the profane but he lacked the tools to explain adequately why the domain of the sacred should constitute a discrete domain at all, given its heterogeneous contents. Cognitive and evolutionary approaches are beginning to provide a fuller account of the contents of the sacred domain, to translate the inspiring metaphors of the Durkheimian tradition into the empirically tractable theories of modern science. Durkheim, with his commitment to and hope in science, would surely have been disappointed if his efforts towards a scientific investigation of religion were not taken up, examined, criticized, revised and developed in this way.[5]

### Notes

1. Durkheim published a substantial corpus of writings over the course of his lifetime but here reference is made exclusively to the arguments advanced in his most influential work on religion, published in English translation under the title *The Elementary Forms of the Religious Life*.
2. Recent publications on this topic include Boyer (2001), H. C. Barrett (2005), Astuti and Harris (2008), Harris & Giménez (2005), Bering *et al.* (2005), Shariff & Norenzayan (2007).
3. A useful sample of examples may be found on *Wikipedia*: http://en.wikipedia.org/wiki/Creation_myth.
4. The point could be made conversely: non-theists tend to be extinctivists and sceptical of claims about ritual efficacy even though the denial of gods does not intuitively or even logically imply the impossibility of an afterlife or the ineffectiveness of homeopathy.

5. An earlier draft of this chapter benefited from generous comments by William Watts Miller, an expert on the life and works of Émile Durkheim. I also benefited from characteristically penetrating comments from Robert N. McCauley. The writing was supported by a grant from the European Commission's Sixth Framework Programme (REF 043225) entitled "Explaining Religion" and an ESRC Large Grant (REF RES-060-25-0085) entitled "Ritual, Community, and Conflict".

# 6

# Non-ordinary powers

## Charisma, special affordances and the study of religion

Ann Taves

Max Weber's (1978) *Economy and Society* embeds religion, or, more precisely, *religious behaviour* in a sociology of social action, grounded in the subjective meaning that actors implicitly or explicitly attach to their behaviour. Although his approach is sometimes referred to as "interpretive sociology", Weber was equally concerned with interpretation and explanation (1978: 4–5). He began with action as understood from the point of view of the actor or actors, then sought to situate it within "an understandable sequence of motivation", taking into account a range of factors (e.g. biological, psychological, social, environmental), many of them outside of subjective awareness and largely devoid of conscious meaning. He then attempted to determine the relative weight of the various factors in relation to the action in question. He assumed that hypotheses regarding the weight that should be assigned to various causal factors required testing. In some cases, hypotheses could be tested by means of psychological experimentation, and in others through statistical analysis of large data sets. In still others, "there remains only the possibility of comparing the largest possible number of historical or contemporary processes which, while otherwise similar, differ in the one decisive point of their relation to the particular motive or factor the role of which is being investigated. This [Weber argued] was the fundamental task of comparative sociology" (*ibid*.: 9–10).

A cognitive science of religion inspired by Weber would suggest, first, that we should aim for a cognitive science of *religious behaviour*, that is, actions that subjects view as religious, rather than a cognitive science of religion. Second, it would encourage us to distinguish between narrower and broader meanings of "cognition" at play in the scientific study of religious behaviour. The narrower usage is roughly equivalent to conscious processes, whether at

the level of awareness or self-awareness (metacognition), while the broader usage is roughly equivalent to mental processes, unconscious as well as conscious. The subjective meanings that subjects attach to actions are cognitive in the narrower sense, such that subjective meaning either implicitly informs action at the level of awareness or explicitly informs it at the level of self-awareness (awareness of awareness). The motives that guide action, however, may be conscious or unconscious and, thus, cognitive in the broader sense. In addition, a sociological approach would remind us that cognition is always situated. Mental processes may be located primarily in the body (embodied cognition) or in the interaction between individuals and others and their environment (embedded or extended cognition). We can, and in many cases must, use different methods to study these many different aspects of cognition.

## The puzzle of charisma

In addition to highlighting the importance of *situating* a *multi-level* cognitive science of religious behavior, Weber's concept of charisma offers a broad framework for thinking about behaviours "motivated by religious or magical factors" (Weber 1978: 399). Weber uses the term "charisma" to connect a set of concepts that refer to "extraordinary powers", including both "maga" (the Iranian term from which our word "magic" is derived) and "mana" (the term upon which the British anthropologist R. R. Marett based his "preanimistic" theory of religion) (Weber 1978: 400; Kippenberg 2004: 50–54). Weber viewed spirits, souls and deities as abstractions derived from a magico-religious matrix of impersonal power. He viewed the belief in powerful unseen animates, such as spirits, demons and souls, as arising from "the notion that certain beings are concealed 'behind' and responsible for the activity of the charismatically endowed natural objects, artifacts, animals, or persons" (Weber 1978: 401).

In deriving unseen animates (or animism) from a pre-animistic magico-religious matrix, Weber placed himself in the company of thinkers, such as Marett (1914) and the French sociologists Marcel Mauss and Henri Hubert ([1904] 1972), who rejected E. B. Tylor's ([1873] 1970) minimal definition of religion, as "the belief in spiritual beings", as not minimal enough. Along with the Dutch phenomenologist Gerardus Van der Leeuw ([1937] 1986), who provided an extended phenomenological description of the way conceptions of "power" have been elaborated across times and cultures, these thinkers agreed on several key points: (a) what we think of as religion and magic are derived from a religio-magical matrix of impersonal power; (b) the power or powers in question are not ordinary powers, but powers that people perceive as non-ordinary, extraordinary or special; and (c) this power can be attributed to anything animate and inanimate, natural and human-made.

Across a wide range of fields (sociology, anthropology and psychology) scholars have tended to shy away from the idea of a pre-animistic religio-magical matrix, not wanting, I suspect, to conflate religion and magic. Most sociologists and anthropologists who have elaborated Weber's discussion of charisma have focused their attention on charismatic agents, relegating the discussion of charismatic objects to the seemingly unrelated literature on "fetishes" and religious relics and amulets. Many scholars identified with the cognitive science of religion have adopted a Tylorian definition of religion as their starting point and concentrated on explaining the naturalness of beliefs in unseen (or, more technically, counter-intuitive) agents. The remarkable overlap between cognitive theories that argue for the naturalness of popular religion (McCauley 2011; J. L. Barrett 2004b; Boyer 2001) and cognitive theories that argue for the naturalness of magic (Subbotsky 2010; Hood 2009; Bloom 2010) has gone largely unexplored. Sørensen's cognitive theory of magic, which places magic, understood as magical agency, within an action-oriented framework and argues that "magic plays a pivotal role in the development of all religious institutions and traditions" (2007: 3–4), nonetheless maintains a distinction between them. Rather than shy away from the idea of an underlying magico-religious matrix, I think we should embrace it. Following the lead of theorists such as Weber, who positioned "animism" within a larger framework of (pre-animistic) impersonal powers, we can locate contemporary research on the detection of agency and the attribution of non-ordinary powers to (unseen) animates within a larger field of powers (ordinary and non-ordinary) that people attribute to objects, artifacts, animals and persons.[1]

Recognizing that Weber viewed charisma, understood as extra-ordinary power, as something that people could attribute to anything, does not explain what the disparate powers that people consider "extra-ordinary" have in common apart from not being ordinary or everyday. The terms that have traditionally been used to unify the powers in question, such as magic, the sacred, the holy and the supernatural, are all theologically laden. So, too, is charisma, which Weber borrowed from the church historian Rudolf Sohm, who used it to refer to the "mysterious and polyform gifts of the Holy Spirit" (Turner 1993: 241–2). Absent a belief in the Holy Spirit, Weber provided no unifying or generalized definition of charisma as such, apart from "the belief of others in the extraordinary or supernatural powers of the charismatic figure". As sociologist Stephen Turner (2003: 8) insightfully observed, the fundamental question regarding charisma is whether "charisma [is], in the end, essentially a mystical notion with no explanatory value, or merely a residual category into which we place the inexplicable? Or if it is explicable, is it explicable in other terms – biology, culture or rationality?"

Here I want to suggest that cognitive approaches can add to our understanding of charisma and help to generate empirically testable hypotheses, but that they will do so most effectively if we adopt an action-oriented approach to perception, such as ecological psychology, that is congruent with Weber's action oriented social theory. Although much of the discussion of charisma post-Weber has focused on the *sources* of charismatic power in established contexts, consideration of both animates and objects as potentially "charismatic" in the context of goal-directed action allows us to ask what the perceived non-ordinary powers enable people *to do*. If we position the tendency to over-attribute agency within the larger framework of detecting and evaluating the powers at play in a given field, we can view it not simply as a means of detecting threats but also as a means of identifying the resources at hand. This allows us to conceive of things to which persons attribute non-ordinary powers not only as potential threats or signs of danger, but also as potential *resources*, that is, means of overcoming danger, whether in the form of "magical" objects, "sacred" places or "supernatural" beings.

Charismatic things, viewed as potential resources in the context of goal-directed action, suggest that charisma involves more than the attribution of non-ordinary powers to agents or objects.[2] In many cases, it is obvious that an object or a person violates our expectations. We may even take the next step and infer that their unusual attributes suggest the presence of non-ordinary powers, but *if we do not have any particular need for those special powers or have other ways to gain access to them*, we typically do not consider the object or agent in question as charismatic. The key to charisma, I will argue, is the perception that the object or person in question possesses non-ordinary powers *that matter to us* and that *we believe* will enable us to do something we otherwise would not be able to do or that would enable something to happen that otherwise would not happen. These latter considerations are crucial because they create the *bonds* between people and the particular things to which they attribute non-ordinary powers. These bonds in turn cause people to follow the particular leaders and mobilize the particular objects that they view as possessing non-ordinary powers in the context of goal-directed action.

This broader conception of charisma allows us to consider the role of charismatic things in the generation of novel effects in a wide range of contexts. Although scholars associated with the cognitive science of religion (e.g. McCauley & Lawson 2002; Sørensen 2007; Whitehouse 2004) have devoted considerable attention to the way that non-ordinary powers function in the context of ritual action, that is, in contexts where claims are well established, they have not devoted much attention to the emergence of new beliefs and novel practices, which typically assert claims regarding non-ordinary powers that are highly contested. A focus on fields in flux where new things are emerging allows us to consider how people ascertain what powers are at play

in a field, how they characterize them, and how they draw upon them in the context of goal-directed action. In analysing such processes, we should anticipate that the nature of the effects will vary dramatically depending on the nature of the things to which non-ordinary powers are ascribed. People who are drawn to leaders they view as charismatic may help generate new religious or political movements. People who turn to unseen agents to assuage personal distress may adopt a new, more positive outlook on life. Patients who take fake pills and undergo sham procedures that their doctors characterize as beneficial may experience healing effects.

People do not typically attribute the same type of non-ordinary power to leaders, unseen agents and placebos, however. Thus, this more integrated approach to charismatic things, whether persons, animates, artifacts or objects, requires us to distinguish between types of power and the capacities that inform them. We can distinguish between at least three different kinds. (a) *The capacity to act intentionally*, which presupposes an awareness of awareness, and, thus, the ability to give reasons for why one acts. Entities with the capacity to act intentionally do not always use it, however, and are responsible for many unintended actions for which they cannot give reasons. (b) *The capacity to act*, which presupposes at least some primitive level of awareness or animation, but not conscious intentionality. (c) *The capacity to produce an effect*, which does not require awareness or animation.

In considering the full range of things to which people may attribute non-ordinary powers, I want to suggest that non-ordinary *objects* may play a more generative role in the emergence of the special powers claimed by or attributed to humans than they do in more established situations. Testing this hypothesis would require a careful comparison of the role of charismatic objects in relation to established and emergent claims that is beyond the scope of this paper. Here I will simply use the example of Joseph Smith, who most likely used a seer stone both to find and translate the golden plates that were published as the *Book of Mormon*, as a case study to illustrate the importance of including objects in our analyses.[3]

In analysing the concept of charisma in this fuller sense, we need to ask two distinct questions: what makes powers extra-ordinary or special? And what allows things to produce an effect? The extra-ordinary powers discussed by Weber combine a notion of specialness (that which is non-ordinary or extra-ordinary) with at least a minimal conception agency (the capacity to produce an effect). It is the combination of the two, I will argue, that is the key to accounting for novelty. To do so, we have to understand special powers (a) as a subset of a more general capacity to produce an effect and (b) as set apart from ordinary powers by the capacity to produce an effect that (people believe) could not or would not be produced otherwise. Viewed in this way, we can locate non-ordinary powers within the context of an ecological

psychology of affordances and, thus, within a larger framework of embedded (or situated) cognition.

## What makes powers special or extra-ordinary?

Is there anything that reliably distinguishes the special from the ordinary across times and cultures? Is specialness simply a matter of discourse or cultural convention or is there something inherent either *in that which is set apart* or *in the way it is apprehended* or some complex combination thereof that is stable across cultures (and perhaps time)? In earlier work, I have sought to identify marks and types of specialness (Taves 2009: 29–46; 2010: 179–80). Neither marks (behaviour) nor types (features, loci), however, fully specify what people *mean* when they refer to something as special or non-ordinary. Focusing on charisma, that is, on *powers* considered special or extra-ordinary, narrows the scope of our inquiry, allowing us to ask why people consider some powers special. Two reasons seem likely. Powers might seem special to people (a) because of their source or origin or (b) because of what they can do. Established claims rely more on source or origin for their legitimacy, while new claims, the source or origin of which is typically disputed, rely more on what they can do.

If we inquire about Joseph Smith's seer stone, we discover the following. Willard Chase, a neighbour of the Smiths, reported that he discovered the stone in 1822, while he was digging a well with the help of Joseph and his brother Alvin. According to Chase, after digging down about twenty feet, "we discovered a singularly appearing stone, which excited my curiosity". He brought it to the top of the well and, while they were examining it, "Joseph put it into his hat, and then his face into the top of the hat." The next day Smith came back and asked Chase if he could have the stone, "alleging that *he could see in it*" (cited in Van Waggoner & Walker 1982: 55, emphasis added). With Smith's discovery that "he could see in it", the stone went from being a singular stone (a special thing) to a thing with special powers, that is, with the power to reveal things or, more precisely, the power to enable Smith to see things he otherwise would not be able to see.[4] He subsequently used the seer stone to seek buried treasure, to locate the golden plates (a buried treasure of a sort), to translate the golden plates (while looking at the seer stone in his hat rather than at the plates) and to obtain some of the early revelations recorded in the Mormon *Doctrine and Covenants* (Van Waggoner & Walker 1982; Ashurst-McGee 2000).

Much of the discussion of Smith's seer stone then and now has focused not on what he claimed it allowed him to do, but on whether or not it actually allowed him to do what he claimed it did, and if it did, what kind of power was involved. Thus, the earliest references to the stone are those of witnesses

who testified when Smith was charged with being "a disorderly person and an Imposter" in 1826. Brought to court by the heir of a man who had hired Smith to seek for treasure, many of the witnesses testified to his "pretended … skill of telling where hidden treasures … were by means of looking through a certain stone". Others, however, including the man who had hired him, testified to their faith in Smith's skill, specifically his ability to "divine things by means of said Stone and Hat" (Vogel 2002: 248–56). Smith's father-in-law, Isaac Hale, later indicated that "the manner in which he pretended to read and interpret [the golden plates] was the same as when he looked for money-diggers, with a stone in his hat, and his hat over his face, while the Book of Plates were at the same time hid in the woods" (Van Waggoner & Walker 1982: 52). More sympathetic observers testified to the same method, but attributed the translation not to pretense or "any power of man", but to "the gift and power of God" (*ibid*.: 51).

In attempting to specify the meaning of charisma, scholars have also tended to focus, albeit with more subtlety, on the source or origin of charismatic powers rather than on what the alleged powers allowed people to do. Sociologists Edward Shils (1965) and S. N. Eisenstadt (1968), for example, locate the origins of charisma in the human need for order and meaning. Shils argues that charisma is linked to what people view as central to their existence and the cosmos in which they live. The extraordinary is thus characterized by its centrality and its intensity (Shils 1965: 201). Shils focuses primarily on persons, groups and institutions, emphasizing the connection between charisma, power and the need for order (*ibid*.: 204). In complex societies, there are multiple loci of powerful authority and thus "competing conceptions about the ultimate locus of charisma" (*ibid*.: 212–13). S. N. Eisenstadt (1968) distinguishes between ordinary and charismatic activities based on the type of goal towards which activities are directed. "The non-charismatic or the ordinary activity seems to compromise those activities which are oriented to various discrete, segregated goals not connected together in some great pattern or 'grand design.'" Ordinary goals are instrumental and oriented to the natural or social environment. The charismatic, by way of contrast, is bound up with overarching goals, that is, with the "realm of meaning" that gives shape to the "great pattern or 'grand design'" (*ibid*.: xxxvi–xxxviii). Leaving aside the fact that neither Shils nor Eisenstadt attend specifically to charismatic objects, use of their definitions would require us to assess the extent to which Smith's treasure-seeking was central to his existence (Shils) or connected to a larger realm of meaning (Eisenstadt). If we, as scholars, impose such judgments on such highly contested claims, we lose our ability to analyse the controversies as they play themselves out on the ground.

Tambiah (1984: 321–34) attempted to further refine Weber's concept of charisma by distinguishing between different types of charismatic origins.

Contrasting Buddhist and Christian understandings of charisma, he distinguished between charisma that is given as a gift (Christianity) and charisma that is acquired through effort (Buddhism), whether on the part of individuals (e.g. biblical prophets or Buddhist *arahants*) or institutions (e.g. apostolic succession or the reincarnation of *boddhisatvas*). Although Tambiah's distinctions are rough, they can help us to identify the various ways in which different parties might think about the relationship between special and ordinary powers in debates within and between traditions. So for example we could also use Tambiah's distinction between charisma-as-gift and charisma-as-achieved to characterize the Christian distinction between imputed and infused righteousness, which separates the Lutheran and Reformed traditions from the Catholic and Orthodox. In the former grace is imputed (a gift) and the person is transformed only in the eyes of God; in the latter grace is infused in conjunction with effort (an achievement) and, as a result, the person's nature is actually transformed.

Nor do we need to limit these distinctions to debates within and between religious traditions. More generally, people could claim that special power is inherent (always present) in something, infused into (acquired or achieved by) something, or imputed to (ascribed to but never actually present in) something. The way that special power is acquired is linked to people's assumptions about the relationship between the special powers and the ordinary powers possessed by the thing in question. Expanding on Tambiah's typology, we can consider at least three different ways in which people might relate special and ordinary powers:

- Special powers may be viewed as entirely separate from the ordinary powers of the thing in question; if this is the case, then the thing can acquire special powers only if they are imputed to it by another, whether divine or human. In this case the thing itself is not really changed; it only seems like it is to those who imputed the special powers.
- Special powers may be viewed as compatible with the ordinary powers of the thing in question; if this is the case, then special powers may be infused into a thing through the efforts of the thing and something that seems other, for example, divine grace or unconscious intuition.
- Special powers may be viewed as latent in ordinary powers; if so, then environmental cues, from whatever source, may be sufficient to evoke the special powers latent in the thing.

These sorts of distinctions can help clarify the debates surrounding Smith's seer stone among followers, critics and scholars. Critics who referred to Smith's "pretended skill", whether in finding hidden treasures or interpreting the golden plates, implied that the stone had no power and, thus, that

Smith had falsely imputed powers to the stone. Those who viewed him as authentically skilful, whether at finding or translating, viewed the stone as having power, though they didn't necessarily specify or agree about how it got there or its ultimate source. Some witnesses at the trial thought Smith could "divine things" by means of the stone (Vogel 2002: 255). Later followers' accounts of his use of the stone to translate the plates generally refer to translation as occurring "by the gift and power of God", thus implying that God acted through the stone. Brigham Young's daughter, Zina, who purchased two of Smith's seer stones when "[her] father's personal effects" were sold, referred to them as "very sacred articles … that never should have been given up to the idle gaze". She and her mother gave them to the President of the Church, requesting that, "at his demise, they [should] not [be] retained as they were before among 'personal effects,' but considered ever the legitimate property of God's mouth-piece [the First President]" (Van Waggoner & Walker 1982: 66 n.53). In the eyes of Zina and her mother, the stones were sacred. They wanted them to be recognized as such, placed in the hands of President Woodruff, not as his personal property but as the property of the office that inherited Smith's revelatory powers. Here the stones seem to have been infused with special power not only because God acted through them but also because of their connection to Smith as "God's mouth-piece".

Although the placement of the "sacred stones" in the hands of the Church's highest authority positioned them at the "centre" in a manner in keeping with Shils's conception of charisma, the variety of ways in which the power of the stone was and could be conceived highlights the difficulties entailed in specifying charisma in terms of either emic or etic views of its origins. While I have followed Tambiah's lead and drawn out a variety of ways in which special powers can be conceptualized in relation to the ordinary powers assumed to reside in things, people bring their assumptions about what is possible to their assessments of claims involving special powers. Due to the range of religious and secular views that people can bring to bear on *each* of the ways of relating special and ordinary powers, the options do not fall along neatly religious and secular lines. Imputed specialness can just as well describe the powers attributed to an imposter, a placebo, and a faithful Lutheran. The diversity of potential patterns and combinations that emerge when we seek to characterize charisma in terms of origins thus suggests that we will learn more about what people think about special powers on the ground, if we can find a way to conceptualize specialness that leaves the question of origins open.

Stephen Turner (1993, 2003) offers an alternative that does so by conceptualizing charisma in terms of risk management, specifically as a property that people ascribe to those individuals who offer them the possibility of achieving goals that otherwise would seem unachievable or too risky to pursue. If a person can reduce or overcome risk by imitating a leader, Turner predicts that

the leader will *not* be viewed as charismatic. He predicts that the leader will be viewed as charismatic only in the subset of cases where risk can be decreased or overcome only "*through* the agency of the leader exercising authority" (1993: 247, original emphasis). The non-ordinary powers of the leader in his conception thus *enable something to occur*, whether a possibility realized or a risk avoided, that people believe *would not or could not have occurred otherwise*. In locating charisma in what charisma enables, he leaves the question of origins open; we do not know if the power is inborn or learned, ascribed or inherent, this-worldly or otherworldly, connected to divine beings or not.

Turner uses two well-known entrepreneurs of the 1990s, Mike Milken and Frank Lorenzo, to illustrate. Both were "virtual devils" in the eyes of the general public, but "charismatic leaders" for those investors who accepted their vision and allowed them to invest their money. "The audacity of each of these men [Milken and Lorenzo] was remarkable and their very survival embodied the fact that their novel ideas about the risks of the [investment] strategies they followed were 'true'" (Turner 1993: 251). This approach also works well in relation to Joseph Smith. There too perceptions differed sharply. Those who testified against him at his trial viewed him as an imposter who only pretended to see things by means of a stone and hat, while those who sought him out did so because they had faith in his ability to find things in this way that they believed they could not find otherwise. The same can be said in relation to the translation of the plates. In so far as those who believed in Smith and the reality of the plates could not themselves see anything in the stone and the hat (and at least one of his followers checked), they could either view Smith as an imposter or as one who had the power to see things by means of the seer stone that they themselves could not.

Apart from Tambiah, none of the scholars who discuss charisma devote much attention to charismatic objects. We can find discussions of objects to which people attribute non-ordinary powers, however, in relation to "fetishes" (Pietz 1985; Graeber 2005) and religious relics and amulets (P. J. Geary 1978; Brown 1981; Tambiah 1984; Germano & Trainor 2004). As with the sociological studies of charisma, here too scholars tend to explain the powers attributed to objects in terms of their origins, typically deriving the non-ordinary powers of objects from the non-ordinary powers of something else, rather than focusing on what charisma enables. Thus, William Pietz characterizes fetishes in terms of their ability to fix the power of a singular event in an object (Pietz 1985: 14), while Tambiah stresses the ability of an object (e.g. amulets, relics or statues) to cement the power of a singular person, such as a monk or other holy person, thus creating "focal points and vehicles of social exchanges" (Tambiah 1984: 339). In both cases, the power ascribed to the object is derived from something else that is special or charismatic, whether event or person. Tambiah also analyses the way that Buddhist monks

ritually activate statues and images of the Buddha. In so far as persons with non-ordinary powers consecrate or activate the objects by transferring powers from themselves to the objects, the power is transferred from one charismatic thing to another and we learn little more about the nature of charisma itself.

A focus on the transfer or circulation of specialness works well in situations where people are in general agreement about what counts as special, even if they disagree over specific instances. It doesn't work as well in situations where something novel is being proposed. David Graeber (2005: 426), like Stephen Turner, leaves the question of origins open, focusing not on risk management but on creativity. Thus, Graeber critiques Pietz's characterization of the fetish, arguing that "Pietz considers every definition of fetishism, every aspect, other than the simplest and most common one: that 'fetishism' occurs when human beings end up bowing down before and worshipping that which they have themselves created." Drawing on West African sources, Graeber makes the case that "a fetish is a god under process of construction" (*ibid.*: 427). In doing so, he stresses something obscured by Tambiah's emphasis on the circulation of power from monks to objects, that is, the role of objects in "creating something new".

As with Turner's characterization of charismatic persons, Graeber highlights the power of "fetishes" to enable something to happen that otherwise would not, in this case, to generate something new. Initially, Graeber says, this new thing is "virtual, imaginary, and prospective". As such, "it … could only come into real existence if everyone acted as if the fetish object actually did have subjective qualities". The fetish, for Graeber, thus exists "precisely at the point where conventional distinctions between 'magic' and 'religion' become meaningless, where charms become deities" (*ibid.*). This process, he suggests, is ongoing. "New ones [gods] would appear; older ones might slip into obscurity, or else be exposed as frauds or witchcraft and purged from the pantheon. There literally was no clear line between ordinary 'magic' and deities, but for that reason, the deities were a constant process of construction" (*ibid.*).

Graeber's open-ended formulation allows him to generalize his discussion, lifting it out of the realm of so-called primitive superstition and relocating it in the realm of the creative process more generally, where, as he notes, the ascription of powers to things with unclear origins abound. Thus, he writes:

> [W]hen artists, musicians, poets, or authors describe their own experience of creativity, they almost invariably begin evoking just the sort of subject/object reversals which Marx saw as typical of fetishism: almost never do they see themselves as anything like an architect rationally calculating dimensions and imposing their will on the world. Instead one almost invariably hears how they feel

> they are vehicles for some kind of inspiration coming from outside, how they lose themselves, fragment themselves, leave portions of themselves in their products. (*Ibid.*: 430)

Evoking a kind of double consciousness, he observes: "even when the [social] actors seem perfectly aware that they were constructing an illusion, they also seemed aware that the illusion was still required" (*ibid.*: 432).

Taken together the work of Turner and Graeber suggest that when people perceive a thing, whether person or object, as having special powers, that is, as charismatic (*à la* Weber) or magical (*à la* Sørensen), they perceive the thing as standing out because it manifests potential or possibilities *that they otherwise would not experience as present*. In some contexts, the sources of the power or potential may be immediately obvious to people; in others, its meaning and significance may need to be worked out over time, whether alone or in consultation with others. The negative connotations attached to terms, such as fetish, magic and superstition, in turn illuminate the inherently contested nature of claims regarding the special powers of objects and persons and the complexity of the interactions between people and charismatic things particularly in contexts where systems of value (sources of power) are in competition with one another and/or new claims are being asserted.

## What allows things to produce an effect?

If specialness at its most extra-ordinary denotes a singularity (i.e. something that it is believed would not occur otherwise), it suggests that the special powers attributed to things are a subset of the potential and possibilities that people perceive in things more generally. In environmental psychology, these general potentials and possibilities are referred to as "affordances", that is, that which the environment "*offers* the animal, what it *provides* or *furnishes* either for good or ill" (Gibson 1986: 127, original emphasis).[5] As defined by J. J. Gibson and his students, affordances enable the goal-directed actions of animals in their environment. Animals perceive whether a behaviour is afforded based both on their abilities and on the specific features of the environment. Whether something is an affordance for a particular animal depends both on features of the environment and the animal. Affordances are, thus, always defined relationally, relative to the abilities of an individual, group or species. If, in the case of a person desiring to climb up a staircase, the riser is too high or the person's legs are too short, the stairs will not afford climbing for that person. Staircases are usually designed with normally-abled adult humans in mind and, thus, afford climbing for most adult members of the species. Building on Gibson's conception, Anthony Chemero (2003: 186–91; 2009: 135–61) defines an

affordance in logical terms as "Perceives [animal, affords-ϕ (feature, ability)]", where ϕ is the behaviour that is afforded and "feature" refers to specific features of a situation in the environment and "ability" to the animal's perception of its own abilities. He notes, however, that "[a]n animal typically perceives only the affordance relation … and not the constituent relata; that is, most of the time the structure of the perception of affordances will be this: Perceives [animal, affordance-of-ϕ]."

Although the concept of affordances provides a crucial link between animals and environments and, thus, falls under the general heading of situated cognition (Robbins & Aydede 2009), there are a number of claims associated with the concept and with ecological psychology more generally that are not necessarily entailed by the concept and to which we need not subscribe in adopting it. The most controversial issue has to do with how perception couples the animal and the environment. Gibson and his followers have traditionally argued for direct coupling. This claim, understood as a form of "direct realism", is premised on a particular understanding of perception grounded in the ability to scrutinize the "flowing stimulus array" that is derived from James and Dewey (Heft 2001). It stands in contrast to the representational view prevalent in the cognitive sciences more generally, in which it is assumed that perception is based on probabilistic cues (for an overview, see Goldstein 2009, s.v. "Ecological Approaches" and "Direct Perception").

Ecologically oriented psychologists have offered different responses to these critiques (see e.g. Vicente 2003; Gallagher 2008; Chemero 2009: 105–34). The key point, as Vicente (2003: 256) stresses, is that the concept of affordances does not necessarily entail either view and, indeed, that the animal and the environment may be coupled perceptually in more than one way depending on the circumstances and the amount of information available. In so far as the concept of affordances may be understood as coupling animal and environment in a variety of ways, it does not necessarily entail commitments to the more controversial claims advanced by some proponents of situated cognition, for example, the claim that cognition extends beyond the boundaries of the organism (Robbins & Aydele 2009; Adams & Aizawa 2008).

Gibson's claims about direct realism are premised on an understanding of reality testing that he views as possible only in the context of unmediated perception. Mediated perception, such as pictures or spoken or written descriptions, are second-hand accounts of the flowing stimulus array provided by an original perceiver. Those who are offered the descriptions do not have the opportunity to scrutinize the flowing stimulus array for themselves, that is, the opportunity to test reality for themselves. In light of this, Gibson makes a sharp distinction between reality, on the one hand, and fictions, fantasies, dreams and hallucinations on the other, such that he ascribes "the awareness of imaginary entities and events … to the operation of the perceptual

system with a suspension of reality-testing" (Gibson 1986: 261–3). In so far as affordances couple animals and environment in various ways, including in contexts where information is limited, this straightforward distinction between imagination and reality is too simple.

Gibson and his heirs have focused most of their attention on those situations that they thought most likely to provide evidence of direct perception. They have devoted little attention to more complex situations where information is often incomplete, perception inferred from probabilistic cues, and cues interpreted in light of cultural knowledge (i.e. mediated perception). Some researchers, however, have extended the concept to affordances that are socially, culturally and conventionally constructed, including objects that provide affordances only in the hands of competent users (Greeno 1998; Kirsh 2009: 293–4). Rather than attending primarily to affordances that would be widely perceived by members of a species, they focus on those that can only be perceived with more specialized training, competencies and/or abilities. Recalling Turner's distinction between leaders whose behaviour can be imitated and those charismatic individuals who can only be followed, we can distinguish between competencies that can be acquired and, thus, affordances that can be made directly available to others, and competencies that are limited to particular individuals or objects. Charismatic things are those that afford something (or are believed to afford something) only *by means of* the thing (person or object) in question.

Whether or to what extent the affordance is available through other means, for example, through other persons or objects or through the development of new abilities, is often a matter of dispute and lies at the heart of determining exactly how special something is. In these disputes, beliefs about what is possible often figure prominently in assessments of what is possible and, even where empirical evidence is available, it is often interpreted in light of beliefs that are hard to test empirically. This special type of affordance thus depends not only upon the existence or recognition of specialized competences but also on the belief that the specialized competencies or powers are more or less unique to the individual or object in question. If transferable, they can typically only be transferred by means of correspondingly specialized procedures. We can, thus, conceptualize charismatic things as a specialized type of affordance that enables a goal-directed action that *the animal believes* would not have been possible otherwise.

Viewing the attribution of special powers as an affordance premised on a belief in (relatively) non-transferable powers has several advantages. First, it allows us to locate Weber's sociological understanding of charisma in relation to an ecologically oriented psychology of goal-directed action that links the animal and the environment by means of affordances. A theory of affordances allows us to view cognitive processes dynamically, situating them not only in

the body (as Sørensen [2007] did with magic) or in relation to social interactions (as Weber did with charisma) but also in the dynamic interaction between human animals and complex bio-sociocultural environments. The concept of affordances reminds us that goal-directed actions are always initiated from a starting point and that the environment affords actions relative to actors, whether as individuals or collectivities. Viewed from an ecological or systems perspective, this means that we need to consider abilities (whether specific to individuals or species) and also features of the environment when seeking to understand the affordances that enable things to happen. This would suggest that we should not be too quick to dismiss the powers attributed to objects, such as the seer stone, as mere superstition but to consider the extent to which the interaction between the individual and the object enabled something new to occur.

Second, it alerts us that claims regarding *special* affordances involve both specialized competencies but also beliefs regarding how such competencies are or can be acquired that are most likely limited to human animals. We can express this in Chemero's logical terms as: "Perceives [animal, affords-ϕ (feature$^{S}$, ability$^{S}$)]", where ϕ is the behaviour that is afforded and either the feature or the ability may be viewed as special. If the person simply perceives a special affordance relation without reflecting on its constituent relata, it would be in the form: Perceives [animal, affordance$^{S}$-of-ϕ]. This allows us to distinguish two types of debates over special powers: those that focus on whether or to what extent special powers should be ascribed to the thing in question and those that focus on locating the sources of the special powers, whether in special abilities of the animal or special features of the situation in the environment (including the postulated intervention of deities). In the language of affordances, Joseph Smith perceived the seer stone as affording him an ability to find buried treasure and translate the golden plates, which he would not have had otherwise. Followers of Smith perceived Smith as a prophet, that is, as one who had singular powers to access new revelation; Smith, thus, afforded his followers access to new revelation that they otherwise would not have had. In so far as others were not able to translate the plates using the stone and Smith could not translate without the stone, we can infer that for Smith and his follows the power to translate was afforded both by the special features of the stone (as seer stone) and by the special abilities of the individual (as prophet), both of which they viewed in an ultimate sense as manifestations of "the gift and power of God".

Third, it allows us to build upon a distinction between functional and conceptual meaning highlighted by Gibson and his heirs. In taking an action or goal-oriented approach to perception, Gibson (1986: 134) argued that "[w]hat we perceive when we look at objects are their affordances, not their qualities". Knowing what we can *do* with something, Gibson stressed, is not

that same as knowing what it *is*: "If you know what can be done with a graspable detached object, what it can be used for, you can call it whatever you please." Perception of functional meaning (what we can do with something) is, thus, not the same as conceptual meaning (how we would classify something). This is a crucial distinction for those of us who study religion (a conceptual category) and more specifically for those of us who seek to understand behaviours (goal-directed actions) that are sometimes deemed religious (Taves 2010). Thus, to return to the seer stone, everyone recognized what Smith claimed he could *do* with the stone (i.e. see things with it that others could not see, whether buried treasure or translated words). No one questioned that he claimed to see functional meaning in the stone. The disputes were over (a) whether he really could do these things (whether the functional meaning was really afforded) and (b) whether such doings should be conceptualized as magical, religious, deceptive or fraudulent.

## What are the payoffs of such an approach?

Conceptualizing things to which non-ordinary powers are ascribed as special affordances in the context of goal-directed action not only provides an effective theoretical bridge between the sciences and the humanities, it also challenges us to model complex, culture-laden affordances in ways that will allow us to better understand the interactions between cultural animals and their environment. Here I can only begin to sketch what such a model might need to include and indicate some of the lines of relevant experimental research. We can use Chemero's logical formulation, Perceives [animal, affords-ϕ (feature, ability)], to identify variables that may interact in relation to the affordance, if we carefully distinguish between the functional meaning attributed to an affordance and the conceptual debates regarding the significance and value of the alleged affordance. While the analysis of the conceptual debates forms the bread and butter of much humanities research, careful modelling of the functional meaning attributed to special affordances can help us to more fully understand the ways in which cultural processes can inform perception. Outlined from the more cognitively general to the more culturally specific, we can identify the following possibilities.

First, in terms of general perceptual processes, people may perceive the feature of the situation that affords behaviour ϕ as ordinary or special. If they view it as special, that which makes it special may be recognizable by anyone (even if they assess its significance differently) or it may not. We may all agree that a given stone looks very unusual, even if we do not agree about whether that distinctiveness affords us anything. Research on what makes some things more perceptually salient than others suggests that, for human subjects, animates are more visually salient than non-animates (New *et al.*

2007) and feature singletons (i.e. objects that differ in colour and orientation from the remaining items in a display) are more salient than other objects (Yantis 2005). Most research in the cognitive science of religion has built on the human tendency to over-attribute animacy that arises from our evolved tendency to attribute salience to animates (Guthrie 1980; Barrett & Keil 1996; Boyer 2001; but also Epley *et al.* 2007). Less attention has been paid to object salience by scholars of religion (but see Hood & Bloom 2008; Hood 2009; Bloom 2010: 91–116).

Second, the perceiving subject may or may not have special abilities that may allow him or her to perceive things or respond in ways that others might not. Such abilities would include the ability to perceive sensory data more acutely (e.g. better visual or auditory acuity). Other abilities, involving intuition, imagination, focused attention (absorption) and/or forms of "extrasensory perception" might be of particular relevance for understanding those with heightened abilities to see possibilities in situations that others do not. These abilities may be innate and/or the result of learning, practice and the development of expertise (Ericsson *et al.* 2006). Smith may have had unusual imaginative and/or intuitive abilities that progressed from receiving revelation through his seer stone to receiving it directly, which suggests that his abilities to receive what he perceived as revelation developed over time. There is some research on how differences in abilities might affect religious processes, including abilities that enable mediumship and channelling (Krippner 2008; Krippner & Friedman 2009) and that lead to more realistic experiences of praying to deities (Luhrmann *et al.* 2010).

Third, the perceiving subjects' perception of their abilities or the feature of the situation may be informed by *what others tell them or what they believe to be the case*, regardless of the objective situation (if such can be determined), and those perceptions may have a measurable effect on the behaviour that is afforded. Smith's discovery and recovery of the plates may have depended not only on the ability to see afforded by his seer stone, but also on his father's assurances that that the angel who informed him about the plates was real and not a product of his imagination (Taves in preparation). Social psychological research on social cognition (Tesser & Schwarz 2001) and categorization and stereotype effects (Brown & Gaertner 2001) is relevant here, as is research on the effects of suggestion on highly hypnotizable subjects (Heap *et al.* 2004). There is recent research that demonstrates the measurable effects on behaviour of what people believe and what they are told with respect to religious healing (Schjoedt *et al.* 2011) and "superstitious" objects (Damisch *et al.* 2010).

A fuller model of special affordances would not only allow us to organize relevant experimental research, but also, building on this research, to manipulate variables experimentally under conditions in which causation can be known and controlled. This would have practical implications for those

seeking to understand the role of cultural dynamics in enhancing or impeding processes of change. By adjusting affordances and perceptions of what is afforded in various ways, those interested in changing behaviour could test various options and measure outcomes.

## Notes

1. I view "non-ordinary powers" as one building-block among others. For the larger framework, from which portions of this section were adapted, see Taves (2013).
2. Ketola (2008) has offered a cognitive theory of charisma based on an examination of the way followers initially perceive a charismatic leader, arguing that perceptions of charisma are grounded in perceptions of the individual that elicit surprise, astonishment and admiration. Violated expectations, he argues (*ibid*.: 199), are "the key to the origins of charismatic ideas". Nonetheless, he acknowledges that "the perception of charisma depends ultimately on the perceiver him- or herself; *something must be added to the observation by the observer in order to perceive the charisma*" (*ibid*.: 139, emphasis added). Ketola's theory is unable to specify this added element because his cognitive approach to perception is too static, too mental and too individualistic (i.e. grounded in static mental representations). Although he sees value in action-oriented approaches, he views them as event-oriented rather than cognitive (*ibid*.: 13–14).
3. Of the objects involved in the emergence of Mormonism (the seer stones, the golden plates and the translating devices found with the golden plates) only the seer stones have survived. According to Mormon accounts, the angel who revealed the location of the golden plates and the "interpreters" he needed to translate them took both away, the interpreters while the plates were being translated, which led him to use his seer stone to translate instead, and the plates after the translation was completed. The seer stones are locked in a safe in the office of the First President of the Church of Jesus Christ of the Latter-day Saints (Van Waggoner & Walker 1982: 58–9; Quinn 1998: 242–7; Ashurst-McGee 2000: 230–82, 325–6).
4. It may be helpful to clarify my own assumptions at this point, given the still highly contested nature of Smith's claims. I seek to understand Smith as he understood himself and as others (believers and skeptics) understood him in his own time. Although I do not rule out fraud or imposture when it comes to either the discovery or the translation of the plates, I think it is very possible that the stone afforded "seeing" in much the same way that a placebo affords "healing". In both cases, I would argue the object might enable the subject (Smith or a patient) to activate latent abilities (to visualize text or to heal themselves) that they cannot access consciously. B. Gardner (2011: 259–77) has recently speculated on a possible cognitive mechanism that might have informed Smith's "translation" process. For a naturalistic account of how Smith might have come to view the golden plates as real, see Taves (in press).
5. Gibson notes (1986: 127): "The verb *to afford* is found in the dictionary, but the noun *affordance* is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does." The concept of an affordance specifies an animal as the perceiver of the behaviours that its abilities and the environment taken together will afford. As such, an affordance couples the animal and the environment in the context of goal-directed action, which was precisely the context that interested Weber.

# 7

# Malinowski's magic and Skinner's superstition

## Reconciling explanations of magical practices

Konrad Talmont-Kaminski

The cognitive science of religion draws upon a broad range of scientific authorities, a point readily made by considering the classic research that the papers in this volume connect to the modern approach to the scientific study of religion. Within that range, it is hard to think of two researchers whose work is more dissimilar than Bronisław Malinowski and B. F. Skinner. Malinowski's anthropological work involved the long-term observation of complex human societies whereas Skinner focused on particular behaviours of individual animals. Malinowski studied people in the natural environment, Skinner relied upon tightly controlled, artificial conditions. Malinowski described his conclusions in elegant prose that ventured broad theories concerning human belief-systems, Skinner eschewed belief talk and aimed for precise theories that were tied tightly to data. Given such differences, the comparison between these two scientific greats could well be used as an antidote against naive views of a monolithic scientific method. The real challenge is how to bring them together, however. This is the kind of problem that researchers engaged in the cognitive science of religion run into constantly due to the highly interdisciplinary character of this field. Looking at how the work of Skinner and Malinowski can be combined usefully provides, therefore, a worthwhile case highlighting the issues that current scientific research into religion has to find ways of dealing with. Of course, the particular approach pursued here is specific to one researcher and would not be accepted by others in its details.

Rather than trying to grasp the impact of the total oeuvre produced by Skinner and Malinowski, the focus is going to be on a pair of particularly influential examples from their work. In Malinowski's case this means his famous comparison between the plethora of magical rituals connected to open-sea fishing and their relative lack in the case of fishing within atolls. In

Skinner's case the spotlight is on experimentation into "superstition" in the pigeon. These two examples and the conclusions drawn from them have led to a pair of differing approaches to an issue that is of central significance for the cognitive science of religion: how to explain the human propensity for magical practices. On the one hand, there is the motivational explanation which claims that such practices give peace of mind by providing us with the illusion of control where no control can be had. On the other, there is the cognitive explanation, according to which such beliefs are not necessarily functional in themselves but are the by-product of cognitive processes that are functional. Prima facie, these accounts are directly opposed to each other, with the cognitive science of religion generally opting for the cognitive account. The difficulty becomes apparent, however, once it is realized that it is not necessarily possible to distinguish between them on the basis of such simple psychological experiments as have been carried out with the aim of providing evidence for those accounts. Ultimately, the reason for the problem is that the motivational and the cognitive stories are not mutually incompatible. Indeed, they may inform each other. To show that this is the case, however, requires an approach from an evolutionary vantage point. Armed with the distinctions made available by evolutionary theory, it is possible to see how the motivational and the cognitive accounts can be combined and what this entails for our understanding of magical practices.

## Malinowski's magic

The difference between the traditions of the Trobriand Islanders who fish in the lagoon and those who fish the open sea is probably the single best-known example from Malinowski's work:

> While in the villages on the inner lagoon fishing is done in an easy and absolutely reliable manner by the method of poisoning, yielding abundant results without danger and uncertainty, there are on the shores of the open sea dangerous modes of fishing and also certain types in which the yield greatly varies according to whether shoals of fish appear beforehand or not. It is most significant that in the lagoon fishing, where man can rely completely upon his knowledge and skill, magic does not exist, while in the open-sea fishing, full of danger and uncertainty, there is extensive magical ritual to secure safety and good results. (Malinowski 1992: 30–31)

Malinowski's original reason for bringing up this distinction was to provide evidence for his claim that people turn to magic and superstition when facing

dangerous circumstances that are beyond their control. While his example could not be considered by today's empirical science as much more than an anecdote, it was backed by long-term observations, and the connection between susceptibility to supernatural beliefs and adverse conditions has subsequently been borne out by voluminous research across a range of different disciplines.

One example of this research that is something of a classic reference in itself is the 1979 study by Felson and Gmelch in which the authors explicitly sought to provide quantitative empirical evidence for Malinowski's claim (Felson & Gmelch 1979). Examining US and Irish students, they found that activities that involved high levels of uncertainty and anxiety were more likely also to involve the use of magic. So, for example, students were more likely to report the use of magic in connection with gambling, an activity that was deemed uncertain in its results, compared to face-to-face interaction, which was deemed to be much less uncertain. This result was in basic agreement with Malinowski's main contention as well as with an earlier qualitative study by Gmelch in which he showed that on the baseball field it is primarily the activities that are highly unpredictable in their results, such as pitching and hitting, that attract magical practices (Gmelch 2012).

More recent examples are provided by two interesting studies on the connection between stress and superstitious beliefs that were carried out by Giora Keinan. In a study conducted during the missile attacks upon Israel during the 1991 war in Kuwait, Keinan found that people who lived in cities that were targeted by Iraqi missiles were significantly more likely to espouse belief in the efficacy of magical practices (Keinan 1994). Keinan's second study involved a different type of stress in that Keinan interviewed students at various times during the university year and found that they were more likely to engage in the superstitious practice of knocking on wood when facing exams (Keinan 2002).

A very different kind of evidence for Malinowski's claim was inspected by Padgett and Jorgenson, who examined the number of articles on astrology and similar topics published in Germany in the period between the world wars, and found that the level of economic threat predicted changes in the number of those articles (Padgett & Jorgenson 1982). There are also many examples of research that could be used to show the relevance of Malinowski's thesis to religious belief in particular. Norenzayan and Hansen found that mortality salience (one possible source of stress) led to increased espousal of religious beliefs (Norenzayan & Hansen 2006). Tom Rees showed that, when comparing nations, increased income inequality is an important determinant of religiosity, income inequality also being closely connected to personal insecurity (Rees 2009). Finally, Gregory Paul compared a range of indicators of dysfunctional psychosociological conditions across a number of countries and

found religiosity to be strongly negatively correlated with improved social conditions (Paul 2009).

When faced with such a large variety of studies it must be asked what evidence there is that the results obtained are all due to the same phenomenon. The studies consider many different variables and do so in a plethora of different contexts. Some of the studies looked at long-term social indicators while others examined the immediate reactions of individuals to particular stimuli. Some connected magic to threat (real or perceived) while others talked in terms of loss of control. This is, of course, the same basic problem as the one mentioned earlier in the context of combining the work of Malinowski and Skinner. One way of dealing with this problem is to propose a causal mechanism which would explain some or all of the results obtained and then to test whether this hypothesis is correct. Indeed, Malinowski himself proposed an explanation for why the propensity to believe in supernatural claims might be increased by negative conditions:

> Man, engaged in a series of practical activities, comes to a gap; the hunter is disappointed by his quarry, the sailor misses propitious winds, the canoe builder has to deal with some material of which he is never certain that it will stand the strain, or the healthy person suddenly feels his strength failing… Whether he be savage or civilized, whether in possession of magic or entirely ignorant of its existence, passive inaction, the only thing dictated by reason, is the last thing in which he can acquiesce. His nervous system and his whole organism drive him to some substitute activity.
>
> (Malinowski 1992: 79)

Malinowski's hypothesis, that people engage in magical practices in order to reduce the anxiety they feel in situations that are beyond their control, has been highly influential, with many researchers seeking to explain the connection between magic and misfortune in much the same terms. What is essential is that Malinowski's account appears to have a motivational element since the point of magical practices is supposed to be to avoid anxiety.

This motivational explanation of magical practices is sometimes spelled out in terms of secondary control. The concept of secondary control (Rothbaum *et al.* 1982) has proved both popular and problematic (Morling & Evered 2006). One of the ways it can be understood is as distinguishing between primary control, which involves actual control of circumstances, with secondary control, which merely involves maintaining the illusion of real control (Case *et al.* 2004), a use of the word "control" that is analogous to that of the word "diamond" in the phrase "cubic zirconia diamond". In this context Malinowski's explanation is interpreted as meaning that the function of

magical practices is to allow people to maintain secondary control, that is, the illusion of control, in circumstances that they actually have no control over, that is, no primary control. As per Malinowski's claim, this is understood to help reduce anxiety, which is considered a desirable end.

A recent and influential study that avoids the confusing terminology of secondary control nonetheless formulates something like Malinowski's motivational explanation of magic when it claims that "a lack of control provokes seeing and seeking patterns because pattern perception is a compensatory mechanism designed to restore feelings of control" (Whitson & Galinsky 2008: 115). This, according to the authors, leads people to accept illusory patterns in situations in which they find themselves unable to control their circumstances. Crucially, according to the motivational explanation, magical practices do not have the aim of actually controlling the situation but merely of changing how we feel about it.

## Skinner's superstition

The cognitive explanation for supernatural beliefs and practices that expands upon B. F. Skinner's famous study into "superstition" in the pigeon (Skinner 1948) appears, at least initially, to be very different. In his study, Skinner argued that pigeons are subject to coincidental operant conditioning which leads to superstitious behaviour. This was because when presented with food at regular, short intervals that were independent of their behaviour, the pigeons that Skinner studied nonetheless developed patterns of repetitive behaviour akin to those in the studies where their behaviour did affect whether food was presented to them. So, for example, one of the pigeons in the "superstition" study repeatedly pecked at a corner of his cage while another turned in circles in between each appearance of the container holding the food. Skinner made explicit the comparison with human behaviour:

> The experiment might be said to demonstrate a sort of superstition. The bird behaves as if there were a causal relation between its behavior and the presentation of food, although such a relation is lacking. There are many analogies in human behavior. Rituals for changing one's luck at cards are good examples. A few accidental connections between a ritual and favorable consequences suffice to set up and maintain the behavior in spite of many unreinforced instances. The bowler who has released a ball down the alley but continues to behave as if he were controlling it by twisting and turning his arm and shoulder is another case in point. These behaviors have, of course, no real effect upon one's luck or upon a ball

> half way down an alley, just as in the present case the food would appear as often if the pigeon did nothing – or, more strictly speaking, did something else. (Skinner 1948: 171)

Skinner's interpretation has been critiqued since his time (Timberlake & Lucas 1985). However, experiments very similar to Skinner's have been run on humans and seem to indicate that we are subject to something like the mechanism Skinner proposed. In one such study, children who were collecting marbles in order to win a prize were observed to develop distinctive behaviour that was very similar to that of Skinner's pigeons, including making faces or touching parts of the mechanism that dispensed the marbles (Wagner & Morris 1987). Other studies showed similar effects among adults (Ono 1987; Vyse 1991; Heltzer & Vyse 1994). In one particularly striking case, a participant who had been presented with a choice of three switches and told to maximize the number of points obtained as measured by a counter ended up touching various parts of the room the experiment was taking place in as well as jumping up and down until exhausted (Ono 1987). All this happened even though the points were awarded on a schedule that was totally independent of anything the subject did.

Unlike Malinowski, Skinner made no effort to determine whether there was any connection between magical practices and anxiety. Even so, the pigeons in his study were likely to be quite stressed as it was customary to starve them before conducting behavioural studies in order for food to be effective at motivating their behaviour. Given Skinner's behaviourist methodological assumptions, it is hardly surprising that his explanation is not in terms of the pigeons seeking to satisfy some inner need but, rather, in terms of a coincidental co-occurrence of events leading to what we would call an illusory causal connection. Indeed, his explanation has been compared to the problem of induction in that it involves the question of how to distinguish coincidental co-occurrence from real causal connections. Since such connections are not directly perceived, all we have to go on are our experiences of temporal contiguity, as Hume pointed out.

## Managing errors

We appear to be faced with a choice between two seemingly contradictory explanations for the existence of magical practices. Malinowski's anxiety-reduction explanation might be compared to the peril-sensitive sunglasses from *The Hitchhiker's Guide to the Galaxy*, written by Douglas Adams. These were meant to help their wearer maintain a relaxed attitude by going completely dark at the first sign of danger. Somewhat less radically, according

to the motivational explanation magical practices serve to reduce anxiety by giving people something to do in order that they may maintain the illusion that they are in control of a situation. On Skinner's account, magical practices should be understood as real but misdirected efforts to affect the situation, the cause of their appearance lying in the limited epistemic access we have to our environment.

To see that these explanations are not necessarily in conflict with each other it is necessary to show the relevance of perceived threat to Skinner's explanation and then to show that Skinner and Malinowski are potentially looking at the same thing but from different directions. The relevance of perceived threat becomes clear if we consider whether the kinds of errors Skinner pointed out are not actually indicative of something more than mere random error. This is the line originally pursued by Peter Killeen, who demonstrated a couple of vital points with a methodologically ingenious experiment (Killeen 1978). First, Killeen showed that pigeons were often able to distinguish coincidental co-occurrence from causal connection. Second, he then showed that as payoffs were altered the pigeons changed their behaviour in a way that sometimes led to more errors but resulted in greater overall payoffs. In effect, the birds appeared to react to changes in payoffs by biasing their reaction in such a way as to make relatively few of the more costly mistakes.

The general point Killeen is making has been called "the smoke detector principle" (Nesse 2001). A smoke detector is purposefully made highly sensitive in order to ensure that it goes off when there is a fire. After all, the potential cost of it failing to raise the alarm in that situation is very serious. The cost of this sensitivity, however, is that the detector sometimes goes off when there is no danger. Such instances are annoying but accepted given how much worse it would be not to be alerted of a fire. How sensitive the detector should be will depend on an assessment of the cost and likelihood of a fire as opposed to the cost and likelihood of false alarms. So, in areas where fires are more likely and potentially more costly, it will be desirable to have smoke detectors that are particularly sensitive.

Killeen's idea can be used to explain Malinowski's observation that magic thrives where danger threatens. In a dangerous environment the costs of failing to identify a causal connection are potentially particularly high. If pigeons (and humans) are able to flexibly alter how they bias their search for causal connections, it will make sense in dangerous environments to accept a greater number of illusory causal connections as the price of not missing any real ones. As Killeen observes:

> For humans, when the stakes are high (for example, rain after a lengthy drought) or the response cost low (for example, carrying a charm) superstitions are understandable, often having as much

> the character of "playing a long shot" as of being duped by a coincidence of nature. (Killeen 1978: 88)

The point raised by Killeen has been developed in a couple of ways. First, a number of researchers have been able to show using computer models that something like superstitious behaviour is a necessary by-product of adaptive learning strategies (Beck & Forstmeier 2007; Foster & Kokko 2008; Abbott & Sherratt 2011). Second, it has been turned into a general theory that examines the significance of cost asymmetries between different kinds of errors. Error management theory (Haselton & Buss 2000), as it is called, frames the issues in explicitly evolutionary terms, arguing that persistent cost asymmetries will lead to the appearance of appropriately biased decision-making processes: "Whenever there exists a recurrent cost asymmetry between two types of errors over evolutionary time, selection will fashion mechanisms biased toward committing errors that are less costly in reproductive currency" (Haselton & Nettle 2006: 48–9).

Error management theory is able to integrate the explanation of a number of different human behaviours. Superstition is one of the phenomena that Haselton and Nettle consider, but the way in which they do so is less than clear. Describing superstitious beliefs in terms of the lack-of-control paradigm, Haselton and Nettle appear to be thinking in terms of the anxiety-reduction explanation. Connecting feelings of lack of control to depression, they point out that magical practices offer the illusion of control and conclude that such practices may serve to ameliorate depression. Having done so, however, they go on to make what is essentially the Killeen argument:

> In the ancestral environment, accurate information about the true contingencies between people's behavior and events around them, such as the movements of game animals, would have been scarce. As long as the cost of performing the superstitious behaviors was low relative to the benefit of actually controlling events, EMT [error management theory] would predict cognitive mechanisms biased toward superstition and the illusion of control to evolve. (*Ibid*.: 59)

Before moving on to clarify the relationship between the motivational and the cognitive explanations in general and ultimately considering the particular points Haselton and Nettle make, it is important to see that one of the main explanatory mechanisms proposed within the cognitive science of religion appears to be a special case of the cognitive explanation.

One of the earliest texts considered to fall within the cognitive science of religion is Stewart Guthrie's *Faces in the Clouds*. In it, Guthrie considers the

significance of anthropomorphisms within religions (Guthrie 1993). One of the ideas Guthrie proposes has come to be known as the hyperactive agency detection device. As Guthrie points out, people appear to have a strong tendency to over-attribute events and states of affairs to the actions of intentional agents. The stereotypical example is the sound of moving bushes being misattributed to the presence of a predator. Such a bias toward agent-based causation would have been adaptive given that the failure to spot an agent, such as a hidden predator, would be far more costly that imagining one to be present where there was none (J. L. Barrett 2000). As a by-product, the hypersensitivity of this mental device is argued to be a cause for the appearance and plausibility of supernatural concepts.

The analogy with the scenario proposed by error management theory ought to be obvious. The main difference is that Haselton and his colleagues are only proposing a general principle that is likely to act as a selective pressure upon cognitive mechanisms while Guthrie and the other researchers such as Justin Barrett who have followed in his footsteps are proposing an actual mental mechanism. This explains why the Guthrie explanation is more specific: the mental mechanism that is shaped by overall selective pressure need not respond to all aspects of that pressure.

## Evolution and function

The question of the relation between the motivational and the cognitive explanations remains. In the case of the motivational explanation the ultimate function of magical practices is to be identified with something internal to the practitioner: their peace-of-mind, assuaged by the illusion of control. With the cognitive explanation the internal emotional state of the practitioner is not the issue. Instead, magical practices represent a failed effort to obtain actual control. Yet, the two explanations are not actually so opposed as they might seem.

Part of the problem is the question of what can be taken as a function of any particular behaviour. It seems as though the tendency within psychology has often been to relate functions to personal well-being. This fits in well with the therapeutic role that psychology plays: if the aim is to maintain or restore the personal psychological well-being of patients, then psychological mechanisms will be thought of and evaluated in terms of what they can contribute to making that possible. The anxiety-reduction function of magical practices appears to fit into this picture of what a function of a psychological mechanism might be. Certainly, it appears that Whitson and Galinsky have something like this in mind when, as has already been noted, they claim that "pattern perception is a compensatory mechanism designed to restore feelings of control". This way of talking may feel fundamentally misleading

for someone who is not approaching the phenomena with therapeutic intentions but rather with the mere desire to understand them. After all, it would seem clear that people perceive patterns not because it makes them feel better but because it allows them to interact successfully with their environment. Thinking otherwise would seem to be particularly parochial. However, function is difficult to ground when one lacks therapeutic intent. One is left with many "is"s but without any "ought"s.

The evolutionary perspective solves this problem but at the price of putting forward a notion of function that is, at times, quite alien to the way we normally think. One need only consider as an example the gene's eye-view put forward by Dawkins, which holds that humans are only machines which genes use to make more copies of themselves (Dawkins 1976). In the context we are looking at, it has to be realized immediately that from an evolutionary point of view, the peace of mind of the practitioner cannot be what any behaviour is for. Evolution does not care for human feelings, as if that needed to be said. Indeed, the relationship is the very opposite; it is emotions that exist to serve evolutionary ends. This does not mean, however, that any explanation that depends upon a notion of function derived from considerations of evolutionary adaptation will have to remain silent on emotions. Far from it.

As we have seen, error management theory is able to show that evolutionary pressures will tend to favour decision-making processes that are biased in ways that tend to minimize the overall cost of the errors the organism makes, rather than their number. However, the general theory does not say how this is achieved by mental mechanisms. One mechanism that has been proposed is the hyperactive agency detection device. It is quite plausible, nonetheless, that emotions such as anxiety can play a role in biasing human decision-making processes in adaptive ways.

While emotions and reason had been thought of as contradictory forces for centuries, such an attitude makes no sense when one looks at humans from an evolutionary point of view. In that context, the idea that emotions are useless and dangerous begs the question of why then they evolved. Indeed, much recent research within psychology has shown that emotions have a vital role to play within broadly understood cognition (Brun *et al.* 2008; Evans & Cruse 2004; de Sousa 1990). Antonio Damasio's somatic markers view holds that emotions serve to direct decision-making by biasing our cognitive processes (Damasio 1995). Negative emotions, such as anxiety, serve as warnings to indicate issues that must be dealt with or outcomes that must be avoided. If magical practices are thought to have some probability of helping to avoid unwelcome outcomes, it should not be surprising that engaging in them will reduce anxiety, therefore. And, at one level of understanding it might even be said that the function of the practices is to reduce anxiety. However, anxiety itself has the function of directing our behaviour, a function that has largely

been shaped by evolutionary forces in such a way as to motivate us to engage in behaviour that is generally adaptive. So, stopping the analysis at the point of the emotional impact of magical practices, while natural from a therapeutic outlook, can only serve an incomplete understanding of the phenomenon of magic from an evolutionary point of view.

It might seem that it is the cognitive explanation that ends up looking superior. After all, the cognitive role of the emotions suggests that the motivational story has to become a part of the cognitive one. That, however, would also be something of a misunderstanding. A lot of cognitive science of religion, just like a lot of cognitive science in general, has traditionally failed to take into consideration the cognitive role of emotions. But this is basically the same shortcoming as that faced by the motivational explanation. This by no means entails that either view is not useful. Rather, it shows that both are partial and in need of combining.

To combine them, however, it is necessary to look at them from an evolutionary point of view. This is partly, as has already been shown, because of the solid concept of function that evolutionary theory makes available. However, it is also because of the rich variety of questions that can and should be asked about the evolution of any kind of behaviour. Niko Tinbergen's four questions are one way of thinking about this cornucopia of interrelated issues (Tinbergen 1963). From this point of view, it can be seen that the motivational explanation of magical practices appears to be primarily aimed at the question of the mechanism that produces these practices. The cognitive explanation, perhaps counter-intuitively, is mostly aimed at the question of (evolutionary) function. Even when these explanations are combined, this still leaves two fascinating questions completely unanswered: the question of how the behaviour develops as well as the history of how it evolved. This suggests further directions in which the account could potentially develop.

## Conclusions

It is now necessary to see how the motivational and cognitive explanations can work together, what further insights can be gained from combining them in the case of explaining magical practices, and what implications this has for further research in the area. This can be done by considering again Haselton and Nettle's two examples of how error management theory could be used to explain superstitions. It has to be said, first of all, that it is clear that they have not considered that the cognitive and the motivational sides of the story need to be combined when explaining magical practices. Instead, they have merely provided examples that fit each of the two explanations. We can do a bit better.

Recognizing the cognitive role of emotions leads to the idea that magical practices also need to be considered within the context of the broader question of how anxiety helps to motivate and direct effective decision-making processes, such as deciding on the basis of which potential causal connections to act. This broad and highly significant line of empirical inquiry ought to provide a potentially worthwhile line of investigation for future research within the cognitive science of religion.

At the same time, the connection between magical practices and depression suggest a very focused line of inquiry. First of all, it must be said that current research suggests that, in so far as religious people tend to be happier than those without strong religious commitments, this seems to have much more to do with the greater level of social support that religious individuals obtain from their faith communities, rather than with their beliefs or supernatural practices themselves. Second, within the context of the cognitive role of emotions, the idea that magical practices may provide an illusion of control that helps to avoid learned helplessness and depression gains a new viability. In a number of cases, mental mechanisms that act as warnings and are therefore adaptive can be damaging if they operate for too long. Stress, for example, works well in motivating and directing behaviour when it is short-term but it is unhealthy when it is long-term. In such cases, in makes sense for further mechanisms to develop that override the basic alarm mechanism in order to avoid harm to the individual. It makes for an interesting empirical question, whether magical practices have come to play that role with long-term anxiety. However, given that such practices would already be a by-product, they would be ready to hand, so to speak, making their recruitment plausible though far from necessary.

An evolutionary point of view, such as is the basis of the cognitive science of religion, allows us to bring together a lot of existing research in ways that are highly informative and which lead to further research questions. In the case of the research carried out by Skinner and Malinowski, it is the grounding of function in evolutionary adaptation as well as the multiplicity of interconnected evolutionary questions that makes possible the kind of analysis which results in an enlightening synthesis. Apart from revealing interesting new issues for the cognitive science of religion to pursue, this also reveals something of a lacuna in the field in so far as much of that research does not properly take into account the cognitive role of emotions.

# 8

# Towards an evolutionary cognitive science of mental cultures

## Lessons from Freud

Joseph Bulbulia

### Standard objections

Sigmund Freud was a brilliant and dangerous fraud, or so many cognitive scientists believe. The Berkeley psychologist John Kihlstrom sums up current scientific sentiment when he writes:

> [S]o far as we can tell Freud was wrong in every respect … [he] has been a dead weight on 20th century psychology … [Freud] is better studied as a writer, in departments of language and literature, than as a scientist, in departments of psychology. Psychologists can get along without him. (Kihlstrom 2000: 48)

Freud is thought to be dangerous because his work, while strongly appealing at an emotional level, lacks reliable scientific evidence. Even worse, as Kihlstrom observes, Freud actively discounted, ignored and attacked, *ad hominem,* those who used science to fault his doctrines:

> [R]ecent historical analyses show that Freud's construal of his case material was systematically distorted and biased by his theories of unconscious conflict and infantile sexuality, and that he misinterpreted and misrepresented the scientific evidence available to him. Freud's theories were not just a product of his time: they were misleading and incorrect even when he published them. (*Ibid.*)

For Freud, psychoanalysis had to be true. Deviations from its orthodoxies were chalked up to the repressive activity of the *superego* attempting to silence

the *id*, and to similar chicanery about which Freud was culpably mistaken. The problem with Freud's work, then, is not merely that his picture of the mind happens to be wrong, but more fundamentally, that his method of inquiry is inimical to scientific discovery. In so far as scientific truth is concerned, Freud's theories and methods are themselves repressive.

Such are the standard complaints against Freud, which have led to what one recent commentator calls 'Freudophobia, the fear of becoming mired in wishy-washy ideas that are impossible to test' (Wilson *et al*. 2009: 384). However, I think these standard objections are insufficiently condemning. The case against Freud should be taken further.

## A special objection from evolutionary psychology

The psychodynamic processes that Freud postulates, in which children variously lust after their mothers, resent their fathers, and develop into deeply afflicted adults, are, from a biological perspective, awkwardly out of place among nature's efficient designs. The neurotic mind is not a particularly well-adapted mind. How could selection have tolerated such disabling mental conflicts? Successful breeding is, of course, nature's bottom line. However, Darwin's theory also predicts graduated improvements for biological designs: variants compete, and the winners transmit their advantages to offspring. Brains pay their way, over evolutionary time, by solving complex, dynamic and often unpredictable ecological problems (Sterelny 2003). Not only does evolutionary theory suggest constraints on the power of sex to regularly produce psychological disease, it also notices that each organism's specific way of making a life depends on its ability to meet many proximate goals besides sex.

Among humans, social and ecological complexity confronts each would-be breeder with a vengeance, for humans inhabit large, complex and fast-changing worlds. Such worlds are as ecologically diverse as the inland deserts of Australia and the frozen wastelands of northern Siberia. They are as socially diverse as the hunter-gathering societies of highland Papua New Guinea and Enron's board of directors. Knowing what to do, when and with which level of effort requires subtle skills and local knowledge. Even ordinary human tasks, say, navigating a Vespa through a Roman street, frying an egg or figuring out an automobile's GPS navigation system, requires capacities so uncommon that they appear to have evolved only once. Importantly, the generation and transmission of such skills in our lineage depends on structured cultural learning: we are not born knowing how to drive, cook and master gadgets. Rather, we have evolved to be strongly dependent on cultural transmission (Henrich & McElreath 2003; Sterelny 2005). Intelligence

evolves for success in a world short on opportunity and crowded with dangers; it does not evolve to be regularly tormented by internally generated conflicts (Fessler 2006).

Nevertheless, there remains a limited truth to Freud's psychosexual theories. To repeat, successful breeding is nature's bottom line. For this reason, sex is highly motivating. This partial truth, when combined with Freud's genius for rhetorical overstatement, helps to explain Freud's widespread influence among professional psychologists, with counterproductive effects. While Kihlstrom recommends locating Freudian studies in literature departments, many psychologists would rather consign Freud's works to criminology.

## Salvaging Freud

I agree that Freud's science is problematic. My purpose here, however, is not to drive additional nails into the Freudian coffin. Quite the opposite, I hope to salvage several important insights. Not only does Freud's model of religion avoid standard scientific indictments (sexual overstatement, pseudo-scientism, biological naivety), more fundamentally, Freud suggests questions that contemporary evolutionary psychologists have overlooked. My aim is to explain why Freud's later theory of religion remains interesting to science.

## The standard interpretation

### *Religion as neurosis*

Freud wrote several works on religion, including *Totem and Taboo* ([1913] 1999) and *Moses and Monotheism* ([1939] 1967). I am interested in Freud's later theory of religion as presented in *Future of an Illusion* (Freud [1927] 1962). It is in this work that most commentators find Freud's eminently refutable theory of religion as mental disease:

> Freud (1927) argued that religion is an infantile psychopathology that is responsible for many of the world's evils.
> (Vail *et al.* 2010: 84)

> *Future of an Illusion* casts religious beliefs as psychological delusions in need of a cure. (Graham & Haidt 2010: 141)

> For Freud, religion was a "collective neurosis". (Harvey 1995: 5)

Freud's theory of religious pathology, the standard interpretation says, is grounded in experiences of uncertainty, frustration and terror at nature's capricious powers for destruction. Such experiences, according to the standard interpretation, lead to desperate searches for meaning and protection, which find their resolution in beliefs in protector gods. Such beliefs are built from an "infantile prototype" of the father. Van Harvey's characterization of Freud's pathological model is typical: "In *Future of an Illusion* Freud argued that belief in the gods springs from two factors: the longing for a personal deity who can offer consolation, and the helplessness of human beings before nature and death" (*ibid*.: 51). The theory most commonly attributed to Freud, then, is one in which "religious illusions" satisfy "wish-fulfilments" for protection from father gods. When such illusions are summed over a population they present as a "collective neurosis".

As Van Harvey points out, the collective neurosis theory disappoints: "Freud's argument in *Illusion* is at best a thin summary of the Enlightenment claim that religion is the result of human helplessness augmented by the longing for a father" (*ibid*.: 245). However, this disappointing "thin summary" belongs to Van Harvey, and to similarly hasty interpreters, not to Freud. To understand Freud's theory of religion we must consider Freud's theory, not its standard misinterpretations.

## *Why the standard interpretation is wrong*

If readers take nothing else from this chapter, they should remember that nowhere in *Illusion* does Freud claim that religion is a collective neurosis. Freud is quite clear that religion produces states "resembling repression" which are "analogous to neuroses" ([1927] 1962: 53). The passages in which Freud develops the analogy of religion to pathology occur as part of his argument recommending that civilization dispense with its religious illusions. Freud offers the following justification for the analogy to psychopathology: "by help of [this] analogy yet another discovery may begin to dawn on us – namely that the distortions of religion, like those of neuroses, might be overcome" (*ibid*.: 42). However, the argument for dispatching with religion is given only after Freud has offered his psychological explanation for religion. Freud clearly recognizes the dangers of his analogy to neurosis, or as he puts it, of "transport[ing] ideas far from the soil in which they grew up" (*ibid*.). Moreover, Freud explicitly rejects the analogy's adequacy for explanatory purposes:

> Our analogy [to neurosis] does not, to be sure, exhaust the essential nature of religion. If, on the one hand, religion brings with it obsessional restrictions, exactly as an individual obsessional neuro-

> sis does, on the other hand it comprises a system of wishful illusions together with a disavowal of reality, such as we find in an isolated form nowhere else but in amentia, in a state of blissful hallucinatory confusion. But these are only analogies, by the help of which we endeavor to understand a social phenomenon: the pathology of the individual does not supply us with a fully valid counterpart.
>
> (*Ibid*.: 43)

Thus, Graham and Haidt are simply incorrect when they describe Freud's conception of religious belief as consisting of "delusions" from which believers "need to be cured". Quite the opposite, Freud takes pains to distinguish what he calls "religious illusions" from "psychiatric delusions": "What is characteristic of illusions is that they are derived from human wishes. In this respect [religious beliefs] come near to psychiatric delusions. But they differ from them" (*ibid*.: 31).

The difference between religious illusions and psychiatric disorders points to religion's fascinating complexity, functionality and strangeness. Before examining these differences, we must first consider Freud's social–functional model of religion, which explains how religious illusions benefit religious believers.

## Freud's functional model: religion and governance

### *A proto-evolutionary model of religion*

The main question that Freud raises in *Illusion* is not that of religion's origins but rather that of civilization's fate. Freud attributes basic controlling functions to religious cognition and cultures: society endures from "ideas which are religious in the widest sense" and which become "prized as the most precious possession of civilization" ([1927] 1962: 20). For Freud, the endurance of civilization, what contemporary naturalists call the evolutionary problem of large-scale cooperative societies, is best approached as a set of psychological problems: "perhaps the most important item in the psychical inventory of a civilization [is] its religious ideas in the widest sense – in other words its illusions" (*ibid*.: 14). Freud thinks that civilization no longer requires religion. The normative project in *Illusion* is to explain why this is so. Let us, however, set consideration of this normative project aside, and consider Freud's reasons for thinking that religion has been civilization's "most precious possession". Understanding these reasons will carry us some distance from the simplistic, easily refutable theory that religion is a collective neurosis.

To understand Freud's social–functional model of religion, it is helpful to distinguish between "proximate" and "evolutionary" causation (Sosis 2009; D.

S. Wilson 2002). The proximate causes for human phenotypic traits, in this case the set of psychological traits pertaining to gods, are given from structured interactions between genetic endowment and environmental conditions. In the case of religious traits, these interactions include cultural conditions. Such inquiries are clearly complex, involving the study of genetic, neural, institutional and ecological designs and relationships. No single researcher or group should pretend to see the end to them.

The received interpretation of Freud, according to which religion is the product of wishful thinking, is correct as a rough description, so far as it goes, of Freud's *proximate* explanation for religion. Freud conjectures that religious doctrines are compelling because they answer basic human needs, which fail any natural hope for satisfaction. However, Freud's proximate explanation accounts for only one part of his theory of religion. Freud also presents what might be called a proto-evolutionary theory of religion, noticing that religion endures from social–functional advantages. Freud does not explain religion's evolutionary conservation from religion's comfort; religious illusions are rather conserved because they satisfy conditions for the possibility of large-scale civilizations. It is by what Freud calls "a gradual displacement of accent" that the gods were, on Freud's proto-evolutionary model, accorded their cooperative functions. From this displacement, "morality [became the gods'] true domain" ([1927] 1962: 18). Let us consider Freud's proto-evolutionary model of religion in more detail.

## *Evolutionary problems for governance*

Notably, Freud "scorn(s) to distinguish" between *Kulture* and *Zivilisation*:

> Human civilization … – and I scorn to distinguish between culture and civilization – presents, as we know, two aspects to the observer. It includes on the one hand all the knowledge and capacity that men have acquired in order to control the forces of nature and extract its wealth for the satisfaction of human needs, and on the other hand, all the regulations necessary in order to adjust the relations of men to one another and especially the distribution of the available wealth. The two trends of civilization are not independent of each other. ([1927] 1962: 6)

When asking "What is civilization for?", Freud distinguishes between two organizational functions: (a) to improve the conditions of life by technology and commerce; and (b) to regulate social interactions. The first domain roughly covers technologies for the production and distribution of goods:

*commerce*. The second domain roughly covers technologies for motivating commercial behaviours, in the widest sense, and for assuring social expectations: *governance*. It is for the benefits that religion brings to governance that religious illusions are, on Freud's account, retained as civilization's most cherished mental assets. I think Freud's characterization of how religion supports governance improves upon current evolutionary characterizations.

## *The problem of risky social prediction*

Trivially, economic activity gives, but it also takes. While the labour implied by cooperative activity brings collective advantages, such advantages generate motivational problems. Few will wish to toil for hours at the textile mill, the steel factory or the coal mine from a natural joy of labour, because labour steals from life. Moreover, the benefits from labour arrive downstream. Freud's social–functional account of religion begins with the observation that suppressing immediate gratification requires prohibitions with coercive power: "every civilization must be built upon coercion and renunciation of instinct" ([1927] 1962: 7). Moreover, prosocial feelings are limited in their power to affect cooperative actions: "one has, I think, to reckon with the fact that there are present in all men destructive, and therefore anti-social and anti-cultural trends and that in a great number of people these are strong enough to determine their behaviour in human society" (*ibid*.: 7–8).

We can better understand Freud's solution to the problem of governance by distinguishing between the two types of threat to any large-scale cooperative order: (a) threats from cheating or "free-riding"; and (b) threats from uncertainty. Free-riding problems are sometimes called *tragedies of the commons*. They arise wherever exchange yields the following inequalities in payoffs:

I cheat > We cooperate > We cheat > I cooperate alone

Threats from uncertainty are sometimes called *stag hunts* (Skyrms 2004). They arise wherever exchange yields the following inequalities in payoffs:

We all cooperate > Some of us cheat > I cooperate alone

In a stag hunt, it is in each partner's best interest to cooperate, but only on the condition that everyone (or nearly everyone) cooperates. When others withdraw their cooperation, I should withdraw mine. Stag hunts may fail merely from insufficient partner confidence, without any specific risks from cheating.

Consider how a commodities market is much like a stag hunt. Most investors will happily keep their money in the market, if they expect most others

will too. However, most investors will also want to pull their money from such a market, should they expect others will pull theirs. Indeed, all investors will want to withdraw their money before others do, to mitigate losses. Yet how can an agent predict what others will do? Such predictions must be based on cues. But how will cues be interpreted? Once a cue (say a government intervention) has failed to predict the success of cooperation (a rising market), how will cooperation be subsequently assured? In anonymous societies, stable solutions for such problems are elusive.[1] Notably, such problems generalize beyond commodities markets to every domain of commerce among strangers.

It is interesting that the specific problem of cooperation that Freud imagines for civilization is a stag hunt, not a tragedy of the commons:

> the first difficulty: everyone else has exactly the same wishes… And so in reality only one person could be made unrestrictedly happy by such a removal of the restrictions of civilization… And even he would … wish that others would observe at least one cultural commandment: "thou shalt not kill". (*Ibid.*: 15)

Freud observes that no one, not even a murderous tyrant, can do better than by agreeing to comply with civilization's prohibitions, where others will agree too. Therein lies the issue. How can one assure the cooperation of strangers in a world where acting on the assumption that strangers will cooperate is hazardous? How can civilization solve the problem of widespread cooperative prediction where there is uncertainty and risk?

## *The fragility of secular governance*

Evolutionary economists look for solutions to cooperation's problem from the ratifying power of common interests. As Adam Smith observed long ago, wealth is created from the different utilities that partners in market economies assign to the goods and services that they exchange. The weapon that Alice makes is worth less to her, a weapon-maker, than it is to Bob, a cow herder. By exchanging tool for beast, both partners benefit. This point generalizes. Even the poor benefit at labouring for the wealthy: back-breaking labour is no picnic, but the morsel of bread it repays beats starvation, and both parties are made better off from the trade.

Economists have long observed that the benefits of mutualistic exchange select for cooperative institutions. Efficiencies arrive from financial institutions, which coordinate monetary instruments such as currencies, facilitating the efficient trade of goods and services. Legislatures and courts evolve

regulations and punishments to protect the reliability of commercial transactions, enabling greater predictive certainty and efficiency. By instating, promulgating and enforcing laws, governments protect cooperative expectations. Such governing institutions also facilitate the manufacture, protection and management of public resources, by coordinating labour. Beyond formal governing institutions, a diffuse matrix of informal social institutions evolve to manage interactions that are not enshrined in laws: the unwritten norms of etiquette, manners and so on facilitate social expectations, presenting the rail works for social navigation. These implicit norms become gradually entrenched in the dispositions and habits of a people. We do not need the gods to motivate stopping at traffic signals, turning up to work and returning dinner invitations, it would seem.

Here is a problem: although secular institutions coordinate and regulate social commerce, such institutions also appear to be as much an effect of the stability of cooperation as one of its causes. Notably, the stability of formal and informal governing institutions rest on expectations: if laws, explicit or tacit, are to provide enduring motivations for commercial exchange, individuals must feel, and persist in feeling, sufficient motivation to act on conventional instructions. Such actions, in turn, depend on the expectation that others, too, will feel, and continue to feel, sufficient motivation to act on conventional instructions. Such feelings and expectations would appear to be easily damaged, particularly after failures. Although memories of past successes will afford some confidence, memories of past failures may intervene to corrupt this confidence. Once cooperation is perceived to decline, this evidence can elaborate further pessimism, and further evidence of decline, as additional partners withdraw their cooperation. Evidence of failures risks demotivating cooperation, leading to more failures, breeding contagions of doubt (for evidence, see Keizer *et al.* 2008).

Indeed, cooperative feelings and expectations are not independent. There is a risk to the stability of cooperation from corruptions in what might be called the "mental landscape of cooperation" – how we represent each other's expectations and social strategies. The mere prospect of a decline in cooperation may lead to self-fulfilling prophecies, as others predict that cohorts are uncertain about the future of cooperation. Whatever my personal feelings for cooperation, I would be foolish to cooperate if I expected others lacked sufficient such feelings. Knowing that others might predict such shortcomings, I might predict that even those with strong motivations to cooperate will nevertheless withdraw. Such contagions of doubt may pollute the mental landscape of cooperation even in the absence of clear evidence for cooperation's decline. Freud notices that secular institutions cannot easily manage such persistent threats to social stability, and focuses on three kinds of social underminer.

### *Problem 1: the inherent uncertainty of nature*

Civilization brings comforts, but Nature's awesome power to inflict misery abides:

> No one is under the illusion that nature has already been vanquished … there are elements, which seem to mock at all human control: the earth, which quakes and is torn apart and buries all human life and its works; water, which deluges and drowns everything in a turmoil; storms, which blow everything before them; there are diseases, which we have only recently recognized as attacks by other organisms, and finally there is the painful riddle of death, against which no medicine has yet been found, nor probably will be. With these forces nature rises up against us, majestic, cruel and inexorable; she brings to our mind once more our weakness and helplessness. (Freud [1927] 1962: 15–16)

Recall that in a stag hunt, cooperation relies on optimistic social prediction. Experience of nature's misery and expectations of more pose persistent threats to cooperative prediction because such experiences and expectations evoke an understanding both of risks and uncertainties. Attending to human frailty may furthermore infect cooperation's mental landscape, as partners represent such threats in each other's minds, as common knowledge. Given that there is no natural solution to nature's harms, attention to human frailty presents a constant source of threat to any social order.

### *Problem 2: the inevitability of loss*

A related problem is the inevitably of damage. Freud points out that Nature has "her own particularly effective method of restricting us. She destroys us – coldly, cruelly, relentlessly, as it seems to us, and possibly through the very things that occasioned our satisfaction civilization" ([1927] 1962: 15). What is the point of remaining a cooperative citizen if the tomb awaits us all, inescapably?[2] Here too, the certainty that it will all end badly for each one of us, when recollected and represented as common knowledge in cooperation's mental landscape, presents a constant threat to optimistic social prediction. The certainty of ultimate doom may elaborate antisocial contagions if partners feel, or expect others to feel, ultimate futility as a reason for prosocial restraint.

### *Problem 3: compensation for inequality*

Following Marx ([1867] 1992), Freud notices that wealth is the product of alienated labour. Social inequalities residing at the core of cooperative civilizations, for Freud, undermine prosocial action from the bitterness that inequalities, when attended to, evoke among the disaffected:

> It is understandable that the suppressed people should develop an intense hostility towards a culture whose existence they make possible by their work, but in whose wealth they have too small a share… It goes without saying that a civilization which leaves so many of its participants unsatisfied and drives them into revolt neither has nor deserves the prospect of a lasting existence.
>
> ([1927] 1962: 12)

Though the poor may improve their circumstances from labour, any appeal to law and order should not be regarded as an explanation for the persistence of prosocial sentiments in a world in which civilizations are built from bitter inequalities. The potential for widespread social disenchantment among the working classes remains a persistent threat to social stability. For as Freud recognizes, law and order are precisely that which naturalists must explain when "civilization neither has nor deserves the prospect of a lasting existence".

Freud notices that religion offers an effective firebreak against each of these three undermining psychological trends. His interlocutor raises the objection that religion is irrelevant to governance:

> You have repeatedly used the expression "civilization creates these religious ideas", "civilization places them at the disposal of its participants". There is something about this that sounds strange to me. I cannot myself say why, but it does not sound so natural as it does to say that civilization has made rules about distributing the products of labor or about rights concerning women and children.
>
> (*Ibid.*: 21)

In defence, Freud writes:

> I think, all the same, that I am justified in expressing myself in this way. I have tried to show that religious ideas have arisen from the same need as have all the other achievements of civilization: from the necessity of defending oneself against the crushingly superior force of nature. To this a second motive was added – the urge to rec-

> tify the shortcomings of civilization which made themselves painfully felt. Moreover, it is especially apposite to say that civilization gives the individual [answers from] religious ideas. (*Ibid.*: 22)

According to Freud, religious illusions suppress the recognition of cooperation-damaging inequalities, organize collective goals and afford optimism, in the face of nature's crushing horrors, from rectifying and distracting illusions in moralizing protector gods.

## Freud's proximate model: adaptive illusions

### *A very remarkable psychological problem*

Having described Freud's social–functional account of religious cooperation, I now turn to Freud's proximate explanation for religious cognition. Freud argues that religious illusions convert proximate wishes for protection into prosocial motivations, by way of the gods' assurances and commands:

> It is the task of the gods to even out the defects and evils of civilization, to attend to suffering which men inflict on one another in their life together, and to watch over the fulfilment of the precepts of civilization, which men obey so imperfectly. Those precepts themselves were credited with a divine origin; they were elevated beyond any human society and were extended to nature and the universe… And thus a store of ideas is created, born from man's need to make his helplessness tolerable and built up from the material of memories of the helplessness of his own childhood and the childhood of the human race. ([1927] 1962: 18)

The gods, when believed, reduce uncertainty and anxiety, as cosmic providers and protectors. Beliefs in gods *distract* partners from antisocial judgements and *express* an unjustified, benefiting confidence about the future.

Religious illusions, although supportive of civilization, also carry risks. Why do religious illusions not damage believers as mental illness? What makes religious belief different from psychopathology? Religious illusions, according to Freud, mistake inner wishes for truth. They also concern the "strongest" and "most urgent" of all human needs. To address core functional problems with illusions would appear hazardous, yet religious persons flourish. As Freud observes, "This state of affairs is in itself a very remarkable psychological problem" (*ibid.*: 27), noticing that religious illusions present significant engineering demands on religious cognition:

> In spite of their incontrovertible lack of authentication, [religious illusions] have exercised the strongest possible influence on mankind. This is a fresh psychological problem. We must ask where the inner force of those doctrines lies and to what it is that they owe their efficacy, independent as it is of recognition by reason. (*Ibid.*: 30)

Consider now four basic engineering demands on any religious system capable of functioning as Freud hypothesizes.

## *Problem 1: selective learning*

Freud's model of religion requires a psychological architecture that biases and distorts learning in two directions. First, distant emotional memories of childhood experiences must be both recollected and connected to powerful wishes for protection. This is no easy task. Whatever the power of early life experiences, in this case the hypothesized relief that parents offer in response to helplessness, there are innumerably many other memories that might intervene before agents initiate any action. How can very distant memories be made salient, here and now, as I decide whether to turn up to work, honour another's property rights or invest my savings in the stock market?

Not only must religious convictions be *generated* without reliable evidence, to endure they must actively ignore strongly countervailing evidence. Those experiences that would appear relevant to social decision-making must be forgotten: memories of cooperation's past failures, and of nature's destructive power. To maintain convictions about protection in the face of serious and inevitable disappointments requires an impressive forgetting. This engineering challenge of *forgetting* requires a selective biasing, annihilation and distortion of the past. Understanding how religious cognition and culture orchestrates this selective learning remains on the horizon of current inquiries (see Xygalatas *et al.* 2013b).

## *Problem 2: selective desire*

How can agents infer strongly motivating commitments from the substance of longings? We have noticed that there are two means by which to align cooperative emotions at large social scales: (a) by suppressing or (b) by distracting partners from antisocial thoughts and emotions. The factors that protect cooperative culture, by suppression or distraction, must govern cognitive processing more powerfully than basic instincts for survival. Recent cooperation theories of religion conjecture that afterlives provide cooperative inducements. However,

motivations that turn on afterlife rewards may be prone to temporal discounting. Indeed, because most religions allow repentance, how might religion support sufficiently powerful prosocial motivations here and now? Freud's model does not say. However, Freud remains important because he noticed a problem lost to contemporary psychologists, including those who castigate Freud.

### *Problem 3: selective inference*

If Freud's model of religion were on the right track, then religious illusions would operate through a distorting and biasing of expectation, based on experience "independent of its recognition by reason", which "sets no store by verification" ([1927] 1962: 31). How are religious ideas presented to intelligence as certainties? Specifically, how can the devout believe with unshakeable conviction that their most basic wishes will come true? The problem strains functionally adaptive cognition to its very limits. Fabricating highly optimistic predictions without evidence vitiates a core property of thinking systems: *accurate* prediction . Yet as Freud notices:

> Of all the information provided by our cultural assets it is precisely the elements which might be of the greatest importance to us and which have the task of solving the riddles of the universe and of reconciling us to the sufferings of life – it is precisely those elements that are the least well authenticated of any. (*Ibid.*: 27)

Notably, religious illusions must also be inferentially encapsulated. Whatever the benefits of beliefs in supernatural protectors, religious believers, as denizens of hostile nature, must nevertheless defend themselves, outcompete rivals and punish enemies. What architecture can integrate rock-jawed convictions seamlessly with inconsistent responses? Freud's questions have not been seriously asked, much less answered (see Bulbulia 2004b, 2008).

### *Problem 4: coordinating illusions*

The engineering demands imposed by functional religious cognition cannot be solved for only one or several citizens. To support large-scale civilizations, solutions must *simultaneously* affect many partners, and generalize across a wide-ranging spectrum of transactions. How might entire groups be effectively encouraged to "[set] no store by verification"? A *synchronization constraint* suggests that factors capable of coordinating the beliefs, intentions and desires of an anonymous population must inhabit the shared environments in which

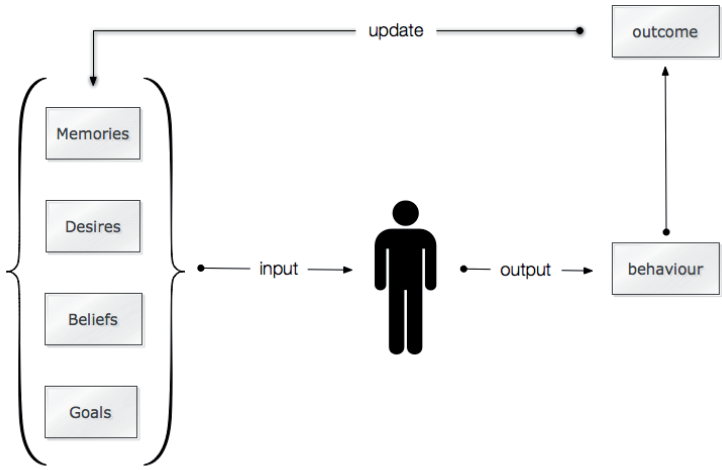


**Figure 8.1** Demands on natural cognition.

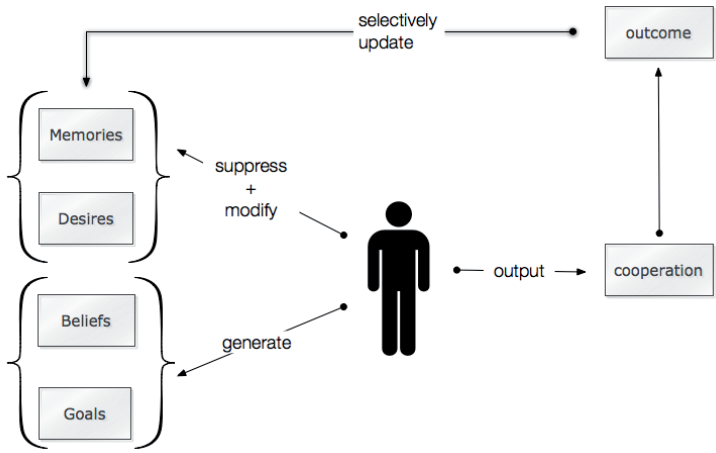


**Figure 8.2** Demands on religious cognition.

such partners transact. The functional elaboration of the biophysical world in a manner that affords common, motivating illusions presents yet another engineering demand for the evolution of functional religious cognition.

Freud notices that "society is very well aware of the insecurity of the claim it makes on behalf of religious ideas. Otherwise it would certainly be very ready to put the necessary data at the disposal of anyone who wanted to arrive at conviction" ([1927] 1962: 27). Yet how the synchronization constraint has been satisfied remains, I think, one of the great unsolved puzzles in the naturalistic study of religions (for further discussion, see Bulbulia & Frean 2010).[3]

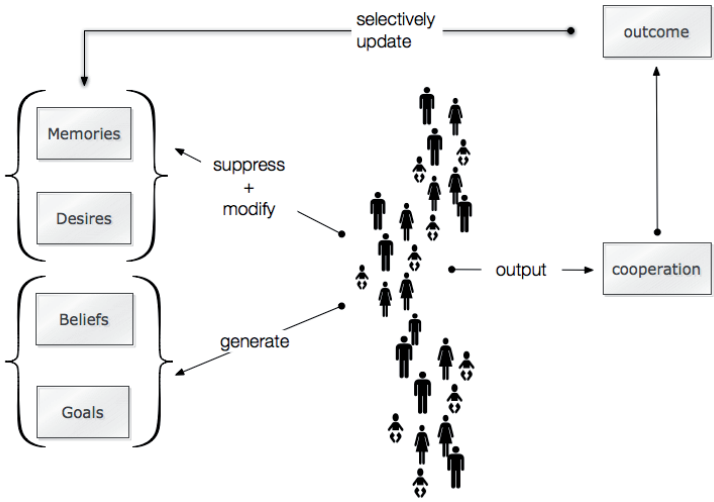


**Figure 8.3** The synchronization constraint for engineering cooperative cultures.

## Summary

### *Limitations*

We must not claim too much for Freud's theory of religion. Freud's writings should be taken as a series of observations, some of which, it seems to me, are worth converting into testable hypotheses. Moreover, although I have argued that Freud's models remain relevant to the evolutionary psychology of religion, it is important to notice that Freud's theory is not explicitly grounded in biological theory. I leave the matter of Freud's scientific inspirations to intellectual historians. The problem of explaining religion should not be confused with the problem of explaining Freud.

Furthermore, despite Freud's insights, he ignores many tough problems. He does not discuss how loyalty to religious traditions functions to bind groups together, quite apart from any illusions. Nor does he discuss how religious rituals foster social comments (see Bulbulia & Sosis 2009; Schjoedt 2009). While naturalists have much to learn from Freud, current research has also surpassed Freudian speculations in many crucial respects. No researcher who values truth should want to be a "Freudian evolutionary psychologist of religion". To repeat, the complexity of religious systems suggests that no researcher, or research group, should hope for a comprehensive theory.

## *Lessons*

Despite his many limitations, Freud understood the relevance of religious cognition to political economy: "We have slipped unawares out of the economic field into the field of psychology" ([1927] 1962: 10). The relevance of psychology to political economy has recently gained the attention of elite economists and political scientists (see Ostrom 2005). However, religion's role in sustaining political economies remains largely unknown (though see Wilson *et al.* 2009).

Second, Freud understood that cultural systems interact with intricate, tacit psychological systems to coordinate social interactions: "Every child presents this process of transformation to us: only by that means does it become a moral and social being. Such a strengthening of the superego is a most precious cultural asset in the psychological field" ([1927] 1962: 11). Freud recognized that cultural systems form part of the intricate psychological matrices that support civilization. His interest in the cultural underpinnings of religious cognition remains arguably more sophisticated than many contemporary treatments (for similar criticisms of current approaches see Geertz & Markusson 2010).

Third, Freud understood that religious illusions cannot function as ordinary empirical beliefs. Nor can they present as ordinary neuroses. The integration of religious commitments to social goals, on the one hand, and their encapsulation from damaging psychopathological behaviours, on the other, creates "a very remarkable psychological problem" ([1927] 1962: 27). Naturalists do not yet understand how such problems can be solved because they have largely failed to notice them.

There is, finally, a general lesson from the foregoing discussion. Evolutionary psychologists of religion, I think, may benefit from reading literary geniuses, Freud and others.[4] While there can be no substitute for experimentation when evaluating hypotheses, naturalists should not be too satisfied with the models that inspire current investigations. If we do not attempt to vigorously improve our models, by every means at our disposal, on what page of history will future naturalists place us? Anyone interested in scientific truth would be wise to read good fictions, carefully, for their authors notice facts that easily escape less discerning eyes.[5]

### Notes

1. Elsewhere, I have argued that the most fundamental problems of cooperation in large societies turn on social predictive uncertainty rather than on cheating or "free-riding" (Bulbulia 2011). Where cooperation requires the confidence of many partners, factors must be in place that suppress doubt, in synchrony, at the level of an exchanging population.

2. William James expresses a similar thought about the inevitability of a bad ending: "For naturalism … mankind is in a position similar to that of a set of people living on a frozen lake, surrounded by cliffs over which there is no escape, yet knowing that little by little the ice is melting, and the inevitable day drawing near when the last film of it will disappear, and to be drowned ignominiously will be the human creature's portion. The merrier the skating, the warmer and more sparkling the sun by day, and the ruddier the bonfires at night, the more poignant the sadness with which one must take in the meaning of the total situation" (James [1908] 2008: 425–6).
3. George Orwell, another literary genius from whom naturalists have much to learn, called the solution to this cognitive problem "doublethink": "Doublethink means the power of holding two contradictory beliefs in one's mind simultaneously, and accepting both of them… The process has to be conscious, or it would not be carried out with sufficient precision, but it also has to be unconscious, or it would bring with it a feeling of falsity and hence of guilt … the essential act of the Party is to use conscious deception while retaining the firmness of purpose that goes with complete honesty" (Orwell 1948).
4. For example, William James and George Orwell, cited above, are among the most insightful observers of religious cognition and cultures, broadly conceived. I shall not defend this judgement here.
5. Thanks to the Religion Cognition and Culture research unit (RCC), CFIN, and MindLab at Aarhus University, as well as to Victoria University URF grant: 85856, institutions which variously supported research for this chapter.

# 9

# Piaget on moral judgement

## Towards a reconciliation with nativist and sociocultural approaches

Gordon Ingram

In undertaking a comprehensive scientific study of religion, as in the comprehensive study of any area of life, it is essential to include a developmental perspective. We cannot really comprehend an individual's present beliefs without knowing the past that has brought them into being. The study of religious cognition therefore demands a consideration of cognitive development. And no figure has had more influence on the study of cognitive development than Jean Piaget (1896–1980), the founder of constructivism, author or editor of over eighty books and over 500 articles and reports, and by his own admission, "the most criticized author in the history of psychology" (quoted by Smith 1996: vi). Despite his enormous contributions to child psychology, Piaget was not primarily interested in children for their own sake, but rather in what the study of children's minds could reveal about how adult cognition comes into being. He commented that "after having tried to describe the child's mentality as distinct from the adult's we have found ourselves obliged to include it in our descriptions of the adult mind in so far as the adult still remains a child" (Piaget 1932: 77). In Piaget's view, similar cognitive processes are found in both adults and children; yet qualitative differences in cognition arise because certain processes predominate in adults and others in children.

In what ways are Piaget's ideas relevant for the cognitive science of religion? Answering this question is made more difficult by the fact that Piaget did not focus directly on religion as a core topic in his mature writings, although he did make numerous passing allusions to it (particularly in his very early work, *Recherche*; see Vidal 1994; Vonèche 1996). Rather than attempting to gather and analyse all these allusions, which would be a gargantuan task, given the size of Piaget's output (as already mentioned in the previous paragraph), I will focus in this chapter on one of his most important works, *The Moral Judgment*

*of the Child*. I will show how his ideas on morality, as set out in that book, are both validated and extended by modern cognitive science; and how they can be used to enrich our understanding of religious thought and behaviour. I will use my own work on children's reporting of peers' behaviour as an illustration to show how the Piagetian approach to morality might be updated. I will then describe several other studies in less detail to show how a broadly Piagetian perspective has been applied to the scientific study of various aspects of the development of religious cognition.

## Contributions and deficiencies of Piaget's approach

In this chapter I will highlight two of the most far-reaching contributions that Piaget made to psychology. The first of these is the idea that children develop psychological competence through their own exploration of the world, an idea which led to a whole school of developmental psychology known as constructivism. The constructivist theory is based around the two learning processes of assimilation and accommodation. Both of these processes are aimed at maintaining an organism's equilibrium: assimilation through treating a novel situation and the results of an action scheme appropriate to that situation, as similar to an already-experienced situation and results; and accommodation through altering the action scheme to cope with differences in a situation, as reflected in unexpected results of the action (von Glasersfeld 1996; Wadsworth 1996). Due to his reliance on the general learning processes of assimilation and accommodation, Piaget has sometimes been criticized as a believer in a "blank slate" picture of human nature (cf. Pinker 2002). As one might expect from the fact that he initially trained as a biologist and was deeply interested in human instincts (von Glasersfeld 1996; Vidal 1994), this is unwarranted, and Piaget often wrote about the importance of considering human behaviour in the context of evolution. However, he was no adaptationist, sometimes verging on a rather teleological view of evolution as tending towards some ultimate equilibrium, and his evolutionary sympathies have been strangely omitted from many mainstream psychology textbooks (Genovese 2003).

In fact, Piaget tended to downplay the importance of cultural and historical factors (H. Gardner 2008). This brings us to his second main contribution: the idea that children pass through well-defined, universal psychological stages, with the cognitive abilities characteristic of higher stages not being available to children at lower stages, regardless of how much training they may undergo. Although he was not the first to advocate this kind of maturationist picture of human development, Piaget formalized and systematized the stages that children go through in a particularly useful way, proceeding from the sensori-motor stage, through the pre-operational and concrete-operational

stages, to the stage of formal operations (Wadsworth 1996). He took a sophisticated approach in which subsequent stages are seen not merely as replacing previous stages, but as arising partly in elaboration of them and partly in opposition to them, through processes of assimilation and accommodation respectively. (This point is very important to bear in mind when evaluating nativist criticisms of Piaget [e.g. Kelemen 1999a; Krebs 2005], which often assume that stages are supposed to replace one another completely; see Karmiloff-Smith [1992] for a much more informed critique.) Another sophisticated element is that the same kind of cognitive conflict, leading to the same kind of developmental changes, can take place in different psychological areas at different times.

Although present-day developmental psychologists have realized that stages do not always succeed each other in the rigid order that Piaget believed in (certain stages may be omitted or transposed; see H. Gardner 2008), his stage theory has been hugely useful in framing a debate and providing testable hypotheses. Most importantly, as von Glasersfeld (1996) has pointed out, it reminds us that children do not acquire knowledge or skills wholesale, but must reconcile them with existing systems of relating to the world. This applies to all areas of children's learning, including religious beliefs.

In order to assess the potential contributions of Piagetian theory to the cognitive science of religion, it is necessary of course also to consider its deficiencies, which have been well documented by developmental psychologists ever since the cognitive revolution of the 1960s (see Pinker 2002). The first main deficiency that I will consider in this chapter is Piaget's failure to realize how much of behaviour is innately guided (Genovese 2003), and his concomitant failure to perceive how much competence infants really have (H. Gardner 2008; Karmiloff-Smith 1992). Although Piaget was deeply interested in human instincts (von Glasersfeld 1996), he regarded the genetic contribution to human behaviour as essentially limited to a few reflexes in newborn babies (most notably the sucking reflex), which disappear within the first few months when they no longer produce evolutionarily desirable effects, and the general learning processes of assimilation and accommodation. Perhaps we should not judge him too harshly for this: as with the palaeoanthropological evidence, in his day there was little evidence of the striking competences that we now know infants to possess, in both the physical and social domains. In the last three decades, however, a wealth of studies using new techniques of eye-tracking and sucking-intensity measurement have revealed that from very early in life, infants have certain fixed expectations about how the world works.

One of the first and most famous studies to challenge the traditional Piagetian view of infant capabilities was Baillargeon *et al.*'s (1985) investigation of the awareness of object permanence in infants. Piaget (1954) had

argued that it was not until the age of about nine months that babies realize that an object continues to exist even when they cannot see it. This was based on the observation that younger infants fail to reach for a desirable object (e.g. a ball) when it disappears behind an obstruction (e.g. a table). But by analysing looking times, Baillargeon and colleagues showed that even five-month-olds are surprised when an obstruction is removed and the object that had disappeared behind it is no longer visible. Hence, even at this young age, infants seem disposed to carve the world up into objects which persist through time more or less indefinitely, rather than suddenly vanishing into thin air (for reviews of some of the many classic studies in this area, see Karmiloff-Smith 1992: ch. 3; Gopnik *et al.* 1999: ch. 3).

Nor are young children's expectations about the world confined to the domain of naive physics; they also seem to distinguish very early between the social world and the material world. For example, Woodward (1998) showed that by six months, infants distinguish between goal-directed action by a human arm and the aimless movement of inanimate objects, expecting the former to continue reaching for the same object but the latter to continue following a fixed path (for a review of the developmental evidence that humans are predisposed to treat animate and inanimate entities very differently, see Bloom 2004). Of course, it could be argued that these studies merely extend backwards the ages at which particular competences first appear in the infant, rather than presenting a truly nativist alternative. However, there is also evidence that certain cognitive structures, over and above mere reflexes, are present in newborn infants. Female neonates, for instance, seem more disposed than males to attend to human faces (Connellan *et al.* 2000). While Piaget did attend to basic sex differences in his research (discussing for example the differences between boys' and girls' games in middle childhood; Piaget 1932: 69–76) there is nothing in his theory of general learning processes which takes into account the differing attentional biases of girls and boys.

The second great weakness of Piagetian theory is its lack of attention to the social dimension of knowledge. In recent years this has led to the effective replacement of constructivism by social constructivism (deriving from the writings of Piaget's exact contemporary, Lev Vygotsky [1978]) as the dominant paradigm within educational research. In fact, in the course of this paradigm shift the asocial character of Piaget's ideas has been greatly overplayed in superficial readings of his work. As Kitchener (1991) has shown, Piaget was explicitly concerned with social interactions, and saw his work as laying the foundations for a relational approach to sociology which could provide a kind of middle way between Durkheim's holistic, top-down vision of society and Tarde's bottom-up view that society is nothing more than the sum of its individuals (Kitchener 1991). The social dimension to Piaget's work will be made clear in the next section, when I explore his account of how moral

judgement develops first from interactions between children and adults, and then from interactions between children and peers: the "environment" for the construction of moral reasoning is, of course, entirely social. The reason for Piaget's slight fall from grace as developmental psychology and education have rediscovered the social is that his focus on the development of an idealized "epistemic subject" (see Finn 1997; D. Kuhn 1997), rather than on children as individuals, ignores the huge cultural differences in the kinds of knowledge and styles of thinking that children acquire. The cultural-historical approach of Vygotsky provided an important corrective for that omission, and one that had strong resonances in the 1980s and 1990s, as increasing globalization made cultural differences ever more noticeable.

Given the two deficiencies in Piagetian theory outlined above, the question is how to overcome them in a way that will help to integrate constructivism with cognitive science. Some progress has already been made in reconciling recent experimental results in early infant cognition with Piaget's ideas. In particular, Karmiloff-Smith (1992) has introduced the concept of "representational redescription" to help explain how early practical competence in various domains, deriving from innate biases, can be combined with learning to produce new levels of understanding in cognitive development (corresponding loosely to Piagetian stages). In this context it is important also to remember that just because competence in a certain domain has been demonstrated at an earlier age than Piaget believed it to appear, it does not mean that this competence is innate, in the sense that it would inevitably appear in the child irrespective of the environment. In a helpful review, Rakison (2005) has done a good job of teasing apart the relative contributions of nature and nurture in various areas of development, arguing that truly innate features of infant psychology are limited to very specific domains, such as the avoidance of snakes, spiders and steep drops, whereas the building-up of high-level conceptual knowledge about objects and agents arises from months of experience with different kinds of entities. Even in the former case, as he makes clear, the innate contribution seems to be to tell the infant what to pay attention to; the infant must then rely on social learning to decide whether to approach or avoid the object of heightened attention.

This conceptualization of infant learning suggests two ways of dealing with the deficiencies in Piagetian theory as outlined above. The first deficiency, the lack of emphasis on the innate component of children's cognition, can be corrected by investigating the links between attention, emotion and executive functioning. The second deficiency, the lack of emphasis on the cultural dimension of children's cognition, can be corrected by investigating the dynamic between individual learning and social learning. I will sketch out some examples of how this might be done in the succeeding sections on moral judgement, telling tales and religion.

## Piaget on moral judgement

In this section I will provide a brief illustration of Piaget's general theoretical approach, with reference to his theory of moral development, as set out in his classic book, *The Moral Judgment of the Child*. The reasons for using this work as an illustrative study in this chapter (which is, after all, supposed to be about religion, not morality) are twofold. First, Piaget himself never dealt with the problem of religious development at length (Elkind 1970), aside from a couple of early papers which propounded the idea, apparently linked to a teenage crisis in his own faith (see Vidal 1994), that belief in an immanent God reflected a more advanced stage of religious thinking than belief in a transcendent God (Piaget 1923, 1930; cited by Elkind 1970). Second, it is important when discussing the cognitive bases of religion not to dwell too much on the supposed metaphysical errors of religious theories (e.g. most famously, Dawkins 2007; but see also Boyer 2001) while ignoring the central importance of following moral rules in religions the world over. Certainly religions like Buddhism, Hinduism and even Judaism and Islam are much more concerned with prescribing and proscribing certain courses of action for their adherents than with explaining how the world got to be how it is (the fundamentalist Protestant obsession with evolution seems to be quite anomalous in this regard). Explicating the development of moral reasoning thus seems critical for explaining how religion influences human behaviour.

Of course, religious adherents tend to see moral rules as a given, endowed with supernatural force. In *The Moral Judgment of the Child*, Piaget took a very different approach, attempting to show that children's mature moral sense develops naturally out of their interaction with others. The first chapter is a naturalistic study of children's street games, focusing on boys' games of marbles. He observed that young children start off with an unquestioning, almost reverent respect for all rules, just because they are rules. In the second chapter Piaget elaborated his theoretical account of this stage of development, which he called the stage of heteronomic moral judgment, arguing that it reflects the youngest children's absolute dependence on, and therefore deference to, adult authority. But as children engage in repeated interactions and disputes with other children who have different interpretations of the rules, they gradually become more proficient at making and adapting their own rules. This is the stage of autonomic moral judgment (described in the third chapter of the book) and reflects the increasing importance of peer relations relative to dependence on adults as children grow older. Crucial to this account is the notion of a maturing sense of justice or fairness, which is supposed to come spontaneously to predominate in children as they grow to respect the intrinsic rights and responsibilities of other autonomous moral agents.

Piaget did not support his argument with evidence from his study of street games alone: he also presented the results of several fascinating experiments (which in some ways were more like series of semi-structured clinical interviews) testing children's views on subjects such as lying, telling tales and immanent justice. For instance, young children might know that lies are wrong, but not be able to say why beyond stating that they are "naughty words". A ten-year-old child, on the other hand, would typically be able to explain that lies are wrong because they are untrue and likely to mislead other people. The fourth and final chapter of the book is a kind of brief coda contrasting Piaget's work with the sociological theories of Durkheim and Fauconnet, who had argued that individuals simply derive their norms from the societies in which they live: in overemphasizing this kind of "unilateral respect", Piaget claimed, these authors ignored the kind of processes that he had observed in which new norms are actively constructed by children (and perhaps even more so by adults).

This brief synopsis of *The Moral Judgment of the Child*, while necessarily failing to capture the subtlety and range of Piaget's arguments, nevertheless illustrates the main distinctive features and deficiencies of his approach, as set out in the previous section. The first and most important point to note is that children do not acquire moral competence by some kind of mechanical transmission process from mature members of their community, whether this process be direct instruction or a more osmotic sort of transmission. Rather, they construct their own moral awareness through the sense they make of their interactions with the world. The same general kind of process, Piaget believed, is responsible for children's learning about the physical world (see Piaget 1954). But in the case of moral learning, the relevant interactions are with the *social* world: that is, with other individuals who are also learning, or have already learned, to be autonomous moral agents. Still, the fundamental processes involved (assimilation of new interactions to a previous situation in which a certain moral rule was applied, combined with accommodation of behaviour to new realities when the old rule does not produce the desired result) are the same.

The second distinctive feature is the development of moral competence through the discrete stages of heteronomic and autonomic reasoning, rather than by gradual accumulation. This means that a child whose reasoning is at a "lower" or less mature stage cannot be expected to learn suddenly to reason about a particular situation in an autonomous way, without having made the required cognitive breakthrough. It is also noteworthy that the driving force behind these successive stages, according to Piaget, is the child's transition from a dependence on adult authority to attaching a greater weight to peer relationships. Putting this into an evolutionary framework, we might speculate that this reflects the passing of an ontogenetic adaptation (Bjorklund &

Pellegrini 2002) by which it is advantageous for children to follow adults' lead when they are young and helpless, but later on it becomes more important for them to develop their own support networks with peers (see Krebs 2005).

Piaget's account of moral development also exemplifies the distinctive deficiencies of his approach. First, he assumes only a minimal innate contribution to behaviour. The child is thought to have the potential for both heteronomic and autonomic forms of reasoning (the former founded on unilateral respect and the latter on mutual respect) with the latter predominating early in life, due to the child's awe of the overwhelming authority of the adult. This idea was elaborated by Kohlberg (e.g. 1981) into a series of stages of moral development, the first stage being undifferentiated respect for authority and the second stage the appearance of norms of strict equality (the main difference being that Kohlberg added two to four further stages that developed later). In partial opposition to this Piagetian–Kohlbergian framework, Turiel (1983) presented the results of experimental studies suggesting that many children have attitudes towards norm violations that fall into two basic clusters. Some violations, such as physically assaulting a classmate, are seen as more serious, universal and independent of the pronouncements of authority figures. These are taken to be moral violations. Others, such as chewing gum in class, are seen as less serious, not generalizable to all cultures or situations and revocable by someone in authority. These are taken to be conventional violations. A common feature shared by many of the former cluster (the moral violations) is that they seem to involve some sort of *harm* that is done to a victim. The notion that humans might be innately sensitive to certain kinds of harm done to themselves or other individuals, and more likely to reason about them morally, thus represents one way in which Piaget's theory could be refined and extended by modern cognitive research.

The other main weakness in Piaget's exposition is the lack of sociocultural context. Even though he analyses how children construct their moral sense through their engagement with other autonomous social agents, the focus is still on an abstraction, the epistemic subject. The picture is an idealized one, of mutual respect winning out over unilateral respect as children recognize one another's capacity to invent and alter rules. Yet Piaget was studying children from a cultural background (Switzerland) in which there was a strong ideology of free and equal citizenship. As Haidt and Joseph (2004) have argued, this Western liberal tradition is far from universal, yet it has had a strong influence on Western theories of morality, which tend to view the moral domain as being principally concerned with issues of harm and fairness. They have suggested that in most societies (and even among Western conservatives), issues of sanctity, respect for authority and group loyalty are also central to moral thinking. It seems hard to accommodate these issues with Piaget's theory of the development of autonomic moral judgement, which

is overwhelmingly concerned with issues of fairness. Perhaps they represent survivals into adulthood of heteronomic forms of reasoning, in which unquestioning respect for rules predominates. Piaget never argued (though it is a common mistake to impute the claim to him) that the heteronomic style of reasoning is completely replaced by the autonomic style: even in the most egalitarian cultures, we can see appeals to the moral force of tradition, or at least an emotional attachment to it. But, perhaps motivated by a desire to demonstrate the superiority of his own egalitarian value system (Vidal 1994), Piaget downplayed these heteronomic elements in moral psychology, and provided little scope for analysing how their strength, relative to the autonomic elements, might vary according to adults' cultural backgrounds.

How can the findings of modern cognitive science help to resolve these deficiencies in Piaget's thinking about moral psychology? One helpful way forward is to use Shaun Nichols's (2004) model of "sentimental rules". Nichols has developed and extended the moral/conventional distinction made by Turiel (1983) and his co-workers, arguing that the central cluster of findings in Turiel's experiments provide powerful evidence for the emotional foundation of children's (and ultimately adults') moral judgements. However, like Haidt and Joseph (2004), he has suggested that other strong feelings apart from harm, notably disgust, may motivate moral or quasi-moral rules. According to Nichols's model:

> Core moral judgment implicates both an affective mechanism and an internally represented set of rules, a normative theory. The normative theory and the affective system are independent mechanisms, but they somehow conspire to produce the distinctive responses tapped by the moral/conventional task. Affective response infuses the harm norms with a special nonconventional status, and this status seems to be shared by other Sentimental Rules, like norms prohibiting disgusting behaviour.
>
> (Nichols 2004: 29)

Compared with Piaget's theory of heteronomic reactions to adult rules, the main point here is that not all rules have the same status for children. Because of their special appeal to relatively standardized affective reactions, certain rules are deemed more serious and immutable. Whatever theologians may claim, some transgressions (e.g. disrespecting one's parents, or taking God's name in vain) are everywhere seen as more permissible than others (e.g. killing or stealing).

With regard to the other main deficiency of Piaget's theory, the lack of a cultural dimension, it might seem that this could be remedied by simply analysing cultural variation in the particular normative theories that are acquired

by children. In fact, however, cultural variation at once runs deeper than that and yet does not determine entirely, or arbitrarily, the content of normative theories. Recall that according to Rakison (2005), the main function of innate biases is to direct children's attention and arousal: they tend to learn more complex emotional responses from adults and peers. The emotional responses that children learn will therefore vary greatly according to the social/cultural context. But at the same time, the importance of Piaget's perspective is to point out how normative theories are actively constructed by children, rather than simply acquired wholesale from adults. Therefore, the vague elision of Nichols's "somehow conspire" in the quotation above could perhaps be filled in by appealing to Piagetian general learning processes of assimilation and accommodation: when do children treat a situation as similar to a previously experienced situation, and when do they try to adapt and suppress their affective responses? But it is probably impossible to answer these questions using a model of individual learning alone; proper answers require a truly scientific model of social learning in humans (which is a focus of several major research projects at the moment; e.g. Rendell *et al.* 2010).

## Telling tales

A specific example of Piaget's studies on moral judgement, and the relationship of his work to modern studies, will clarify the strengths and weaknesses of his approach. Piaget was deeply interested in a natural phenomenon of children's everyday speech which has otherwise escaped systematic study until recently: their propensity to *tell tales*, or *tattle*, that is, to report to adults on the negative aspects of other children's behaviour. His interest in tale-telling sprang from his belief that by analysing this behaviour, he could track the emergence of a kind of solidarity between children against adult authority which correlates with the transition from heteronomic to autonomic moral reasoning:

> This analysis will enable us to determine at what age solidarity begins to be efficacious. And we shall find that it is precisely after this age that the equalitarian notion of justice begins to assert itself with sufficient strength to overcome the authority of the adult.
>
> (Piaget 1932: 196)

The principal evidence that Piaget used to determine the age at which peer solidarity renders tale-telling unacceptable derived from a vignette study. Six-to-ten-year-old children were told a story about a father with two sons, one good and one silly. The father went away on a long journey, and on his return asked the good son to tell him about anything naughty that the other son

had done. The participants were then asked what the good son ought to do. Younger children tended to say that he should obey his father and report on his brother's actions, whereas older children were more likely to say that he should not, as it would lead to the brother being punished.

The case study of telling tales illustrates both the distinctive contributions of Piaget's theory of moral development and its deficiencies. Piaget understood judgements of tale-telling to be formed differently in successive stages. At first, the child's heteronomic identification with adult authority leads her to judge the reporting of a sibling's misbehaviour as a positive move. Later, sympathy with peers takes precedence, and reporting on them is judged as an act of betrayal. The precise mode of transition between these two stages is left unspecified by Piaget with regard to telling tales, but in the context of his emphasis on individual constructionist learning, one can imagine that it results from accommodation to others' negative reactions when ego reports on them, and from assimilation of ego's own negative reactions to being reported on. But Piaget's account suffers from a lack of consideration both of the innate biases that create the propensity to report other people's transgressions in the first place, and of the sociocultural context that affects how these biases are translated into behaviour. In the next two paragraphs I will summarize the results of two recent studies of tale-telling which can help to remedy these deficiencies.

An experimental study by Chiu Loke *et al.* (2010) has extended Piaget's findings on the moral acceptability of telling tales, by showing that children distinguish between tattling on major and minor transgressions, seeing the former as appropriate but the latter as inappropriate. Using a very similar methodology to Piaget in the study described above, Chiu Loke and her colleagues presented children with a series of vignettes about classroom incidents, and then asked them to evaluate the actions (including stating whether they would do the same) of an observer child who either told or did not tell the teacher what had happened. They found that younger children (six- and seven-year-olds) advocated telling the teacher for both major transgressions (e.g. putting worms in someone's shoes) and minor transgressions (e.g. not eating one's vegetables at lunch), whereas older children (eight-, nine-, ten- and eleven-year-olds) thought that one should tell only on the major transgressions. The results of this experiment therefore mirrored Piaget's results on tale-telling, but added a new dimension of the seriousness of the transgression. Introducing this dimension is a similar move to that made by Turiel in drawing a distinction between moral and conventional violations. Indeed, Nucci and Turiel (1978) found in an observational study that preschool children were more likely to protest about moral transgressions than conventional transgressions. The difference in meta-judgements of the morality of tattling, however, is one that is not present from the beginning, but seems to

be learned by children around the age of seven to eight, perhaps by observing the responses of adults to reports of serious and minor transgressions.

The work of Chiu Loke *et al.* (2010) shows that Piaget overlooked an important dimension to children's tale-telling behaviour: the distinction between major and minor transgressions. Another point which he did not discuss directly was children's propensity to report others' transgressions in the first place. In my own observational research on preschool children's tattling (Ingram & Bering 2010), I found that reports of negative behaviour made up over 90 per cent of three-to-four-year-old children's discussion of peers' behaviour. This bias is not confined to the preschool: in another observational study, den Bak and Ross (1996) found that tattling on negative actions made up about 70 per cent of four-year-olds' reports, and 87 per cent of two-year-olds' reports of siblings' behaviour. What is the source of this bias? A simple hypothesis might be that children are more likely to report negative behaviour because they find it more attention-grabbing. This is a possibility; but my own micro-ethnographic research into the context and motivation of young children's tale-telling (Ingram 2009: ch. 4) indicated that it is under a high degree of strategic control. I found that, generally, preschool children report behaviour to adults when it is a problem to them: it is only as they grow older that they become aware of the reputational implications of commenting on peers' behaviour. In broad terms, this model is in alignment with Piaget's account of the transition from heteronomous to autonomous morality; but where it differs from Piaget's account is in emphasizing that the disposition to report negative behaviour by peers is innate, rather than being shaped by an environment of adult responses.

Support for this claim comes from the analysis of episodes of telling tales in the Wells corpus (available online as part of the CHILDES database of children's language transcripts). This material was collected in the mid-1970s by Gordon Wells (1981) as part of the Bristol Study of Language Development, a highly naturalistic observational study (using voice-activated recorders) of how children learn to talk, covering the entire period from infancy to primary school. Audiences (almost always parents) in the Wells transcripts hardly ever responded very positively to children's reports of negative behaviour. They supported tell-tales in only two out of thirty-nine cases, and frequently ignored them (in around 40 per cent of cases). This may reflect a cultural change for parents to be more responsive to telling tales, since Wells's (1981) data were recorded in the 1970s, whereas den Bak and Ross's (1996) were recorded in the 1990s. Whatever the reason for the difference, it is interesting that children in the Wells sample were still tattling quite frequently, even though they were not often getting much of a response from their adult audience. Telling tales, as sharing information about negative actions on the part of others, thus seems unlikely to reflect mere social conditioning based on positive adult responses.

This analysis thus illustrates how telling tales seems to be shaped by an inbuilt bias to focus on the negative things that peers (that is, potential competitors) have done, a bias that Piaget ignored in his discussion of the phenomenon. The same Wells dataset also illuminates another weakness of classical Piagetian theory: a lack of attention to the sociocultural context. Not only did parental responses to talebearing differ between the 1970s and 1990s, but there was a more basic social dimension to the behaviour itself, in terms of the difference between discourse about siblings and peers and discourse about parents and other adults. Only 46 per cent of reports about all categories of people were negative, compared to 61 per cent of reports about peers or siblings; and a chi-squared test demonstrated that children were significantly more likely to make negative remarks about other children than about adults ($\chi^2 = 5.20$, $p = .032$, $N = 83$). What this shows is that from an early age, children differentiate in their speech about adults as compared to other children. The social context shapes what they say not simply by providing different kinds of feedback, as in Piaget's theory, but by affecting at a deeper level the kinds of information that they are trying to share. The driving force behind all this, in evolutionary terms, is likely to be that children are ultimately in competition with other children for resources, but tend to behave much more cooperatively with adults in a bid to get them to share their resources.

Given that children's discourse about third parties is sensitive to differences in the relationships that they have with these individuals (the competitive relationship with peers versus the dependent relationship with adults), it follows that differences in the caregiving patterns of different societies (whether children grow up in closer contact with adults or with peers) are likely to have profound effects on the development of this kind of discourse, and of many other aspects of moral cognition. This is in fact a logical consequence of Piaget's claim that moral judgement develops through interactions with other social agents; but it remains rather under-theorized in *The Moral Judgment of the Child*. Indeed, there is hardly a wealth of theoretical models in the area of cultural differences in moral development (but see Wellman & Miller 2006 for an exception). Replicating in non-Western cultural contexts the results of experiments such as that of Chiu Loke *et al.* (2010), or of observational studies such as that of Ingram and Bering (2010), would be an important early step in formulating such models.

For now, though, the only real hints as to how differences in peer reporting play out in different cultures is provided by an exploratory study that I carried out (Ingram 2009) into instances of tattling and gossip in a major ethnographic database, the Human Relations Area Files (HRAF). I reasoned that since tattling and gossip both involve the discussion of peers' activities, and since gossip (in the sense of *covert* discussion of *absent* peers' activities)

is almost unheard of among young children (Engel & Li 2004), looking at differences in adults' responses to tattling in various societies might provide insight into cultural variation in patterns of gossip. In fact, systematically testing this idea proved to be impossible, because very few ethnographic reports contain any reference to children's tale-telling. However, very many ethnographic reports contain references to adults' gossip, and from my exploratory survey I was able to make two observations of relevance to the present argument.

First, in very small-scale societies, such as !Kung hunter-gatherers (Draper 1976), covert negative gossip is quite rare: it is much more common for people to be criticized to their faces. Similarly, certain Middle American societies conduct semi-formalized ceremonies in which grievances can be aired in front of the whole band. One might speculate that the small size of such societies, combined with the collective nature of their child-rearing practices (Draper 1976), means that children never reach a stage where they identify with their peer group against the adult cohort. Second, many more settled African societies, such as the Ashanti (Rattray 1929) or the Dogon (van Beek & Walter 1994), also implement strong social norms against negative gossip, which often extend to children's tattling as well (as with the case of a young Ashanti child who was beaten for revealing the petty deceit of his father to the latter's friends: Rattray 1929). In these latter cases, the need to punish negative gossipers (rather than it being something that just isn't done, as in smaller-scale societies) may reflect the patterns of strong cohort and lineage identification in many agricultural African societies. Tentative though these findings may be, they provide a hint at how to explain the changing patterns of adult responses to tattling discussed earlier with respect to Anglo-American society. We may be moving from a culture based on large peer groups, where identification with the cohort is key, to one based on smaller-scale (albeit more dispersed) networks, where information is shared more openly.

Piaget thought that children's views on telling tales were interesting because they served as an indicator of the transition from heteronomic to autonomic morality. The evidence reviewed in this section suggests that this picture discounts the importance of cultural factors that affect children's discourse about others' activities. First, older children believe that telling tales is wrong only about minor transgressions (Chiu Loke *et al.* 2010), but what counts as a minor or a more serious transgression is likely to be highly culturally variable. Second, in small-scale forager societies, criticism of other people may remain very public, such that norms against telling tales are not developed, yet this does not mean that children in these societies do not make the transition from heteronomy to autonomy. Rather than proscriptions against talebearing being a simple consequence of this transition, perhaps both the proscription and the transition are caused by children moving from a social environment of

dependency on adults to a social environment of alliances (and competition) with peers (cf. Krebs 2005). This latter environment would differ according to cultural context, such that in some small-scale, egalitarian contexts, competition between social factions would be minimized and it would not be necessary for children to inhibit the reporting of peers' negative behavior, but they would still develop the autonomous capacity to create their own social rules in collaboration with other agents. Such a model could also help to remedy the other main gap in Piagetian theory, the absence of innate biases, by postulating that dispositions to report on normative transgressions by peers, and to distinguish between serious and not-so-serious transgressions, are everywhere adaptive and are part of the universal human repertoire, with the details of how this reporting is handled, and the specific content of the transgressions, to be filled in by experience. Absorption of experience is not unstructured, however, but is deeply affected by social learning biases and an innate tendency to pick up on others' emotional displays (or lack of them).

## Piagetian thinking applied to religion

Finally, I would like to briefly sketch some ideas on how Piaget's ideas could fruitfully contribute to theoretical models in the cognitive science of religion. But first, I will show how certain elements of a Piagetian approach (via its wide-ranging influence on the field of cognitive development) have already been applied by various writers in this area. Of Piaget's two great theoretical contributions to developmental psychology (the idea that development happens in stages and the idea that development results from the individual's exploration of the world), the stage theory has had much more influence on cognitive scientists of religion. Methodologically, the stage theory lends itself well to cognitive experimental research, since any empirical difference observed between two age-groups in the laboratory can easily be attributed to the operation of successive stages of cognitive development. One example is Deborah Kelemen's (1999a) theory of promiscuous teleology, which asserts that young children are predisposed to view all aspects of the world (not just artefacts or even biological features) as designed for some purpose. For instance, when asked why some rocks are pointy, seven- and eight-year-olds were more likely to say that it is so animals do not sit on them and squash them, than that it is because little bits of stuff piled up over time. The concept of a stage transition is relevant here because Western-educated adults tend to restrict teleological reasoning to the artefactual and biological domains. In fact, Kelemen explicitly argued that:

> In contrast to Piaget, PT [promiscuous teleology] does not view the teleological construal as indicative of an immature stage of thought

> from which sophisticated thinkers emerge. Instead, it argues that a tendency to generate intention-based teleological explanations is a fundamental human propensity – one that remains as a default strategy throughout development, even in individuals who have elaborated alternative ways of accounting for phenomena.
>
> (1999a: 466)

But this assertion is based on a misrepresentation of Piaget's views, because as I showed in the first paragraph of this article, Piaget actually believed that the cognitive processes characteristic of children are retained to some degree in adult cognition. The stages of promiscuous teleology are thus not out of keeping with the sorts of stages that Piaget proposed.

Other influential theories in the cognitive science of religion have relied on the concept of a qualitative stage transition in children's development, which then remains below the surface of adult cognition. For example, Bering and Bjorklund (2004) suggested that children start off with the intuitive conception that psychological processes continue after death, but biological processes do not. Older children may learn "theologically correct" beliefs about either physical resurrection or the total extinction of self, depending on their cultural background; but their initial "intuitive dualism" (cf. Bloom 2004) remains below the surface, and is accessed when under stress or at other times when speedy, automatic processing is demanded. Barrett and Keil (1996) took a similar strategy, arguing that people initially apply intuitive agent schemas, designed for use with other human beings, to supernatural agents, which may then be overlaid with theologically correct beliefs about omnipotence, omniscience and omnipresence. Again, the notion of developmental stages in these areas is not incompatible with the idea that the cognitive processes typical of earlier stages can continue to be important in adulthood. Successive stages are overlaid on preceding stages, rather than replacing them completely; but what remain under-theorized are the kinds of cultural contexts in which each stage of cognitive processing is evoked, along with the reasons why different stages of processing are adaptive in different contexts.

Piaget's other main contribution to developmental psychology, the notion that development results from individuals' exploration of the world, has been less influential on the cognitive science of religion. Yet I believe that this idea, too, is potentially of great value to the field, as long as we are careful to remedy the two main deficiencies in Piagetian thinking by accounting for both the innate cognitive biases that constrain children's early development and the enormous diversity of cultural forms into which their later development is channelled. Happily, these are both areas in which the cognitive psychologists and anthropologists working in this field have typically been very strong. But where I think Piaget's emphasis on individual learning can help is by offering

a clearer definition of one of the key concepts in CSR, in which the theories outlined in the previous two paragraphs all rely: the idea of intuitive belief. While the notion of intuitiveness is not often (if ever) claimed by theorists in this area to be formally equivalent to the notion of innateness, too often the two concepts are elided, and this confuses the issue of how and why intuitive beliefs are developed. I would like to see a framework constructed in which what are innate are not beliefs *per se*, but rather dispositions to attend to and analyse behaviour in particular ways. The nature of these dispositions would then constrain the kinds of beliefs that children are likely to develop, but the beliefs themselves would be purely cultural in form, and would result from children attempting to put into words, through processes of assimilation and accommodation, their explanations for phenomena which they do not immediately understand. In this process, the social environment (most notably the responses of adults to the expressions of beliefs of various kinds) will clearly be of crucial importance. This kind of neo-Piagetian approach would have obvious applications in understanding the acquisition of religion by individual children, even though Piaget did not undertake such a task himself, and would also be compatible with recent cognitive and evolutionary theories of social learning.

# 10

# Building on William James

## The role of learning in religious experience

Tanya M. Luhrmann

The great accomplishment of *The Varieties of Religious Experience*, William James's enduring classic, was to demonstrate that people come to faith not just because they decide that the propositions are true but because they experience God directly. They feel God's presence. They hear God's voice. Their hearts flood with an incandescent joy. Moreover, these feelings and sensations are patterned. Despite the deep idiosyncracies of personality and life path, when people feel and sense the divine, they do so in ways that can be detailed like a naturalist observing the flight of birds. James set out to describe these features. It is a brilliant book. But it missed the role that spiritual training can plan in encouraging the experience.

In fact, *The Varieties of Religious Experience* deliberately downplays the role of practice. Prayer is given the most cursory of mentions. There is scant attention to spiritual discipline. The book is about what people experience, not how they get there. James gives the impression that it is these powerful experiences which come, spontaneously, out of nowhere, that become the presence of God for individuals. It is their unwilled quality, their unsought-for surprise, that is so compelling. They come as if from without, and it is the apparent authority that becomes evidence for the external presence of the divine. Here the most famous and dramatic example is the mystical experience, one of whose central characteristics is passivity.

> Although the oncoming of mystical states may be facilitated by preliminary voluntary operations, as by fixing the attention, or going through certain bodily performances, or in other ways which manuals of mysticism prescribe; yet when the characteristic sort of consciousness once has set in, the mystic feels as if his own will

> were in abeyance, and indeed sometimes as if he were grasped and held by a superior power. (James [1902] 1935: 381)

The mystical state is spontaneous; unchosen; and it is from its spontaneity that it derives it otherness and its power to compel.

Behind this emphasis on the unwilled lay a theological ambition. James wanted to infer from the experiences that were deemed religious what God was. He was right that some experiences are more likely than others to be "deemed religious", to use Ann Taves's (2009) phrase: that we do, in fact, have propensities. He treated these propensities as if they were the data from which God's nature would be known. He would go on to conclude from these propensities the true character of God and he found in them a divine that was remarkably Emersonian and Unitarian.

> The 'more' as we have called it, and the meaning of our 'union' with it, form the nucleus of our inquiry. … It would never do to place ourselves offhand at the position of a particular theology, the Christian theology, for example and proceed immediately to define the 'more' as Jehovah, and the 'union' as his imputation to us of the righteousness of Christ. That would be unfair to other religious, and, from our present standpoint at least, would be an overbelief. ([1902] 1935: 511)

The *Varieties* is thus one of the great exponents of a modernist theology. It seeks a true naturalist religion that imagines itself to be the faith established by reason and science, independent of any theology.

My goal in this essay is to suggest that if James had focused more on training, he could have seen evolved bodily capacities in the place of the divine "more".[1] That would not have advanced his theological goals, but it would have made the religious experience seem even more fundamental. In this essay, I will argue that what a focus on training can teach us is that the use of these bodily capacities (one in particular, absorption) can shape the most basic ways we encounter the world: the way we perceive and judge what is real.

Let us begin with the basics. To experience God, or to experience the divine, a person must do two things: experience what must be imagined as real, and improve upon what he or she knows from the world. This should be an uncontroversial claim, whether one accepts God as real or not. God, or the divine, is by nature immaterial, other. God must be imagined to be known, for the immaterial cannot be perceived. Moreover, for God to be God, what one knows of God must be that God is greater than the flawed world manifest to the believer. There is no faith in which human justice is not improved upon. Otherwise, God would be no more than a fiend, as Jack Miles (1995) remarks in his analysis of Job.

My argument is that this capacity, to make more real what you must imagine and to make it good, can be trained and that there is a cognitive, attentional process involved in its training that is different from the learning of words and concepts. All our ethnography and history suggests that there is learning involved in the practice of religion: in becoming possessed, in developing as a shaman, in entering contemplative states, in the simple act of prayer. Moreover, there is prima facie evidence that learning to practise might increase the likelihood of intense, powerful experience. After all, people say that they perform religious practices to have powerful experiences of God.

And yet powerful experience cannot be generated on demand even by prayer experts. People do hear God speak audibly, at times, and they seem to report these sensory experiences in all faiths. But they cannot decide to have a perceptual experience of God this Tuesday at 3pm. People have the intense experiences of transcendence James called mystical experience in every faith, as well. Scientists are busy documenting these as electrical explosions in the brain, as part of the human condition. But these dramatic movements also cannot be willed, as any serious meditator can attest, though consistent practice may make them more likely.

So what is being trained in religious practice beyond the overt content of particular words and gestures? One could do worse than begin by looking at prayer, to which James paid so little attention. (He was willing to call it the "very soul and essence of religion" [James (1902) 1935: 464], but then he said almost nothing more about it.) Three out of five Americans say that they pray every day (Gallup & Lindsay 1999: 43). What do people do when they pray?

I would like to draw to our attention that people learn to use their minds in specific, structured ways when they pray. If you put to one side the theological purpose and supernatural efficacy of prayer (e.g. that prayer is a conversation with God), prayer first and foremost changes the way the person praying uses his or her mind.

The central act of prayer is paying attention to internal experience (thoughts, images and the awareness of your body) and treating these sensations as important in themselves rather than as distractions from the real business of your life. In some sense, of course, we do this all the time. When we work through things in our mind, when we re-enact a conversation, when we daydream, we are paying attention to our inner experience. But prayer asks the person praying to treat those thoughts not as private, internal musings, but as in some sense public and externally real speech. The person praying has to learn to use the imagination to experience God as present, and then to treat what has been imagined as more than "mere" imagination. That twofold shift in attention, towards the internal as the external, is the heart of the skill in prayer.

What I would like to suggest is that the capacity being trained in prayer is that capacity to shift attention away from the everyday, and that it is the

capacity at the heart of dissociation, hypnosis and trance. I think of this capacity as the elephant encountered by six blindfolded men, each of whom approaches a different part of the beast (the trunk, the tail, the stumpy legs) and believes that in describing it he has captured the whole.

"Trance" is the name used by anthropologists to describe the behaviour associated with shamanism and possession. It is studied by observation. It is understood as an altered state of consciousness associated with the intrusion of an alien ego (possession) or the separation of ego from body (shamanism). Trance is extremely common, and found in nearly all human societies, although the form of the trance (possession or shamanism) is shaped by the social structure of the society (complex or simple). For the most part, trance is associated with religion and healing.

"Dissociation" is studied by psychiatrists as a psychiatric problem. It is identified by interview, experienced as an illness and understood to be caused by trauma.[2] In the psychiatric nosology, dissociative disorders are characterized by a disturbance or alteration in the "normally integrative" function of identity, memory or consciousness. Dissociation comes in different forms: amnesia, fugue, depersonalization and derealization, and dissociative identity disorder. All but dissociative identity disorder are found widely throughout the world.

"Hypnosis" is studied by academics and used clinically to help people stop smoking, develop confidence in stressful situations, sleep more easily and so forth. It is understood as an aroused, attentive, focal concentration with a compensatory diminution in peripheral awareness. It is identified by performance on a task. The experimenter puts the subject into a hypnotic state, and judges the depth of the state by the number of instructions the subject is able to follow. Researchers debate whether the performance really measures a trait, like suggestibility or the response to authority, rather than altered awareness.

All of these share three features. First, attention is narrowed, with a continuum that responds to learning. That is, in hypnosis, dissociation and trance, the subject's focus shifts significantly from a general ambient awareness of the everyday world to a specific, more limited awareness. The subject no longer pays attention to the body in an ordinary way. The degree of this shift can be trained, even though there may be limits to its development. (For example, most clinicians agree that someone can improve their hypnotic experience, even though there may be temperamental constraints on the depth of trance.[3]) One of the results is that the subject's sense of time often shifts as well. Time passes more slowly, or more quickly, than it does in a state of normal attention.

Second, the locus of control (one's sense of whether the cause of action is internally generated or externally imposed) moves outward. The more engaged people are, the more they feel that things happen to them: that they do not choose to imagine the mosquito buzzing in the room, but that they do in fact

experience a mosquito. They do not choose to become the Orisha; the Orisha comes and chooses to enter them. The patient finds that she has shoes in her closet she does not remember buying.

Third, and in consequence, the basic organizational structure of the self can shift. The dissociative identity disorder patient finds that some other identity has taken over in her place. She has been shoved to the back of her soul's closet. Under hypnosis, a subject can become more relaxed, less insecure, different, although some researchers will also argue that hypnotized subjects will not violate their fundamental moral convictions. The Santeria devotee comes to live with the persona her possessing spirit creates within her.

I argue that the broader name for the mental capacity common to trance, hypnosis, dissociation and probably to much spiritual experience, but also to most imaginative experience in which the individual becomes caught up in ideas or images or fascinations, is absorption.[4] Absorption is the capacity to become focused in a non-instrumental way on the mind's object (what humans imagine or see around them) and to allow that focus to increase while diminishing one's attention to the myriad of everyday distractions that accompany the management of normal life. It is a cognitive, attentional process. You let a daydream unfold, and your trip to the grocery store slips down in your mind. I suggest that prayer trains absorption, and that absorption facilitates the unusual spiritual experience central to James's story.

I have completed ethnographic and empirical projects that support these claims, described in the following sections.

## Ethnographic study

For four years I carried out more or less traditional ethnographic fieldwork at an experientially oriented evangelical Christian church in Chicago and then on the San Francisco peninsula: two years of Sunday morning services, a weekly evening Bible-study house group, conferences, retreats, coffees, trips and casual conversations. The churches were Vineyard Christian Fellowships. Sociological data suggest that the Vineyard is representative of the major demographic shift in the religious practice of the United States since 1965 towards spiritualities more focused on an intimate and present experience of God.[5] It is a central teaching in such churches that God should be experienced personally and intimately, and that prayer enables this experience. The prayer at such a church is explicitly imaginative. People are encouraged to imagine God as standing by their side as a person, to imagine that they to talk to him, and to imagine hearing him speak back in turn. They do not of course think of God as imaginary. But they believe that they must use their imagination to know God.

In this church, God was understood to speak back in several ways. He spoke through the Bible. When congregants read scripture and felt powerfully moved or affected by a particular passage, they might infer that God spoke to them through that passage: that he led them to it in order to have them read it and respond to it. God was also understood to speak through circumstances. Congregants would describe events that might seem to be coincidences, but say that God was speaking to them through these circumstances in order to communicate something to them: that he loved them, or wanted them to make this decision or that one. No one that I encountered ever reported that he or she had difficulty hearing God "speak" through scripture or through circumstance.

However, congregants at the Vineyard also expected to God to speak back to them by placing mental images or thoughts (sometimes called "impressions") in their minds or making their body feel a certain way. Congregants expected to experience mental events which they identified as not being their own, but rather as belonging to an external presence, God. There were semi-explicit and socially shared expectations within the community about what kind of mental events could qualify to be identified as God. These expectations were commonly described as "discernment". Discernment was an ambiguous, complex process (Lienhard 1980). When a decision was consequential (e.g. was God calling the young couple to move to Los Angeles and away from their family?) it was not uncommon for congregants to spend many weeks praying about the decision, and asking other friends in the church to pray about the decision and to talk to them about their prayer experience. Congregants gossiped about people who said that they were following God's voice but (gossipers thought) were really acting on their own wishes. Yet the expectations were clear. Even if hearing God in one's mind was complicated, God was speaking and the congregant's job was to hear.

Congregants explicitly understood this process of recognizing God in their minds as a skill which they needed to learn by repeatedly carrying on inner voice "conversations" with God during prayer and being attentive to the mental events that could count as God's response.

Yet not everyone seemed to be able to acquire this skill equally well, despite a great desire to do so. Some of them explicitly and repeatedly said that they deeply desired to hear God speak to them, yet still they did not have those experiences in which God spoke to them through impressions in their minds. They spoke regretfully about not having the powerful spiritual experiences that other people had. For example, one man said:

> I remember really desperately wanting to draw closer to God, having one of these inspired Holy Spirit moments that maybe sometimes get more attention than they deserve … And I found, you know, [that] people experience God in very different ways. The

> way that I thought I would experience God wasn't actually the way that I really grew in experiencing God. Mountain top experiences, tangible signs and wonders. I wanted those and I sought those out but I never really found myself encountering them.

At the same time, congregants recognized that some people were experts in hearing God, and moreover, that those experts reported that they changed in more or less the same ways: that they were able to focus more effectively and that their mental images became sharper. This way of talking suggested that prayer involved a kind of learning that changed something about the intensity of inner sensory experience.

Indeed, good prayers commented that their sensory world became richer, more alive. For example: "My senses are heightened when I'm feeling especially close [to God], when it's like a joyful, a really joyful time." They said that their mental images became sharper and more detailed. For example: "[Over time, as I have continued to pray], my images continue to get more complex and more distinct." They also reported that they experienced more of what we will call "sensory overrides": hallucination-like sensory experiences attributed to an external origin but with no material cause. For example:

> I was walking up the lake and down the lake and I was like, should I go home now? And he [God] is like, "sit and listen." [Did you hear that outside or head or inside your head?] That's hard to tell, but in this instance it really felt like it was outside." [How many times do you think you've heard his voice outside your head?] Two or three.

Prayer experts spoke as if what they were learning to do was to take their inner sensory world more seriously, to treat their thoughts and images and sensations as more meaningful and deliberately to blur the line between what they might once have attributed to an internal cause and what they might now wish to attribute to an external one. It seemed that as these congregants lovingly attended to their internal sensations, those sensations took on a life of their own and became more and more vivid until the congregants occasionally experienced some of them as if they were located in the external material world, so that they saw and heard and smelled and felt sensations not caused by material things.

## Empirical study one

To understand these relationships more precisely, I interviewed twenty-eight people I had met through my house group and through repeated visits to the church.[6] I then went through every interview, and pulled out quotations in

which subjects reported that something had changed in the way they experienced their mind and their senses as they learned to pray. Those different descriptions were then organized into clusters of similar categories: comments about how focused it seemed that people became in prayer, how deeply they could lose themselves; comments about the ways people had experienced the spiritual world with their senses (whether they commonly get images in prayer, or ever experienced something immaterial with their senses); and comments about whether congregants did, in fact, experience God as a person in the ways that the teachings and books of the church suggested that one should: talking freely to God throughout the day, and about everything, laughing with him, even getting angry at him. The comments were turned into a scale, and each interview was scored according to these questions. If I marked yes for the question based on the interview, the person got one point on the scale. The score for the scale was the sum of the points.

I had also asked everyone to fill out the Tellegen Absorption Scale. It has thirty-four items which one marks as true or false. A subject gets a point for every true. The scale does not measure religiosity *per se*; it has only one item which could be construed as religious. Most statements are about sensory engagement, about unusual states and about the capacity to be caught up in one's imagination (to imagine a crackling fire, or to be intrigued by the shapes that clouds seem to make in the sky).

I gave the absorption scale to all the people I interviewed systematically, and then I compared their answers to the answers they gave to the questions I asked about their spiritual experience. It turned out that the two were closely related. A person's absorption score was not related to the length of time he or she prayed on a daily basis. That is, the scale did not measure prayer practice *per se*. But the way a person answered the absorption questions was significantly related to the way they *experienced* prayer. Most remarkably, the way someone scored on the absorption scale predicted whether he or she was able to experience God as a person. On the surface, these questions (do you speak to God freely throughout the day? Would you describe God as your best friend, or as like an imaginary friend, except real? and so forth) should just have led people to produce the local theology. They are, after all, the kinds of statements pastors make on Sunday mornings. Yet those who had high absorption scores were much more likely to report experiencing God as if God really were a person: someone they could talk to easily, who talked back, with whom one could laugh, at whom one could get angry. And if one held the absorption score constant, the time spent in prayer was in fact significantly correlated to the vividness of the God experience.[7]

There was another interesting thing the scale predicted. If someone answered positively to half the items on the absorption scale, their chance of reporting a sensory experience, while fully awake, which was attributed to an

external source that was not materially present (like hearing God say "I will always be with you" from the back seat of a car), was six times as high as for those who said "true" to less than half the items (calculated by odds ratio). Moreover, slightly over a third of the subjects reported externally attributed experiences (hearing with their ears, seeing outside of their head) of sensory experiences of something not materially present.

## Empirical study two

It seemed from study one that a proclivity for absorption made prayer easier, and that prayer trained this proclivity into a skill. To get a firmer grasp on whether prayer did indeed change people's mental imagery or sensory experience of the immaterial, I set out to train people.[8] I had moved to northern California by this point, which meant that no one from Chicago could participate in the project and all my subjects were new. I began by advertising on Craig's List, and then in four local churches, two of them Vineyards, two of them like the Vineyard, softly charismatic but conventional on Sunday morning. We told people who called that they would be randomly assigned into one of three spiritual disciplines: Centering Prayer (a meditation-like practice in which the practitioner seeks to dis-attend to thought), imaginative prayer about the gospels (a practice intended to exemplify modern evangelical prayer) and an intellectual exploration of the gospels (the study condition). We did our best to make it clear that each one was a spiritual discipline, which is also true.

Over a hundred people responded and passed our screening questions, most of them white, middle-aged and female. When people came in, they filled out various standard psychological scales: the absorption scale, of course, but also scales about loneliness and stress and spiritual experience more generally. Then they did a series of computer exercises to see how they used their mental imagery. Finally, we interviewed them for at least an hour about how they experienced God and how they prayed, and whether they had ever had any unusual sensory experiences.

When they were done, the subjects then picked up one of three brown packages. Inside each package was an iPod (pink; the pink iPods had been on sale) which was loaded with one of our three conditions. People were asked to play the iPod for half an hour six out of seven days each week for a month.

For the imaginative prayer condition, we provided four tracks of thirty minutes each, in which a biblical passage was read to background music, and then re-read while inviting the subject to use all his/her senses to participate in the scene. The tracks were loosely modelled on the invitational imaginative practices in evangelical churches. Here is an example of the recorded instruction from the track on the twenty-third psalm:

> The Lord is my shepherd … see the shepherd before you … see his face … his eyes … the light that streams from him … he turns to walk, and you follow him… Notice his gait … see the hill over which he leads you … feel the breeze over the grass … smell its sweetness … listen to the birds as they sing … notice what you feel as you follow this shepherd.

On each track there were pauses which invited the listener to carry out a dialogue with the shepherd, or with Jesus.

For the study condition, we gave people thirty-minute lectures from the Teaching Company on Jesus and the Gospels. (I bought thirty copies of these lectures.) For the Centering Prayer condition, we provided thirty minutes of "pink noise" on the iPod, with written instructions on Centering Prayer taken from the chief website for the practice. We instructed our subjects to play the iPod in order to dampen down external noise and distraction, and then to focus on a single word, bringing the wandering mind gently but firmly back to the single word. (In fact, we described this condition to deflect suspicion that the study condition was the experimental control, and randomized few people into it.)

People were asked to play the iPod six out of seven days a week, for half an hour, and to fill out an account of their experience on the "daily discipline sheets" we also gave them.

After a month of practice, subjects went through another set of surveys, most of them the same, but some different. They repeated the first round of computer exercises, and some that we added just at the end: different cognitive tests that are objective tests of a person's use of mental imagery. And then we interviewed them again, and asked them what the month had been like, and how they had heard from God, and we repeated all those questions we had asked them about unusual experience and spiritual experience. Then we called them up a month later and asked them many of those questions again.

There were real training effects. When people came back for their return session, those who had done the imaginative prayer practice had scores on the subjective measures of mental imagery vividness that were significantly higher, compared to their initial scores, than those who had listened to the lectures. They said that their images had more detail. Meanwhile, proclivity for absorption made a difference. The more items someone endorsed on the absorption scale, the higher their initial score on the two subjective mental imagery items.

Both training and proclivity appeared to influence unusual sensory experience ("sensory overrides"). People who were higher in absorption were more likely to say that they had heard a voice when alone or seen a vision outside their heads in the first place, before they came in for the first session. After the

month of practice, those who had the imaginative prayer reported more religious unusual sensory experiences than those with the study discipline. They were not, in general, very dramatic, and there weren't many of them, but they were meaningful and often moving. One subject, for example, had a session in which she closed her eyes to visualize the angel Gabriel and found that the angel's light was so bright that she opened her eyes because she thought someone had turned a lamp on in the room.

Both training and proclivity influenced other spiritual experience. We asked people about a series of classic spiritual events: out-of-body experiences, the awareness of the presence of God, the powerful adrenaline rush of the Holy Spirit, near-death experiences and so forth, drawing on the range of great Christian writings about spiritual experience. The more highly someone scored on the absorption scale, the more likely they were to report that they had had these experiences, and if someone was randomized into prayer practice they were significantly more likely to say that they had had one of these experiences during the month. Of course, because we depended on self-report, it is not entirely clear what our subjects were describing, but we looked carefully at each response to make sure that they seemed at least to be describing a significant phenomenological event.

And to turn to the phenomena James had put at the centre of his opus, the mystical experience: we asked subjects whether they had this experience directly, and then followed up to see if the experience met the four conditions James identified as part of the mystical experience (suspension in space and time, transience, ineffableness and a noetic quality). If someone reported such a experience in their first, pre-intervention interview, they were more likely to say "true" to more than half the absorption items. Moreover, imaginative prayer training seemed to make the experience more likely. The only person during the month who had an experience so powerful it comes close to the category of the mystical had the imaginative prayer discipline. It is admittedly not entirely clear what kind of phenomenon this is. She reports it as initially a dream state, out of which she awoke:

> I woke up lucid in the dream, and Jesus was there. I was talking one on one and I totally believe – it totally moved me and I believe it was real. It was so real, it's something I can't describe, and that experience is something I will never forget. It stands out as the best experience I've ever had.

She said that the experience was short-lived; beyond words; that she felt suspended in space and time; and that it conveyed a kind of knowledge different from, and more powerful than, other kinds of knowledge. In other words, the experience met the criteria that James laid down.

> It changed everything. It's the most complete feeling you could ever feel … this overwhelming feeling of peace and live. And I feel like, with that experience, there are no words for it. It's very emotional. And it's a *big time* blessing.

She was very clear that she had the experience because she'd been practising talking to Jesus in the imaginative prayer practices. "I do think it's because of these exercises." She scored in the top forty per cent of the responses to the absorption scale.[9]

These findings support the centrality of absorption in spiritual experience. But what is absorption, really?

## Absorption

When Tellegen and his students first drafted the questionnaire, they were trying to develop a pen and paper measure of hypnotic susceptibility. But in the end, the way people scored on the absorption scale correlated only modestly (but still significantly) with the way they responded to a standard hypnotic induction.

The two men who had come up with the scale decided they had found something related to hypnotizability, but fundamentally different.[10] They concluded that absorption was a disposition for having moments of total attention that somehow completely engaged all of one's representational resources: perceptual, imaginative, conceptual, even the way you held and moved your body. In other words, when you get absorbed in something, it seems more real to you, and you and your world seem different than before. That is why it is related to hypnotizability. Both rely upon your ability to throw yourself into something and then to involve yourself intensely in the experience.

When psychologists have used the scale, they have found that it captures the ability to take pleasure in music and literature and the arts. Absorption, as measured by the scale, is related to reading and the imagination. The more highly you score, the more likely you are to be a reader, and the more likely you are to immerse yourself in rich imaginative worlds. You daydream more. You may dance more. And a propensity for absorption has real this-worldly benefits. The more highly you score, the better you are at imagining someone else from their perspective, and so the better you are at empathy, which demands that you understand what someone else experiences in their world, and the way they think and feel.[11]

The clinical literature tells a bleaker story. Women who report recovered memories of sexual abuse score more highly on the absorption scale than those who report either continuous memories of abuse or no abuse. So do

people who remember being abducted by aliens. This suggests that people who have high absorption may become confused about the difference between fantasy and fact. Absorption is thought by clinicians to be part of dissociation, that auto-hypnotic capacity to narrow one's attention to block out awful in-the-now experience. From this perspective, the mind uses a capacity for internal withdrawal to protect the person from incapacitation in the face of overwhelming distress and then somehow gets stuck in the escape. A soldier mentally checks out when a blast kills his buddy, and functions mechanically and survives and the war goes by, but on his return, he finds that he can't let go of the war. He seems to shift back into it so that at times the old war becomes more real to him than the place he now lives. Clinicians think that the internal withdrawal into old memories involves absorption. The Dissociative Experiences Scale, probably the most widely used measure of dissociation, bases a third of its items on the absorption scale (McNally *et al.* 2000; Clancy 2006).[12]

All this suggests that absorption is the capacity to focus in on the mind's object (what humans imagine or see around them) and to allow that focus to increase while diminishing one's attention to the myriad of everyday distractions that accompany the management of normal life. The absorption scale seems to pick up the enjoyable dimension: imaginative involvement, the joy we take in letting a story or sensation carry us away;[13] but the skill, that mental muscle, must be the capacity to allow what the mind dwells upon to take more attention than what the eyes and ears perceive. It seems to be a continuum. Common sense tells us that people vary in their ability to take seriously what their minds must imagine. Just as humans can be more or less focused on an object, the degree of absorption varies between individuals and for any individual at different times. Most of us experience light absorption when we settle into a book and let the story carry us away. Some of us get so absorbed that we are startled when someone enters the room, because we did not pay attention to the soft tread of the person's feet as he or she approached.

That is why absorption is central to spirituality. The capacity to treat what the mind imagines as more real than the world one knows is the capacity at the heart of experience of God. The very concept of a God, a more-than-natural being, rests on the premise that the world we know is not all of the world, or indeed the most important part of the world. The psychological capacity for absorption allows us to experience that concept as true.

That absorption has both non-clinical and clinical dimensions suggests that the ultimate source of absorption may be associated with the ability to block out pain, a skill which would have been crucial for survival as our species evolved. This observation is in line with others who argue that many of the building blocks of religion have roots in the evolutionary development of our species.[14] One of the best literary instances of this occurs in a text which is not

deistic at all. It is the central story of a philosophical gem of a work Rousseau called *The Reveries of a Solitary Walker*:

> It was nearly night when I regained consciousness. I was in the arms of two or three young men who told me what had happened. The Great Dane, unable to check its onrush, had run straight into my legs and its combined mass and speed had caused me to fall forward on my face. My upper jaw, bearing the full weight of my body, had struck against the extremely bumpy cobblestones, and my fall had been all the more violent because I was on a downward slope, so that my head finished up lower than my feet. The carriage to which the dog belonged was directly behind it and would have run right over me had not the coachman instantly reined up his horses. So much I learned from those who had picked me up and were still holding me when I came to. But what I felt at that moment was too remarkable to be passed over in silence.
>
> Night was coming on. I saw the sky, some stars, and a few leaves. This first sensation was a moment of delight. I was conscious of nothing else. In this instant I was being born again, and it seemed as if all I perceived was filled with my frail existence. Entirely taken up with the present, I could remember nothing; I had no distinct notion of myself as a person, nor had I the least idea of what had just happened to me. I did not know who I was, nor where I was; I felt neither pain, fear, nor anxiety. I watched my blood flowing as if I might have watched a stream, without even thinking that the blood had anything to do with me. I felt throughout my whole being such a wonderful calm, that whenever I recall this feeling I can find nothing to compare with it in all the pleasure that stir our lives. (Rousseau [1782] 1979: 38–9)

Rousseau's remarkable experience reaffirms the intuition that these unusual experiences are part of our evolved capacity to handle trauma. "Many researchers and clinicians believe that dissociation acts as a sort of in-built defense mechanism (probably evolved, though this is left implicit) employed by some trauma survivors in order to block their own awareness of traumatic experiences with which they are unable to cope" (Seligman & Kirmayer 2008: 36). Scholars suspect but cannot prove that the capacity to shift attention arises because those of our ancestors who could walk home on a twisted ankle were more likely to survive than those who could not, and the capacity for absorption is what enables them to focus away from the here and now. The use of absorption for religion would then be a spandrel, a kind of cultural bootstrapping in which a useful social institution (one which, as Durkheim

observes, binds the social group into a shared identity) could base itself. Of course, for them to have religious meaning, they must also convey a sense of transcendent good. Absorption may develop from the evolved capacity to shut out pain, but it also enables a powerful and positive reinterpretation of experience. Absorption seems to underlie the kind of experience in which the vividness of imagination "bleeds" into the world and, under the right conditions, is interpreted as evidence for God.

When James argued that spiritual experience (at least, experience deemed religious) has a morphology, he concluded that there was something biological and bodily about spirituality. Profound religious experiences often have specific, predictable features, which suggests that spiritual experience is shaped by bodily constraint. This is most explicit in the justly famous chapter on mysticism, in which James literally numbers the common features in these remarkable events: they are transient, lasting a few minutes or less; they are experienced as ineffable, despite driving those who have them to write at such length to recapture and to explain; they suspend their subject in space and time; and they give those who experience them an intense sense that they know something about the world to which all other knowledge is somehow incidental, in other words they are noetic, meaning that they have a quality of fundamental knowledge. This is the famous example:

> I had spent the evening in a great city, with two friends reading and discussing poetry and philosophy. We parted at midnight. I had a long drive to my lodgings. My mind, deeply under the influence of the ideas, images and emotions called up by the reading and the talk, was calm and peaceful. I was in a state of quiet, almost passive enjoyment, not actually thinking, but letting ideas, images, and emotions flow of themselves, as it were, through my mind. All at once, without warning of any kind, I found myself wrapped in a flame-colored cloud. For an instant I thought of fire, an immense conflagration somewhere close by in that city; the next instant I knew that the fire was in myself. Directly afterwards there came upon me a sense of exultation, of immense joyousness, accompanied or immediately followed by an intellectual illumination quite impossible to describe. Among other things, I did not merely come to believe, I saw that the universe is not composed of dead matter but is, on the contrary, a living Presence; I became conscious in myself of eternal life. It was not a conviction that I would have eternal life, but a consciousness that I possessed eternal life then; I saw that all men are immortal; that the cosmic adventure is such that without any peradventure all things work together for the good of each and all; that the foundation principle of the world, or all the

> worlds, is what we call love, and that the happiness of each and all is in the long run certain. The vision lasted a few seconds and then was gone, but the memory of it and the sense of the reality of it has remained during the quarter century which has since elapsed.
> (James [1902] 1935: 399)

It is clear that there is some kind of brain seizure, that the mind explodes in electrical activity. These are rare phenomena: fewer than one in a hundred people have these experiences; possibly fewer than one in a thousand. But they have been reported around the world (Cardeña *et al.* 2004). It is because of their common features that James believed that they were in part structured by the body.

Again, James is right about this. Many of the profound experiences which people identify as religious have common features. I will go so far as to suggest that there are at least three kinds of intense spiritual phenomena that appear around the world in different faiths:

- *spiritual seizures*: dramatic, transformative events like mystical experiences, near-death experiences and out-of-body phenomena. These events are consistent with some kind of electrical storm in the brain, although each kind of event has its own phenomenological shape and no doubt its own neural circuitry. The near-death experience usually involves the experience of time slowed to a crawl, as if attention expands to observe every instant of remaining time; life's trajectory unfolds like a string of pearls; and in the West, at any rate, a great white light pulsates beyond a tunnel. Out-of-body experiences take the subject above their body, often hovering in a corner during surgery, looking down. Out-of-body events are typically richer than mere hallucinations. They often involve a sense of travel and transformation, a visceral experience of change. They cannot be experienced at will.
- *sensory overrides*: sensory perceptions of that which is not materially present; hallucinations. These events are not consistent with dramatic electrical storms. They are typically brief, spontaneous, unpredictable, pleasant, often prosaic, and they are advisory rather than commanding. They may be the result of perceptual breaks corrected to represent something that is not physically perceptible. They seem to be related to the reality monitoring system. They also cannot be experienced at will.
- *intense absorption/trance phenomena*: these are events that are associated with practices like channelling, spirit possession, some prayer practice, and, in many instances, speaking in tongues. Individuals lose a sense of agency in these events. Events seem to happen to them, rather than occurring at their will, and they feel set apart from the everyday world.

> Time slows or alters. These experiences are associated with the capacity for absorption, and more specifically, hypnosis and dissociation. They can be entered into at will after training.

This list is not exhaustive. There are other remarkable phenomenological events: a sense of presence, or holy spirit experiences. Nor are these categories mutually exclusive: out-of-body experiences, for example, include sensory overrides. But the point of distinguishing between kinds of experiences is to remind us that spirituality is patterned in distinct and predictable ways.

I suggest that absorption lies behind many of them. Of these kinds of phenomena, only absorption and trance can be entered at will and be trained, and the training makes these other seemingly more spontaneous experiences more common. The Spiritual Disciplines Project has demonstrated that absorption facilitates unusual sensory experience, and that absorption training, the kind of training one gets through prayer, increases the likelihood of these occurrences. The Spiritual Disciplines Project also demonstrated that absorption seems to facilitate spiritual seizures, and that absorption increases the likeliness of these events, although since these phenomena are so rare these last findings must be treated as tentative. Nevertheless, it seems clear that absorption, both as proclivity and as learned practice, matters to spiritual experience. It is the process of breaking loose from the everyday to lose oneself in sensational experience; and the trainable capacity to do this we know makes the chance of having powerful spiritual experience more likely.

James concluded from the bodily features of religious experience that God has a certain nature; but I believe it is more accurate to conclude that one learns to use the body to perceive God. We do indeed have propensities (Ann Taves [2009] calls these "building blocks"); these propensities become experiences we deem religious; and because they are propensities of our minds and bodies, shaped by cultural expectations, those experiences have morphology. They share that structure not because God is a universal spirit who appears to all in the same way but because we are all human, and we share the psychological capacities of all those who are human. Some of those capacities probably evolved for reasons that have little to do with spirituality. Absorption may well have evolved as a means to focus awareness away from everyday pain. The capacity to shift awareness away from the moment of the here and now may allow someone to run home on a twisted ankle, or act effectively in the face of danger despite knowing that someone dear to them has died. The capacity to wrench attention away from the everyday is at the heart of the religious impulse, but like most of our bodily features, it probably evolved to keep our species alive rather than to lead us to God.

Focusing on absorption is in itself a tribute to James; he was intensely interested in the general domain of hypnosis and imagination and in the ways in

which people get caught up in their minds. But whereas James was eager to emphasize just how basic and universal these phenomena are, I suggest that it demonstrates how much absorption can change our experience of our minds. The anthropologist Richard Shweder says that when you take culture seriously, you must accept that we live in plural worlds, worlds made so distinctly in the interaction of peoples with each other that the most basic elements of human lives (to whom we respond emotionally, from what we recoil in moral disgust) will shift, so that it no longer makes sense to think about a shared world seen from different vantage points but rather of multiple worlds (Shweder 2003). I would put it a little differently: paying attention to a proclivity for absorption, and to the practice which trains absorption, enables us to see the way the training of our evolved human capacities enables humans to experience worlds that are different in fundamental ways. It enables us to treat the claim to know God not only as a way of interpreting the world, but of interpreting the mind of the knower. It gives us a way to understand spirituality as a style of mental culture.

Let me make a final observation. It is time for the cognitive science of religion to pay attention to learning. In emphasizing evolved cognitive capacities, there has been a focus on cognition as universal and inevitable. As a result, scholars have focused on what is independent of learning: on what we inherit as humans from our ancestors. They have placed this inheritance in opposition to the learned concepts that Kroeber and Kluckhohn called the stuff of culture. But not all learning is about culture, although cultural practice might invite learning. Nor is talk about spiritual experience necessarily "neurotheology", a claim that specific areas of the brain are associated with specific kinds of transcendent experience. Absorption is a cognitive attentional process, and a capacity that may well have evolved as a way to handle intense pain. The capacity to attend to internal thoughts, images and sensations appears to be trained in religious practice, and what is trained is the process of attending itself. Training the way people attend to those thoughts, images and sensations appears to change something about the way people experience them as real, and these changes appear to contribute to the way God becomes real for people. Evolutionary psychology has argued that to understand religious belief, one must understand what people bring to the table as immediate intuitions. This attentional learning theory of religion argues that to understand prayer, we must understand how shifting attention alters the way something is perceived as real. Both are central to a field called "the cognitive science of religion".

## Notes

1. This work was supported by the John Templeton Foundation and the National Science Foundation.

2. To be sure, many of these clinicians speak of "non-pathological dissociation", but trauma-caused dissociation is the prototype of the phenomenon.
3. Interested readers should explore the discussion of hypnotizability in Spiegel & Spiegel ([1978] 2004).
4. See also Butler (2006), Roche & McConkey (1990).
5. Pew (2006), Miller (1997), Robbins (2004), Coleman (2000); see also Bialecki (2009).
6. This is summarized from Luhrmann *et al.* (2010).
7. All the reported relationships were statistically significant and are discussed in more detail in Luhrmann *et al.* (2010).
8. This study, the Spiritual Disciplines Project, is summarized from Luhrmann (2012), Luhrmann & Morgain (2012), Luhrmann *et al.* (2013).
9. There are a variety of interpretations of the mystical experience James describes, in part because it is so hard to produce the experience under experimental conditions. Descriptions include Newberg *et al.* (2001) and Mandell (1980).
10. The correlation coefficients tend to be in the .11–.22 range. See Nadon *et al.* (1991) and Whalen & Nash (1996).
11. Only a handful of scientists have worked with the scale, but their results are quite consistent. This research on imagery ability can be found in Hilgard (1979); on fantasy proneness Lynn & Rhue (1986); on daydreaming, Crawford (1982); on experiential involvement ,Wild *et al.* (1995); on alteration in attention, Pekala *et al.* (1985); on imaginative involvement and its relationship with openness to experience, Glisky & Kihlstrom (1993) and Glisky *et al.* (1991); on empathy, Wickramasekera & Szlyk (2003); on dance, Bachner-Melman *et al.* (2005).
12. The relationship between absorption and dissociation is discussed in Spiegel & Spiegel ([1978] 2004). Most work on dissociation does focus on pathology, but many researchers do recognize that there is "normal" dissociation. Waller *et al.* (1996) report the three factors of the Dissociative Experiences Scale and go on to argue that those who experience pathological dissociation respond in predictably different ways to this scale than those who experience non-pathological dissociation.
13. In Hoyt *et al.* (1989), the strongest correlation was between absorption and "positive-constructive" daydreaming.
14. See for example the work of Csordas (1994), Guthrie (1993), Atran (2002), Boyer (2001), J. L. Barrett (2004a), Whitehouse (2004), Wright (2009).

# 11

# Explaining religious concepts

## Lévi-Strauss the brilliant and problematic ancestor

Pascal Boyer

Claude Lévi-Strauss was arguably the most prominent anthropologist of the twentieth century, certainly one who went further than most in renewing our understanding of universal constraints on human cultures. Surprisingly, his findings and theories have had very little influence on contemporary accounts of religion. This I would contend stems from three reasons. First, Lévi-Strauss was a proponent and an eminent practitioner of something I call the "science mode" in anthropology, while most scholars of religion work from a rather different perspective. Second, Lévi-Strauss clearly had no trust in the notion of "religion". He did not believe that the term denotes any coherent set of phenomena. He was, I will argue, quite right about that, but this of course did limit the appeal of his models for scholars of religion, many of whom do assume that there is such a domain as "religion", distinct in important ways from other domains of culture. Third, Lévi-Strauss did not relate his hypotheses and models of cultural phenomena to any precise cognitive models of psychological processes, for the perfectly good reason that the latter did not exist at the time he put forward the basic tenets of structural anthropology. As a result, most structural models lack the psychological precision required to account for actual religious concepts and behaviours.

### Science and erudition combined

#### *Two modes of scholarship*

Discussions of methods and theories of religious thought and behaviours are often framed in the ever-recurrent contrast between natural sciences and the

humanities (Snow 1959). Elsewhere, I have argued that this is fundamentally misleading, and that a more appropriate characterization of how we study cultural phenomena may benefit from a description of different *modes of scholarship* (Boyer 2012). In particular, one can make a rough distinction between two ideal types of traditions, or legitimation strategies, that I would call the "science mode" and "erudition mode". The science mode can be identified as what people do when they test a model or set of hypotheses against some evidence, using statistics and other mathematical methods to evaluate the fit of the model. People engaged in such projects typically publish short contributions, in a field where methods and findings are agreed on, and where people also agree on what the relevant issues are. The erudition mode is typical of scholarly projects in which people aim to provide not causal explanations for why the world is the way it is, but a catalogue of a particular domain of reality. Note that this a distinction between *modes of scholarship*, that is, ways of going about one's scholarly work, not a distinction between disciplines. It is possible, indeed it is actually the case, that these two modes are present in a single discipline, and often inside a single scholar's mind. The difference is between the epistemic goals, not the people or the academic departments.

Most important, this is *not* a contrast between "natural sciences" and the "humanities", because the distinction proposed here cuts across these common categories. For instance, within the same discipline one may want to explain the role of symmetry perception in visual art (science mode) as well as to catalogue the works of the Wu school (erudition). One may test hypotheses about ergative syntax (science mode) as well as classify Tibeto-Burman languages (erudition). In many disciplines there is a constant dialogue between erudition and science projects. For instance, many linguists are specialists of some language families (erudition) while also trying to test particular hypotheses about linguistic structure (science). Many biologists are specialists of a specific genus or family, as Darwin was with finches and snails (erudition), while testing hypotheses about molecular, evolutionary or ecological hypotheses (science).

## *Structural anthropology*

Lévi-Strauss pioneered a study of cultural phenomena that required a constant exchange between "erudition" and "science" projects. Lévi-Strauss himself was an erudite scholar, although his domain was unorthodox. He did produce an ethnographic monograph, but that was fairly limited in scope, based on a short and unique period of fieldwork, and not quite representative of his style of analysis (Lévi-Strauss 1948). That much would have been typical of cultural anthropology, usually centered on a particular "culture", usually a

small-scale polity at the scale of a tribe or chiefdom. Lévi-Strauss did not actually believe that this unit of social organization should be privileged, as it had been in anthropology since Malinowski. For Lévi-Strauss, the focus on small polities had more to do with the limitations of participant observation (one cannot really do that kind of fieldwork on large groups) than with any scientific rationale (Lévi-Strauss & Charbonnier 1969). His real domains of erudition were, first, elementary kinship systems (Lévi-Strauss 1969a); and second, and most important, the mythic corpus from Native America, an immense domain that spans highly different social organizations, ecologies and language groups (Lévi-Strauss 1969b). This kind of large-scale comparison is more typical of large-scale archaeological studies than classical ethnographic monographs. Indeed, his studies on mythology also resemble archaeological comparison in focusing on the transmission of particular features and styles from one place to another, rather than the integration of each feature in a local system (Lévi-Strauss 1979).

Erudition in this case was in the service of a scholarly project that unambiguously belongs to the "science" genre. That is, Lévi-Strauss was pursuing the erudite projects of cataloguing kinship systems, then charting correspondences and similarities in Native American mythologies, as a means to evaluate the relevance of specific hypotheses concerning the basic cognitive processes engaged in categorizing the natural and social world (Lévi-Strauss 1963a). This is not the place to survey these hypotheses (I will discuss their divergence from more recent cognitive models below) but at this point I should emphasize that they constituted a radical departure from standard social science, including the standard approaches to religious thought and behaviour as social phenomena.

## Some consequences of the phonological model

Lévi-Strauss borrowed his main analytical tools from the Russian formalists, the Prague linguists and particularly from Roman Jakobson's structuralist phonology. An important idea was that language was *not* a unidimensional system, contrary to what Saussure in particular had described as the "linearity of the signifier". In Saussure's model, the linguistic stream consisted in the temporal (therefore unidimensional) succession of discrete units or phonemes (e.g. /k/ + /æ/ + /t/ for "cat"). This seemed intuitive, indeed almost self-evident, as we spontaneously imagine language to consist of a chain of such units. Against this, structuralist models described each articulation (e.g. /k/) as the simultaneous realization of several choices (in this case /k/ = non-voiced rather than voiced, stop rather than fricative, velar rather than glottal, etc.). Each sound of a language is a multidimensional mental object, which has an important

consequence. Linguistic structuralism demonstrated that the actual working of phonology, the mental system that supports articulation, is completely different from the units we are aware of. All English speakers, by mere observation and introspection, can probably imagine that there is something like the sound /k/ in English. But explaining phonology requires that we postulate concepts like voiced/non-voiced or lax/tense, that are not usually part of our phonological awareness.

Now Lévi-Strauss applied this to the elements of conceptual structure that we use to represent the social and natural environment. Although this conceptual structuralism was often treated as an analogical use of structuralist phonology, the extension was not metaphorical at all. Lévi-Strauss treated myths as apparently unilinear mental productions, in which a sequence (e.g. a young man climbing a tree to steal fire from a bird) should be analysed as a succession of paradigmatic choices (in this case, young not old, man not woman, climbing not digging, stealing not buying, fire not water, bird not mammal). Although some of these distinctions are expressed in natural language, a crucial point was that the system of binary oppositions that framed concepts was not available to conscious inspection. The underlying "code" that structures cultural phenomena is not one that anyone is aware of.

Another important assumption borrowed from structural phonology was the notion of a material basis for unconscious binary distinctions. Phonological distinctions such as voiced/non-voiced or fricative/stop are grounded in the way the human vocal tract produces sound, for example, in the fact that there are two tracts for air expulsion, that the shape of the vocal box can be changed only by a limited set of muscles, that the motor system has a specific way of activating these muscles and so on. One consequence of the view of phonology as grounded in articulatory phonetics is the assumption that all natural languages can be learned by all human beings, and that a unique set of phonological models should be able to account for them all.

In the same way, Lévi-Strauss regarded the elementary distinctions of the *pensée sauvage* as grounded in sensory qualities, such as dry/wet, raw/cooked, which would be ultimately grounded in the way human brains function (Lévi-Strauss 1979). Lévi-Strauss naturally inferred that the underlying code of sensory qualities and conceptual categories would be common to all human minds.

## Far from the madding crowd (of standard social science)

Despite the great fame of Lévi-Strauss, his work only had a very limited influence on research in the social sciences, even in his own field of cultural anthropology. True, there were epigones who applied structural methods to other

myths and rituals, and serious historians or classicists used the methods as an inspiration. Overall, however, the impact is barely noticeable.

One reason may be that Lévi-Strauss combined the "erudition" and "science" modes of scholarship in a way that was certainly typical of anthropological ancestors of his and the previous generation (consider for instance the entire structural–functional school) but had become oddly unpopular after that. Indeed, a large part of cultural anthropology abandoned the "science" mode entirely, considering the practice of hypothesis-testing and the search for explanatory models as futile if not immoral (Boyer 2012; Tooby & Cosmides 1992). At the same time, many anthropologists and other social scientists also retreated from "erudition" projects, arguing that describing cultures was a thinly disguised way of oppressing them. Freed from the constraints of either mode of scholarship, many social scientists turned to less taxing activities, in particular to the search for exciting, unexpected associations between cultural phenomena (Boyer 2012).

This applied also to the narrower field of religious studies, which has been marked by the absence of the science mode, indeed the general absence of precise, empirically grounded theorizing (Whitehouse 2004). Some scholars of religion have pursued respectable erudition projects, for example, documenting early Buddhist traditions or varieties of Islamic doctrine, without trying to connect them to any particular science-like hypotheses about the dynamics of religious thought or behaviour. Instead, discussions of "theories" in the field of religious studies have often consisted in the half-hearted adoption of particular academic fads, for example, phenomenology or post-structuralism. This did not matter too much, as theorizing in these cases often boiled down to paying lip-service to the current fad, while carrying on with the erudition projects in much the same way as before (Wiebe 1981). As a consequence of this lackadaisical approach to explaining religious thought and behaviour, the field became theoretically amorphous, and unresponsive to actual scientific proposals about the way religious thought and behaviour could emerge in individuals, be distributed in groups and contribute to social dynamics.

## No need for "myth", or indeed "religion"

Lévi-Strauss contributed to the theory of kinship, and wrote extensively on myth, two classical topics of anthropology. But he was clearly indifferent to traditional distinctions between domains of culture, for example, between kinship and the economy, or magic and sorcery. In particular, he never paid much attention to the notion of "religion", probably considering, like many other social anthropologists, that there was obviously no such thing as reli-

gion, that is, as a coherent domain of thoughts and behaviours that would require a specific set of hypotheses and models. Indeed, to the extent that his work touched on phenomena we would usually call "religious", totemism for instance, Lévi-Strauss demonstrated that their underlying principles were the same mental codes and concepts that applied to, say, folk-botany or zoology (Lévi-Strauss 1963b).

This in itself would not be worth emphasizing (he was not exceptional in this respect among social anthropologists), but Lévi-Strauss was probably unique in putting forward a coherent alternative to such categories as "religion". Besides, the assumption that religion is special is so pervasive in so many academic and popular forms that we should consider why it is so misguided and misleading.

## *Anthropological scepticism*

Consider first the standard anthropological view on this. In most human cultures there is simply no word to designate a package that would include ideas about supernatural agents, moral imperatives, rituals and other prescribed behaviours, taboos and the building of a community around a common cult. There is no word (missionaries from world religions often resorted to neologisms to designate what they were trying to impose in those places) and in general there is no concept either. For most people in such societies, there is simply no clear connection between the notion that dead people become invisible spirits, the notion that you should not kill your kin, and the idea that marrying your cousins is proscribed (or prescribed). Often, there is no connection at all between dead ancestors who protect you and forest spirits that may or may not be helpful. If you tell people that both notions belong to a single domain, they find that puzzling. Ideas about forest-spirits are connected to other ideas about the forest. Ideas about ancestors are connected to other ideas about dead people and the family. But there is no "religion" umbrella concept that would put these two supernatural notions together.

Does that mean that in such places "there is no religion"? Some anthropologists are tempted to think that people's categories more or less define their world, so that people who have no concept of *x* have no *x*. So on this view, in places where there is no concept of religion, there is no religion. This inference however is question-begging, and assumes the very point it purports to demonstrate. It is obviously true that in some cases having a concept is necessary to create a reality. People who have no concept of "cricket" or "parliamentary elections" certainly have no games of cricket or parliamentary elections, because such social institutions only exist among people who have a roughly similar understanding of a specific set of concepts and norms. On the other

hand, whether people have a notion of demography or economy or not, they all have demography and they all engage in economic transactions.

## *A variety of domains*

Is "religion" like the economy: something that you find in most societies although in many places people have no concepts to describe it? Or is it like cricket: something for which you need an explicit set of concepts and norms? The answer is both, but several different sets of phenomena are involved here. It is difficult to pursue a coherent account of these matters unless one distinguishes the following:

- *Domain A: Thoughts and behaviours about imagined agents.* Human beings seem disposed to entertain thoughts about non-physically present agents. This includes their thoughts about absent or deceased persons, but also about mythical heroes, fictional characters and a variety of superhuman agents with, usually, counter-intuitive physical capacities but standard mental processes, such as gods, spirits, ancestors, shadows and the like. Spontaneous creation of such notions is universal in human minds, and probably explained in terms of evolved cognitive dispositions (Boyer 1992, 2001).
- *Domain B: Traditions of domain-A thoughts.* In most social groups, people communicate domain-A thoughts. Usually this results in the spread of roughly similar versions of these thoughts, around what are called "attractors" of cultural transmission (Sperber 1996). For instance, people have common notions of superhuman agents and agent-like artifacts, shared notions and norms about people's interactions with such agents, prescriptions about rituals in connection with these agents and so on. Note that in most societies at most periods of history, people did not identify this domain as "special". That is, they had traditions about spirits, other traditions about the evil eye, and still other traditions about the proper way to sacrifice to ancestors, and saw no obvious connections between these domains.
- *Domain C: Institutions that foster a particular domain-B tradition*. This is a phenomenon confined to large polities, usually state-like societies with literate scholars. In such places, organized corporations of ritual specialists codify, standardize and "brand" a particular version of a domain-B tradition. Such guild-like groups of specialists also try to gain political influence and to exclude rival organizations as well as non-institutional domain-B traditions. Being exclusive specialists, they usually promote the idea that what they provide is unique and different from any other

type of service or commodity, and use a term that social scientists can readily identify as "religion" to describe that domain.

The main point here is that the notion of "religion" as a special domain is *ideological*. It is the creation of the large, corporation-like established religious guilds. For members of such organizations, it is intuitively obvious that a special kind of service corresponds to a special kind of institution. It is also highly desirable that other people be convinced that there is indeed such a special domain, otherwise the guild would be seen as having nothing special to provide.

Nothing in the various domains described above requires that we use the term "religion", except as a convenient, non-technical pointer to what we study. The term, however, is an impediment in more serious discussions of the social dynamics or cognitive processes involved. Unfortunately, the distinction is often blurred between useful common-sense term and analytical category. As a result, even serious scholars may be misled into thinking that one has, for example, to account for the "evolution of religion", or how "the brain creates religion" or the social interaction between "science and religion". Such projects may well be doomed, as they associate a proper set of scientific objects (e.g. the evolutionary processes that led to human social life or cognitive dispositions) and a non-existent one ("religion").

Lévi-Strauss, despite his many years constructing erudite, indeed often recondite, catalogues of myths, did not actually believe in the category of "myth", certainly not as a special domain of human culture. This created many misunderstandings with readers who thought, for instance, that his models required a clear definition of "myth" or a clear distinction between "myth and folklore", "myth and history" and so on. Lévi-Strauss repeatedly emphasized that his object was not myths but mythical thought, understood as the brain-based underlying codes that informed our folk-knowledge (Lévi-Strauss 1979), in stories but also in visual arts, rituals, magic. There was no need to think of myth as *sui generis*.

Students of things religious should of course follow that example. But there is a catch. Lévi-Strauss could abstract from misleading categories because he worked on the basis of explicit, precise hypotheses about the mental processes he wanted to uncover, derived from the structuralist linguistics framework. In the study of religious thought and behaviour, it is only recently that a novel framework, inspired by cognitive psychology and evolutionary biology, has made it possible to entertain precise and explicit hypotheses about cognitive dispositions and social dynamics. It is only by making these hypotheses more precise that we can escape the tyranny of misleading ideological terms like "religion".

## The psychology of (some) "religious" stuff

### *Limits of structural anthropology*

Structural descriptions of cultural realities were based on strong assumptions about supposedly universal patterns of thinking. From a psychological viewpoint, however, such claims turned out to be rather inaccurate. For instance, structuralism assumed that the most important aspect of conceptual structure was binary opposition and that various complex structures, like analogy, were based on the combination of several binary oppositions. Psychological research, however, did not confirm that. The way human minds represent such concepts as "chair", "cat", "gold" or "friendship" is extremely complex, involving attribute-lists, mental images, prototypical templates or scripts. Binary oppositions, however, play virtually no part in these representations. In the same way, a central tenet of Levi-Straussian analysis of myth was that these same binary oppositions were crucial to the memorization and transmission of stories. Again, however, empirical research in this domain uncovered many complex processes, to do with the reorganization of stories in memory and the modification of thematic content, none of which have anything to do with structuralist oppositions.

These limitations were inevitable. At the time when Lévi-Strauss elaborated an account of mythical codes and of kinship structures, structuralist linguistics was probably one of the most sophisticated tools available to provide hypotheses about cognitive processes, together with information theory and cybernetics, of which he made more limited and sporadic use.

However, it is perhaps telling, and sadly so, that these rich, precise hypotheses about cognition were never discussed, evaluated against potential alternatives, or tested in specially constructed experimental situations. By and large, anthropologists either "believed" in this phonologically inspired conception of cognition and accepted that it could make sense of many cultural phenomena, or they simply dismissed it as alien to their world-views and interests. This of course is mostly because cultural anthropologists, as mentioned above, had abandoned scientific ambitions.

But Lévi-Strauss too was responsible, to the extent that he did not himself treat his highly specific hypotheses about cognitive processes as, precisely, hypotheses that should be empirically tested (Sperber 1985a). To a large extent, he either treated his structural assumptions as self-evident, or considered their application to a large corpus of data (e.g. in the four volumes on Amerindian mythology) as proof enough. Which it was certainly not. In these volumes, Lévi-Strauss presented links between different myths as evidence for the underlying code. There were thousands of stories, each with dozens of motifs, and no constraints on how to interpret each motif (e.g. a fish could

be interpreted as an aquatic animal opposed to terrestrial ones, but also as a long object as supposed to round ones, or as a wet thing, or as a live thing, etc.). Such a corpus, handled in such a way, could support indefinitely many different hypotheses, and none in particular. Finally, although the cognitive sciences developed and provided more and more useful models for anthropologists, Lévi-Strauss did not see these developments as relevant, and never mentioned them in his works.

This way of considering models and hypotheses was and remains unfortunately typical of cultural anthropology and other social sciences. One assumes that ad hoc models are perfectly fine. Further, one ignores neighbouring disciplines that actually provide tools one should use. In recent decades, fields such as neuroscience, evolutionary biology and micro-economics have made spectacular progress and created a vast number of tools for the description of social dynamics and cognitive processes. Faithful to its tradition, most cultural anthropology has remained blissfully impervious to all this.

Remarkably, the domain of "religion" is one promising exception. In the last twenty years, a set of scholars from anthropology, cognitive science, evolutionary biology and other disciplines have constructed a common, "standard model" of important aspects of religious thought and behaviour (Atran 2002; J. L. Barrett 2000; Boyer 2001; Lawson & McCauley 1990; Pyysiäinen 2001). This may serve as an example of what structural anthropology could have become, had it been run as a scientific programme.

## *A standard account*

This account starts from the notion that religious agents like spirits and gods are part of a broader supernatural repertoire. The world over, people's conceptual repertoire includes a variety of notions of imagined artifacts, animals, persons and plants: concepts of floating islands, of mountains that digest food or have blood circulation, of trees that listen, of animals that change species, or of people who can disappear at will. These are found in folk tales, anecdotes, myths, dreams and religious ritual, and correspond to a small "catalogue" of templates for supernatural concepts. In the standard account, "supernatural" is defined in a precise way, which does not in any way assume that the people concerned entertain an elaborate notion of nature, such as the Aristotelian φύσις. Indeed, in most cultures in the world there is no explicit notion of the natural world and its limits. However, in most minds around the world, there are some precise implicit assumptions about natural processes, what we can call an intuitive ontology (Boyer 2000b). It is relative to those implicit understandings that some concepts can be called "supernatural". So this cognitive account stipulates that there is a limited *catalogue of supernatural concepts.* The

concepts may be very different from one place to another, but the templates are few. Experimental evidence confirms that novel concepts that correspond to such templates are more easily recalled than others (J. L. Barrett 1996, 1998; Boyer & Ramble 2001).

Traditions of religious thought and behaviour, in the sense of domain B as defined above, do not just involve concepts and inferences. They also recruit a variety of other mental systems, none of which is specific to this domain, and all of which serve evolutionarily clear functions in non-religious domains. For instance, in many human groups supernatural agency is associated with moral understandings. This is "natural" enough to be found in non-literate groups but also in the spontaneous religious thinking of most religious believers. Now this does not happen because religious doctrines promote morality, as religious guilds often claim. Indeed, developmental evidence suggests that young children have an early understanding of moral imperatives (Turiel 1983). Moral understandings, far from being dependent upon socially transmitted (e.g. religious) conceptual frames, develop before such concepts are intelligible to children, and regardless of what religious concepts are entertained by adults around the child (indeed, regardless of whether there are *any* religious concepts in the child's cultural environment). In this view, it is not surprising that moral intuitions exist before and outside of religious commitment, in much the same form across individuals and with the same compelling force (Krebs & Van Hesteren 1994). Nor should it be surprising, then, that when people associate their moral understandings with non-physical agency, the association tends to be a post hoc rationalization. Although religious believers generally hold that non-physical agency is the origin of morality, a cognitive model would suggest the reverse: that our moral feelings emerge independently but are consequently recruited to lend plausibility to the moral notions of religious agents.

Other aspects of religious cognition, such as teleological reasoning and afterlife beliefs, may also be rooted in basic operational characteristics of social cognition (Bering 2006). Consistent with an interpretation of misfortune in social terms, an overarching bias to generally perceive events as the manifestation of intentionality may contribute to a chronic sense of supernatural presence and intentional activity, which is a bias demonstrated even by children, for example with regard to the origin of natural objects (a view dubbed "intuitive theism") (Kelemen *et al.* 2005; Kelemen & DiYanni 2005). Taking intentionality and social considerations a step further, another proposal considers that afterlife beliefs may originate from the interplay of theory-of-mind capacities, over-perception of intentionality and prosocial concerns regarding "moral" behaviour versus opportunistic behaviours (Bering 2006).

Obviously, notions of imagined agents are also often associated with misfortune. People assume that the ancestors or gods are involved in various

occurrences (bad crops, illness, death, etc.) but generally do not bother to represent *in what way* they bring about those states of affairs. That is, people's reasoning, when thinking about such situations, is entirely centred on the *reasons* why an ancestor would want them to fall ill or have many children, and not on the *causal process* by which they make it happen (Boyer 2000a).

Finally, shared notions and norms about imagined agents are often made public, and people in many human groups are intensely interested in other people's behaviours in this domain. This may be because they constitute powerful signals of group affiliation (Bulbulia 2004b; Irons 2001).

These different hypotheses (only a small subset of the current research programmes) are all grounded in psychological findings that were established outside the study of "religion". More important, all these hypotheses are considered worthy of attention only to the extent that they are experimentally tested and confronted with alternatives.

## Conclusion

Scientific ancestors should be interestingly wrong in their conclusions and quite admirable in their assumptions. Lévi-Strauss certainly was both. He tried to break the shackles of common-sense realism, describing the cognitive processes involved in cultural creations as immensely complex and definitely impenetrable to conscious access. Not unlike Noam Chomsky, he described a cognitive unconscious that is highly counter-intuitive, because it does not consist in the kinds of thoughts we consciously entertain, but of correspondences within codes and analogical transfers between them. In the same way, recent cognitive science describes mental functioning in terms that simply do not connect to any of our common experience. That is why it is difficult to do, and even more difficult to transmit. One lesson from Lévi-Strauss is that the only way to escape the limits of common-sense notions, "religion" among others, is to go ever further in the construction of a scientific alternative.

# 12

# The meaningful brain

## Clifford Geertz and the cognitive science of culture

Armin W. Geertz

The purpose of this essay is, among other things, to correct the misunderstandings that some evolutionary psychologists have promoted about Clifford Geertz. It is indeed unfortunate that generations of cognitive scientists of religion have simply accepted unwarranted claims about Geertz's attitude towards cognition and psychology. Furthermore, this blind acceptance goes hand in hand with the equally faulty idea that cognition has nothing much to do with culture, except that cognition came first.

In this chapter, I will briefly introduce Clifford Geertz. The bulk of the chapter will consist of a detailed analysis of Geertz's understanding of cognition and culture followed by a brief description of criticism from evolutionary psychologists Tooby and Cosmides. The final section will indicate how Geertz's ideas mesh well with contemporary cognitive, social and affective neuroscience.

### Introduction to Clifford Geertz

Clifford Geertz was not only a significant figure in anthropology; he was one of the great intellectuals of the latter half of the twentieth century.[1] He was born on 23 August 1926 and died on 30 October 2006. After the war, he studied literature at Antioch College in Ohio from 1946 to 1950, which left an indelible influence on his literary style. He also studied philosophy and was greatly inspired by John Austin, Gilbert Ryle and Kenneth Burke. He then moved on to graduate school at Harvard, studying under Clyde Kluckhohn at an interdisciplinary department called "Social Relations". Here Geertz met anthropology, psychology and sociology. He and his wife Hildred spent two

and a half years conducting fieldwork in Java, she on family life and he on religion. And the rest, Geertz remarked, "is postscript" (C. Geertz 2000: 9): a year in Cambridge writing the thesis, a period in Bali and Sumatra during the revolt and civil war, a year at the newly founded Center for Advanced Study in the Behavioral Sciences (with Kuhn, Fortes, Jakobson, Quine, Shils, Miller, Spiro and others), a year at Berkeley, ten years at Chicago with field stints in North Africa, among other places and finally the rest of his career at the school that he helped found, the School of Social Science at the Institute for Advanced Study in Princeton. Geertz is well known for his hermeneutical stance, called "interpretive anthropology", and is associated with the intellectual movement in anthropology known as "symbolic anthropology". His seminal essay on "Religion as a Cultural System" has for some fifty years dominated the understanding of religion in a wide variety of disciplines. His tongue-in-cheek reviews and essays on just about every important intellectual and/or social phenomenon in US society of the latter half of the twentieth century have delighted and outraged his contemporaries. What most people are unaware of, however, are Geertz's ideas about the interrelations between human cognition and culture.

## *What did Geertz say (about human cognition)?*

If you are one of the privileged readers of Clifford Geertz's 1966 seminal article on religion, "Religion as a Cultural System", in its pristine, unabridged version, you will find a curious passage that left me, at least, ruminating for years. Here is the passage:

> The thing we seem least able to tolerate is a threat to our powers of conception, a suggestion that our ability to create, grasp, and use symbols may fail us, for were this to happen, we would be more helpless, as I have already pointed out, than the beavers. The extreme generality, diffuseness, and variability of man's innate (that is, genetically programmed) response capacities means that without the assistance of cultural patterns he would be functionally incomplete, not merely a talented ape who had, like some underprivileged child, unfortunately been prevented from realizing his full potentialities, but a kind of formless monster with neither sense of direction nor power of self-control, a chaos of spasmodic impulses and vague emotions. (C. Geertz 1973: 99)

This piece is followed by a quote from Susanne Langer on how humans cannot deal with chaos "because his [man's] characteristic function and highest asset

is conception, his greatest fright is to meet what he cannot construe" (Langer 1948: 287; in C. Geertz 1973: 99). Geertz then moved on to his well-known discourse on the three points where chaos threatens humans: "at the limits of his analytic capacities, at the limits of his powers of endurance, and at the limits of his moral insight" (C. Geertz 1973: 100).

What I didn't understand was how humans could ever be formless monsters without sense of direction or self-control. What kind of creature would consist of "a chaos of spasmodic impulses and vague emotions"? I cannot imagine any sentient creature, let alone a human one, that is like that. The whole idea struck me as curious, at best; perhaps it was just a bit of effervescent verbiage on Geertz's part, not essential to the argument. Maybe he got it from Freud, whom he refers to together with Durkheim, Weber and Malinowski, in the opening paragraph of the essay. Although Geertz refers to psychology throughout the article (something often missed by critics), Freud does not, however, seem to represent the style of psychology that Geertz had in mind. In fact, the whole point in Geertz mentioning Durkheim, Weber, Freud and Malinowski was to encourage anthropologists to move beyond them into a much broader intellectual context, such as "philosophy, history, law, literature, or the 'harder' sciences" (C. Geertz 1973: 87–8), just as, he argued, "these men themselves looked, for analytical ideas" (*ibid.*: 88).

## The stratigraphic versus the synthetic approach

So, what kind of formless, directionless, spasmodic and incoherent creature did Geertz have in mind? The answer is that such a creature does not exist in Geertz's idea of things. Geertz was simply exposing the inconceivable assumptions that many scholars held at the time. In his 1966 essay, "The Impact of the Concept of Culture on the Concept of Man", Geertz called this assumption "stratigraphic" (C. Geertz 1973: 37ff.). By that he meant that many scholars think of human life as consisting of composite levels. These levels consist of the biological, psychological, social and cultural. He argued that stratigraphic thinking assumes that if you peel off the various levels, like onion skins, you will end up with the next, more basic level beneath. Thus peeling off the cultural level reveals the structural and functional level. Peeling off that level reveals the psychological level. Once that is peeled off, you find the anatomical, physiological and neurological, that is, the biological level. Geertz playfully claimed that this approach helped maintain all the scientific disciplines as independent and sovereign university units, and, thus, man became "a hierarchically stratified animal, a sort of evolutionary deposit, in whose definition each level … had an assigned and incontestable place" (*ibid.*: 38). More seriously, the stratigraphic approach has led to concrete research strategies and analyses

that keep those levels apart. Thus, the problem is that "once culture, psyche, society, and organism have been converted into separate scientific 'levels,' complete and autonomous in themselves, it is very hard to bring them back together again" (*ibid.*: 41).

Geertz's ultimate goal was to apply theories and concepts from biology, psychology and sociology to the analysis of culture (*ibid.*). This cannot be done if, as many have done, scholars simply intuitively correlate cultural facts with the various levels. The stratigraphic approach must be replaced by a "synthetic" approach, by which Geertz meant "one in which biological, psychological, sociological, and cultural factors can be treated as variables within unitary systems of analysis" (*ibid.*: 44). This approach makes two strong claims: (a) that instead of viewing culture in terms of patterns, one should view culture in terms of "control mechanisms – plans, recipes, rules, instructions (what computer engineers call 'programs') – for the governing of behavior", and (b) "that man is precisely the animal most desperately dependent upon such extragenetic, outside-the-skin control mechanisms, such cultural programs, for ordering his behavior" (*ibid.*). These two claims, as I will show below, fit perfectly with present-day social and affective neuroscience, even though it is less accepted by cognitive scientists of religion.

Geertz did not reject the cognitive and other sciences. On the contrary, he insisted that in order to discern these governing mechanisms, one needs to see how the other sciences, such as "cybernetics, information theory, neurology, molecular genetics", can and do provide empirical support. Geertz concluded with one of my favourite quotes:

> And out of such reformulations of the concept of culture and of the role of culture in human life comes, in turn, a definition of man stressing not so much the empirical commonalities in his behavior, from place to place and time to time, but rather the mechanisms by whose agency the breadth and indeterminateness of his inherent capacities are reduced to the narrowness and specificity of his actual accomplishments. One of the most significant facts about us may finally be that we all begin with the natural equipment to live a thousand kinds of life but end in the end having lived only one. (*Ibid.*: 45)

This breath-taking vision has been ignored by most critics and by cognitive scientists of religion, and, yet, I would argue, Geertz has in this passage formulated a fundamental assumption that in slightly different terminology is shared by cognitive scientists of religion. But as we explore what Geertz had in mind, we will witness why there is a parting of the ways within the cognitive science of religion community today.

Seen in the light of the above-mentioned quote, we can better understand the often misunderstood claim in Geertz's next paragraph that human thought is not about "happenings in the head"; rather, in drawing on George Herbert Mead, it is about trafficking with significant symbols (*ibid.*: 45). Geertz did not deny psychological processes in the head. But for him, cognition, or "human thought" as he called it, is "basically both social and public" (*ibid.*). Humans draw on significant symbols that are there before they are born and that remain after they die. Humans use these symbols to find meaning in life events and the world. Humans are born incomplete creatures, equipped with general response capacities and great cerebral plasticity. But, Geertz argued, without direction by cultural patterns, humans would be the formless monsters mentioned in his essay on religion. Culture, therefore, being the totality of such patterns, "is not just an ornament of human existence but – the principal basis of its specificity – an essential condition for it" (*ibid.*: 46).

Geertz based his arguments on evolutionary biology and physical anthropology. He noted three important lessons to be drawn from the knowledge of the evolution of *Homo sapiens*, current at the time and still true today. First, physical evolution and the development of culture were not sequential, rather they overlapped and were interactive. Second, the bulk of what distinguishes modern man from his sapient progenitors took place in the brain and central nervous system. Third, humans are born as incomplete, unfinished creatures, not in terms of learning capacities but in terms of what they have to learn in order to function at all (*ibid.*).

Geertz emphasized that humans have never existed without culture and, therefore, any attempts to explain them without culture or, in a more common version, as biological creatures with a cultural veneer, is meaningless. In his 1962 essay "The Growth of Culture and the Evolution of Mind", Geertz recognized that the expansion of the hominine brain followed – not preceded – the "beginning" of culture (*ibid.*: 64). The term "beginning" of culture was set off in quotation marks because it was already recognized then, and has become even more significant today, that the Australopithecines also used stone tools, primitive as they were.[2] The Australopithecine brain was approximately the same size as that of modern-day chimpanzees (some 400–600 $cm^3$). The *Homo sapiens* brain is approximately 1200–1700 $cm^3$. But the expansion of the brain had begun already with the appearance of *Homo habilis*, the first hominine species that came out of the Australopithecine line some 2.5 million years ago (with a brain size of 500–800 $cm^3$) and became even more spectacular with the appearance 1.5 million years ago of the stone tool artist *Homo erectus* whose brain grew closer in size to modern humans at 750–1250 $cm^3$. It is today assumed by archaeologists and paleontologists that the production and use of tools was incremental to the expansion of the brain. Because tool use is much more than simply knocking stones and

bones together, and indeed, it depends very much on the recipes, rules and instructions of cultural patterns, it is widely accepted today that culture drove the expansion of the brain (along with other things, of course, such as eating meat). The causal chain, once again, however, is culture first, brain expansion afterwards.

Clifford Geertz was, thus, at the forefront of his times when he wrote that culture is not an added ingredient to an already completed animal, but is "centrally ingredient in the production of that animal itself" (*ibid.*: 47). There is, in other words, "no such thing as a human nature independent of culture" (*ibid.*: 49). These claims are just as true today, even more so, than in the 1960s because of insights produced during the past two decades by technical advances in paleoanthropology, archaeology, cognitive archaeology, evolutionary psychology and genetic analysis. The following quote strikingly indicates how far-sighted Geertz and his colleagues in the cognate sciences were at the time:

> Most crucially, it then becomes apparent that not only was cultural accumulation under way well before organic development ceased, but that such accumulation very likely played an active role in shaping the final stages of that development. Though it is apparently true enough that the invention of the airplane led to no visible bodily changes, no alterations of (innate) mental capacity, this was not necessarily the case for the pebble tool or the crude chopper, in whose wake seems to have come not only more erect stature, reduced dentition, and a more thumb-dominated hand, but the expansion of the human brain to its present size. Because tool manufacture puts a premium on manual skill and foresight, its introduction must have acted to shift selection pressures so as to favor the rapid growth of the forebrain as, in all likelihood, did the advances in social organization, communication, and moral regulation which there is reason to believe also occurred during this period of overlap between cultural and biological change. Nor were such nervous system changes merely quantitative; alterations in the interconnections among neurons and their manner of functioning may have been of greater importance than the simple increase in their number. Details aside, however – and the bulk of them remain to be determined – the point is that the innate, generic constitution of modern man (what used, in a simpler day, to be called "human nature") now appears to be both a cultural and a biological product in that "it is probably more correct to think of much of our structure as a result of culture rather than to think of men anatomically like ourselves slowly discovering culture." (*Ibid.*: 67)

The latter quote is from S. L. Washburn's essay "Speculations on the Interrelations of Tools and Biological Evolution" (1959). This essay was published in a collection of papers read by scholars from a variety of sciences at the Plenary Session of the Fifty-Sixth Annual Meeting of the American Anthropological Association in 1957. The goal of the essays was to pick up on Alfred Kroeber's earlier attempts to draw on biology in understanding humankind's capacity for culture (Kroeber 1928). Judging from the reviews, the anthology made an important impact (see Opler 1960; Howells 1960; Hulse 1961; Lasker 1994). As the editor J. N. Spuhler noted, there was no doubt that "our heads, brains, and faces reached their present shape following, rather than preceding, the making of tools" (Spuhler 1959: v). Washburn argued that bipedalism and tool-use were incremental to human evolution. Tools put new selection pressures on biological evolution:

> Tools changed the whole pattern of life bringing in hunting, cooperation, and the necessity for communication and language. Memory, foresight and originality were favored as never before, and the complex social system made possible by tools could only be realized by domesticated individuals. In a very real sense, tools created *Homo sapiens*. (Washburn 1959: 31)

Geertz reformulated these insights and made them relevant for cultural anthropology and for the rest of us. It is unfortunate that these fundamental insights have been overlooked both by some evolutionary psychologists and by most cognitive scientists of religion.

So, how does this all relate to religion, in Geertz's view? The crucial, even "generic" trait of cultural patterns for Geertz is that "they are extrinsic sources of information" (C. Geertz 1973: 92). Geertz wrote:

> By "sources of information," I mean only that – like genes – they provide a blueprint or template in terms of which processes external to themselves can be given a definite form. As the order of bases in a strand of DNA forms a coded program, a set of instructions, or a recipe, for the synthesis of the structurally complex proteins which shape organic functioning, so culture patterns provide such programs for the institution of the social and psychological processes which shape public behavior. Though the sort of information and the mode of its transmission are vastly different in the two cases, this comparison of gene and symbol is more than a strained analogy of the familiar "social heredity" sort. It is actually a substantial relationship, for it is precisely because of the fact that genetically programmed processes are so highly generalized in men, as com-

> pared with lower animals, that culturally programmed ones are so important; only because human behavior is so loosely determined by intrinsic sources of information that extrinsic sources are so vital. (*Ibid*.: 92–3)

Geertz spoke of these patterns as "models of" and "models for" relations among entities, processes and so on, that "unlike genes, and other nonsymbolic information sources, which are only models *for*, not models *of*, culture patterns have an intrinsic double aspect: they give meaning, that is, objective conceptual form, to social and psychological reality both by shaping themselves to it and by shaping it to themselves" (*ibid*.: 93). Such patterns and symbols "guarantee not only for their ability to comprehend the world, but also, comprehending it, to give a precision to their feeling, a definition to their emotions which enables them, morosely or joyfully, grimly or cavalierly, to endure it" (104). Geertz was, in fact, referring to religious symbols in this latter passage, but it expresses a generic trait that prevents humans from ever becoming formless monsters.

## The concept of mind

In light of the above, it will be necessary to conclude this section with a few remarks on Geertz's concept of mind. Geertz's discussions and arguments about the evolution of *Homo sapiens* and the psychic unity of mankind were motivated by an attempt to rescue the concept of mind from its ambivalent role in the behavioural sciences. In his 1962 essay described above, Geertz drew on Gilbert Ryle's *The Concept of Mind* (1949), more specifically Ryle's attempt to "determine the logical geography" of the concept of mind, mental powers and operations and to rescue the concept from the distortions, or "myth" as he called it, that are a result of Descartes' philosophical legacy (Ryle [1949] 1963: 10). What he was criticizing was Descartes' dualism of the body and the mind, of the physical world and the mental one, of the external and the internal, of matter and mind.

Geertz's essay begins with a quote from Ryle about the "mind is its own place", referring to the fact that Cartesian thought assumed that the mind is not an actual space, like the common field of material objects. Minds are isolated, "they are irremediably blind and deaf to the workings of one another's minds and inoperative upon them" (*ibid*.: 15), and there is no direct causal connection between minds in the sense of causal connections between material objects. The causal connections between minds can only occur through the material world, or so the official doctrine claimed. This doctrine, which Ryle calls "the dogma of the Ghost in the Machine" (*ibid*.: 17), is entirely false and is based on a category

mistake. By the latter he argued that "the facts of mental life" are treated "as if they belonged to one logical type or category…, when they actually belong to another" (*ibid.*). The fact and statement that there exist minds and bodies has led to category mistakes and logically absurd corollaries that are obvious when stating the fact that "there exist prime numbers and Wednesdays and public opinions and navies" (*ibid.*: 24). More positively, Ryle was arguing that "when we describe people as exercising qualities of mind, we are not referring to occult episodes of which their overt acts and utterances are effects; we are referring to those overt acts and utterances themselves" (*ibid.*: 26).

Perhaps the following quote will indicate where this is all going in terms of Geertz's project. Ryle argued:

> Th[e] trick of talking to oneself in silence is acquired neither quickly nor without effort; and it is a necessary condition of our acquiring it that we should have previously learned to talk intelligently aloud and have heard and understood other people doing so. Keeping our thoughts to ourselves is a sophisticated accomplishment … The combination of the two assumptions that theorizing is the primary activity of minds and that theorizing is intrinsically a private, silent, or internal operation remains one of the main supports of the dogma of the ghost in the machine. People tend to identify their minds with the "place" where they conduct their secret thoughts. They even come to suppose that there is a special mystery about how we publish our thoughts instead of realizing that we employ a special artifice to keep them to ourselves.
>
> (Ryle [1949] 1963: 28)

In other words, human life is one event that can be explained (and understood) in different ways. Geertz used Ryle to argue that

> "Mind" is a term denoting a class of skills, propensities, capacities, tendencies, habits; it refers in Dewey's phrase to an "active and eager background which lies in wait and engages whatever comes its way." And, as such, it is neither an action nor a thing, but an organized system of dispositions which finds its manifestation in some actions and some things. (C. Geertz 1973: 58)

Geertz argued that the hierarchically organized central nervous system should "prove valuable in providing a credible neurological underpinning for the complex of skills and propensities which constitute the human mind" (*ibid.*: 71). This statement is remarkably similar to the assumptions of present-day neurobiologists.

Thus, for Geertz, thinking is a public act "involving the purposeful manipulation of objective materials …, and thinking as a covert, private act, and without recourse to such materials, [is] a derived, though not unuseful, capability" (*ibid*.: 76). In the following, it can be argued that Geertz's assumptions reflect also some of the assumptions of the cognitive science of religion:

> It is a further implication of this view of reflective thought as consisting not of happenings in the head but of a matching of the states and processes of symbolic models against the states and processes of the wider world, that it is stimulus deficit which initiates mental activity and stimulus "discovery" which terminates it. (*Ibid*.: 78)

The process of comparing models with perceptual input from the wider world is known today as "prediction error monitoring" (Frith 2007: 132ff.; Frith & Frith 2010). Our experience of the world is in fact our experience of the brain's simulation of the world. The brain constantly predicts what is going on in the physical world, the body and, especially, the social world. These simulations are tested against the input of neurological mappings, perceptual input and social mappings. When it detects errors in its predictions, the brain attempts to improve its predictions.

Geertz argued that we are a "peculiarly high-strung animal" that needs to have a continuous stream of optimal environmental stimuli conditioned or modified by cultural control (C. Geertz 1973: 80). This control adds substance, precision and meaning to our "general, diffuse, ongoing flow of bodily sensation" (*ibid.*). With the latter, Geertz drew on Susanne Langer's *Feeling and Form* (1953). Thus we do not just gather information about events, rather, we attempt to determine "the affective significance, the emotional import of that pattern of events" (C. Geertz 1973: 81). In this sense, moods, attitudes and emotions are also public, just like thought. Thus ideas and emotions are cultural artefacts.

The expansion of the brain involved an increase in neurons, but this mechanistic statement ignores the fact that the expansion of the brain occurred simultaneously with the growth of culture:

> Although, conceivably, mere increase in numbers of neurons may in itself prove able fully to account for the florescence of mental capacity in man, the fact that the large human brain and human culture emerged synchronically, not serially, indicates that the most recent developments in the evolution of the nervous structure consist in the appearance of mechanisms which both permit the maintenance of more complex regnant fields and make the full determination of these fields in terms of intrinsic (innate) param-

> eters increasingly impossible. The human nervous system relies, inescapably, on the accessibility of public symbolic structures to build up its own autonomous, ongoing pattern of activity.
>
> (*Ibid*.: 83)

For those who might counter that the above-mentioned examples are from the "early Geertz", let me refer to two essays in Geertz's last collection, *Available Light* (2000). On the relationship between the human and natural sciences, in his 1995 essay "The Strange Estrangement" Geertz characterized Charles Taylor's scathing critique of the natural sciences as "a stereotype and a scarecrow" (C. Geertz 2000: 144). He showed that Taylor nowhere deals with actual examples of contemporary work in particular sciences, and most of his criticisms are of the pioneers of the scientific revolution. Geertz asked if the "eternal methodological civil war, the Hermeneuts versus the Naturalists, [is] in anyone's interest" (*ibid*.: 145). The stereotyping that is going on between both camps obstructs the "intellectual traffic between them … by artificial notions of primordial separateness" (*ibid*.: 146). Geertz was in a number of ways sympathetic to Taylor, but he tried to maintain a middle ground, mainly because "keeping the human sciences radically separated" from the natural sciences "is keeping such studies radically separated from the human sciences – left to the mercy of their own devices. Such devices are not enough" (*ibid*.: 156); and many false stories, conceptions and irrationalisms (Geertz mentions Zen physics, Maharishi cosmology and parapsychology – I could think of a whole host of similar fashions that unfortunately also dominate religious studies in the USA) are allowed to flourish to the detriment of science both human and natural.[3]

As for "mind", well, like "culture", putting the two of them together does not merely add difficulties, it explodes them. In his previously unpublished 1999 essay "Culture, Mind, Brain / Brain, Mind, Culture", Geertz argued that the massive attempts, witnessed in the histories of anthropology and psychology, at bridging the connection between the inner world and the outer one, is what "brings on the problem in the first place" (C. Geertz 2000: 204). Here we once again see Geertz's earlier arguments. One quote is sufficient to my point:

> All this – the coevolution of body and culture, the functionally incomplete character of the human nervous system, the ingredience of meaning in thought and of thought in practice – suggests that the way toward an improved understanding of the biological, the psychological, and the sociocultural is not through arranging them into some sort of chain-of-being hierarchy stretching from the physical and biological to the social and semiotic, each level emergent from

> and dependent upon (and, with luck, reducible to) the one beneath it. Nor is it through treating them as discontinuous, sovereign realities, enclosed, stand-alone domains externally connected … to one another by vague and adventitious forces, factors, quantities, and causes. Constitutive of one another, reciprocally constructive, they must be treated as such – as complements, not levels; aspects, not entities; landscapes, not realms. (*Ibid*.: 205–6)

I rest my case.

## What do others say (about Geertz)?

In the past few decades, some scholars of culture have been participating in what could be called "Clifford-Geertz-bashing". I am told that this often happens when great minds are either dead or close to it. Clifford Geertz was given his share of bumps while still alive, however, from various quarters. Catherine Bell in American postmodern religious studies (1992) and Talal Asad in American postcolonialism (1993) are both well-known examples.

Another well-known example of Geertz-bashing came from the unexpected evolutionary psychology quarters, from Tooby and Cosmides. In fact, they used Geertz as their primary target for a polemical tirade against the social and cultural sciences. As mentioned at the outset of this chapter, there are unfortunately generations of cognitive scientists of religion who think that cognitive theory is necessarily the diametrical opposite of social science theory and that Geertz is one of the worst examples of the latter. This is most unfortunate because, as I hope has become clear by now, Geertz was more of a cognitivist than is realized. In this section, I will begin with Tooby and Cosmides' claims not only about Geertz but also about cognition. I will argue that the evidence does not support them on either count.

Anthropologist John Tooby and psychologist Leda Cosmides also argued against Cartesian dualism in their programmatic chapter "The Psychological Foundations of Culture" (1992). They argued, however, from a different point of departure than Clifford Geertz. They claimed that the complexity of human life "is produced by a cognitive architecture, embodied in a physiological system, which interacts with the social and nonsocial world that surrounds it" (Tooby & Cosmides 1992: 21), and any attempts to break "this seamless matrix of causation" is unwarranted. They pointed out that the social sciences have attempted to isolate the social from the biological and to posit the "blank slate hypothesis" or the "*sui generis*" understanding of culture, from Durkheim to Kroeber, Boas, Murdock and Lowie. Clifford Geertz, they claimed, was a leading proponent of this approach, ensuring the insularity of

the social sciences by "abandoning the ground of principled causal analysis entirely in favor of treating social phenomena as 'texts' to be interpreted just as one might interpret literature" (*ibid*.: 22). They quoted Geertz as saying that we should "turn from trying to explain social phenomena by weaving them into grand textures of cause and effect to trying to explain them by placing them into local frames of awareness" (C. Geertz 1983: 6) as an example of refraining from weaving themselves together with the rest of the sciences. This is, as I have shown above, as far from the truth as can possibly be. In fact, the quote is arbitrarily taken out of context and twisted subtly to say what Geertz did not say. Here is what Geertz said and meant:

> To turn from trying to explain social phenomena by weaving them into grand textures of cause and effect to trying to explain them by placing them in local frames of awareness is to exchange a set of well-charted difficulties for a set of largely uncharted ones. Dispassion, generality, and empirical grounding are earmarks of any science worth the name, as is logical force. Those who take the determinative approach seek these elusive virtues by positing a radical distinction between description and evaluation and then confining themselves to the descriptive side of it; but those who take the hermeneutic, denying the distinction is radical or finding themselves somehow astride it, are barred from so brisk a strategy.
>
> (*Ibid*.)

This quote is found in the first pages of his collection of essays. What he was telling us in these first few pages is that his approach is interpretive and that he used the essay style rather than the stricter scientific style. He did not reject the scientific style and, in fact, notes that what he was doing was largely uncharted. But more importantly, he pointed out the fallacy of a sharp distinction between explanation and interpretation, a crucial point that many American scientists don't seem to get. From a philosophy of science point of view, Geertz was way ahead of his critics.

Tooby and Cosmides posited the Integrated Causal Model instead of the Standard Social Science Model (SSSM). The latter consists of a failure "to explore or accept their logical connections to the rest of the body of science" (Tooby & Cosmides 1992: 23). This, as I have shown, is exactly what Geertz was arguing for in the above-mentioned essays. So, the truth of the matter is, yes, there are many anthropologists and others who espouse the SSSM. They have, in fact, ignored Geertz's warnings and his eloquent arguments showing how to integrate the social sciences with the natural sciences through a unified concept of man. To make Geertz the primary exponent of the SSSM is, to put it mildly, a stretch of the imagination. In fact, I argue that Geertz was

a primary exponent, and a better one at that, of exactly the Integrated Causal Model.

Tooby's and Cosmides' understanding of cognition and of the causal relations between cognition and culture were as problematical then as they are now. They claimed that the mind is a set of evolved information-processing mechanisms that were selected for during our evolution. They are functionally specialized to solve particular adaptive problems and are content-specific. They generate some of the contents of culture that then are adopted or modified by psychological mechanisms which "set up" epidemiological and historical population-level processes located in social contexts or environments (*ibid*.: 24). Here is the causal chain:

> On this view, culture is the manufactured product of evolved psychological mechanisms situated in individuals living in groups. Culture and human social behavior is complexly variable, but not because the human mind is a social product, a blank slate, or an externally programmed general-purpose computer, lacking a richly defined evolved structure. Instead, human culture and social behavior is richly variable because it is generated by an incredibly intricate, contingent set of functional programs that use and process information from the world, including information that is provided both intentionally and unintentionally by other human beings. (*Ibid*.)

Tooby and Cosmides posited a brain filled with thousands of minicomputers providing all of these content-specific information mechanisms (Tooby & Cosmides 2000). Philosopher Jerry Fodor has called this hypothesis "modularity gone mad" (Fodor 1987). Tooby and Cosmides have not been able to prove that the brain does, in fact, consist of these modules or minicomputers. They have, in fact, only demonstrated one particular system, if at all, namely the "cheat-detection-module". Whether it is a module or not is still an open question.

In their more detailed criticism of the SSSM (Tooby & Cosmides 1992: 24ff.), Tooby and Cosmides misread Geertz. Here are a few examples. They claimed that the formless monster argument was a thought experiment to show that the "social world is the cause of the mental organization of adults" (*ibid*.: 26). They assumed that what Geertz meant was that babies are formless monsters: they concluded, for instance, that the SSSM account is about "the causal process whereby what is assumed to be an initially formless infant is transformed into a fully human (i.e., fully cultural) being" (*ibid*.: 27). As shown above, this is not what the formless monster argument was meant to illustrate. Geertz's monster was the impossible idea that humans were, are, or

can be understood without culture or as creatures with some kind of cultural veneer.

Another misquote is from Geertz's argument about culture being an extrinsic source of information. Tooby and Cosmides claimed that Geertz used this term to emphasize the non-biological origins and nature of culture. In fact, as we saw above, Geertz was arguing that culture contains information in the same way that DNA contains information, like recipes, instructions and so on. He was not arguing specifically at this point that culture is non-biological. He has consistently argued throughout that the two developed together and not serially.

Tooby and Cosmides were correct, however, about Geertz's assumption that humans are born with a general-purpose mind. Tooby and Cosmides opposed this and assumed that humans are born with content-specific modules. As mentioned, the burden of proof is theirs. Until they can prove their claims, against the evidence of a large number of neurobiologists and others, then I think we should side with Geertz on this issue. Taking such a stance necessarily leaves Tooby's and Cosmides' ICM hollow because it seems to ignore the neurophysiological evidence. Furthermore, they have constructed a bogeyman: an anthropologist who firmly believes in the *tabula rasa* hypothesis. I don't know whether such people exist (they probably do), but one thing is incontrovertible: Geertz was not one of them.

It is very difficult to provide a systematic discussion of Tooby's and Cosmides' caricature of social scientists because they jump from Durkheim to Skinner to Geertz (all too often without precise referencing) and back and forth to a great many others, who, it is claimed, all share the SSSM point of view. That they may share some assumptions is a mundane observation. That they share the exact same model, however, is wrong. Geertz was struggling against some of the very same assumptions that Tooby and Cosmides were struggling against. To make Geertz their straw man is not only manipulative, it is patently false.

## Revisiting Geertz in light of cognitive, social and affective neuroscience

How do Geertz's groundbreaking essays relate to cutting-edge cognitive, social and affective neuroscience today?

First of all, Geertz's assumptions fit well with what came to be known a decade later as Dual Inheritance Theory (DIT), in other words, the coevolution of genes and culture. One of Geertz's contemporaries laid some of the theoretical groundwork for the DIT. In his 1965 essay "Variation and Selective Retention in Socio-Cultural Evolution", social scientist Donald T.

Campbell introduced the idea. DIT, however, gained impetus through the mathematical models of gene–culture coevolution designed by geneticists Luigi Luca Cavalli-Sforza and Marcus Feldman in a groundbreaking article in 1976. Their claim was that "the social group also makes a contribution to the phenotype of each individual" (Cavalli-Sforza & Feldman 1976: 44). In a later publication, Cavalli-Sforza noted that human genetic evolution "has been heavily affected by technological innovations and by cultural change, in general" (2000: viii).[4]

Clifford Geertz was concerned with the possible role of tools and social complexity in the expansion of the brain. As evolutionary psychologist Merlin Donald recently pointed out, the expansion of the brain was a particular kind of expansion. It involved the expansion of the prefrontal cortex, and thus of executive control, which in turn led to highly refined motor control and to mankind's symbolic abilities. Of central importance, however, is the extreme plasticity of the brain. Contrary to the claims of Tooby and Cosmides, human brains are different from those of most other species because their cognitive strategies are fixed neither in their genes (Donald 2001: 210) nor in domain-specific modules in the brain (*ibid*.: 209). In fact, neural plasticity often results in uncertain localization of functions in the brain. Superplastic brains, as Donald calls them, generate new options at a fantastic pace. "Most of these innovations", he argued, "will not improve fitness, but some will, and natural selection will seek out and select those genes that nurture the most successful innovations. In this way, cerebral plasticity speeds up the rate of cognitive evolution" (*ibid*.: 210). This is the Baldwin effect, in other words, a feedback loop "that welds phylogeny to ontogeny in certain fast-learning species, producing a multiplier effect on the rate of evolution" (*ibid*.).[5] The fast-paced evolution of the human species led to what Donald half in jest calls "the Great Hominid Escape from the Nervous System". By this he meant that the development of symbolic culture, which is largely outside of the brain, "distributes cognitive activity across many brains and dominates the minds of its members" (*ibid*.: 149).

The most significant fact of human cognition is that it is deeply and irrevocably enculturated. Donald was not talking about simple socialization. He was arguing that "culture effectively wires up functional subsystems in the brain that would not otherwise exist" (*ibid*.: 212). The evolution of human cognitive communities emerged from small changes:

> The formation of cognitive communities was undoubtedly one of the most extraordinary events in the history of the biosphere, yet it seems to have been caused by a relatively simple expansion of the executive brain, with a corresponding change in developmental plasticity. The specific form of human consciousness was fixed by

> the demands of this adaptation. We are culture-mongers, driven by the very nature of our awareness to seek refuge and solace in community. We connect with and learn from others to a unique degree. Symbolic thought is a by-product of this fact, and so is language. Both result from the collision of conscious minds in culture.
>
> (*Ibid.*: 253)

Others have argued along these same lines. Biologist and semiotician Terrence Deacon has similarly argued that language is the result of coevolution. The evolutionary environments in which language evolved were *both* the cognitive constraints of the evolving brain *and* the communicative contexts of human cultures. In other words, both brain and language have exerted selection pressures on each other (Deacon 2003b: 86; 1992; 1997). More specifically, along the lines of developmental systems theory, he has argued that semiotic constraints were the boundary conditions in structuring both languages and brains "because these physical phenomena are embedded in complex dynamic systems, made sensitive to these constraints by the discovery of what can be done when they are respected and embodied" (Deacon 2003a: 104). Thus we need to discern the complex relations between self-organizing and selection processes if we are to understand human cognition.

Similarly, evolutionary anthropologist Michael Tomasello has argued that cultural transmission is a biological mechanism (also known among other species) that consists of "exploiting the already existing knowledge and skills of conspecifics" (Tomasello 1999: 4).[6] Thus the cognitive skills exhibited by modern humans are the result of cultural transmission. The evolutionary scenario he imagined is termed "the ratchet effect" (Tomasello *et al.* 1993; Tomasello 1999: 5), by which he meant that a process was initiated by one simple adaptation that was based on already existing primate cognitive skills such as dealing with space, objects or tools. This process led to "new, culturally based cognitive skills with a social-collective dimension" (Tomasello 1999: 7). This new form of social cognition led to "new forms of cultural learning, which enabled some new processes of sociogenesis and cumulative cultural evolution" (*ibid.*).

Tomasello, Donald and many others agree that this cognitive collectivity affects ontogeny so that by nine months of age, children can already participate in this collectivity (*ibid.*). As mentioned, Donald called it "deep enculturation", a process by which the child becomes enmeshed in the cultural environment through the constant and systematic use of attentional cues by conspecifics. These cues help determine memory, perceptual comparisons, habits, interpretations and the emotional valences of objects, people and events (Donald 2001: 212–13). These cues are algorithms that "establish the continuity of experience":

> They tell us what to look at, even internally and in what order, what comparisons to make, and what conclusions to draw. They give shape to everything, from the most basic events, such as greeting one's relatives, to the most esoteric, such as reading a paper in electrophysiology. Those deep attentional habits can push the mind inside itself, into memory, or outside, into the public cultural arena. They can also specify the mental operations that will be carried out on such cognitive voyages. These habitual sequences are automatized executive skills, woven into scripts and scenarios of considerable length. They are vital formative algorithms of the mind. They are written, stored, and edited entirely by culture and accumulate rapidly over generations… It is a startling thought that the effects of culture can reach so deeply into the heart of human nature. (*Ibid.*: 213)

Tooby and Cosmides were highly critical of developmental theories because they were deemed to be so closely related to the *tabula rasa* spectre that Tooby and Cosmides associate with socialization and learning (Tooby & Cosmides 1992: 28–31, 38–40, 122–3). Although they were right that children are indeed born with various skills, Geertz was right that they nevertheless are born incomplete in a physiological sense. The very fact that the brain of a new-born requires postnatal growth in order to become a fully developed human being, lasting surprisingly until the twentieth year (and beyond), should give pause for thought. Postnatal neural development is a fact. It involves synaptogenesis, postnatal neurogenesis, myelination, gyrification, the neurochemical development of the prefrontal cortex and the structural development of the prefrontal cortex (Nelson *et al.* 2006: 7–8). The most prolonged changes occur during synaptogenesis and myelination, especially in the frontal lobes (*ibid.*: 29). All of this occurs within a deeply social and cultural environment. The nativism espoused by Tooby and Cosmides, among others, is, according to neurobiologists Charles A. Nelson, Michelle de Haan and Kathleen M. Thomas, biologically implausible and counter-productively closes the door on any discussion of mechanism (*ibid.*: 2–3). Even the most basic visuospatial processing is most likely not due to a specific module in the brain (*ibid.*: 117–18).[7]

There is no space for a more detailed discussion of the neurobiology of development. It is sufficient to quote Nelson and colleagues' description of experience:

> [E]xperience is the product of an ongoing, reciprocal interaction between the environment and the brain. Second, experience has typically been defined by the properties of the environment

> in which an individual lives – for example, the language one is exposed to, the kind of caregiving experiences one has, the kinds of cognitive challenges that are supported by the environment, and so on. Here it must be stressed that experience is not simply a function of the environment per se, but is the result of a complex, bidirectional interaction between that environment and the developing brain. Third, experience interacts importantly with genetics … [S]tudies demonstrate the powerful role of the environment in moderating and mediating effects of genes on behavior.
>
> (*Ibid.*: 30–31)

An extremely important aspect of the environment is the use of tools. This important area of study has had a growing impact on the study of cognition. Psychologists and cognitive archaeologists have discovered significant facts about human cognition, and it would serve us well to attend to them. As Geertz claimed, the introduction of the use of stone tools was most likely a significant factor behind the expansion of the brain.

Stone tools are irrefutable evidence of the coevolution of human brains and technology, and the most important challenge for cognitive scientists today is not to deny the obvious, but rather to explore the relationships between the brain and complex tool-use and tool-making.[8]

Developmental neuropsychiatrist Quinton Deeley attempted to grasp the significance of Geertz's work from a neurocognitive perspective in a seminal article entitled "The Religious Brain: Turning Ideas into Convictions" (Deeley 2004). Taking his point of departure as Geertz's definition of religion, Deeley noted that anthropologists and cognitive scientists of religion have not succeeded in providing an account of why humans create symbolic cultures that influence their lives and inform individual religious beliefs and behaviours (*ibid.*: 246). By carefully examining the components of Geertz's definition, Deeley attempted to provide such an account. In drawing on the cognitive and neural bases of symbolism; the relations between language, mentalizing and culture; and the neurocognitive models of emotion, enculturation, ritual and memory, Deeley moved beyond the restrictions of innatist models of religious belief formation and explained how "conceptions of a general order of existence" are able to produce "powerful, pervasive, and long-lasting moods and motivations" in individuals (i.e. Geertz's definition of religion; 1973: 90). Deeley introduced a hypothesis on the efficacy of ritual as consisting of two major strategies: a "sensory route" that stimulates social signals, emotion and arousal, and a "semantic route" that engages an analogical/right hemisphere processing strategy. "Both routes", Deeley argued, "are hypothesized to synergically interact, activating the mesolimbic dopamine system amongst other components of cognitive-emotion processing, so that

the 'moods and motivations' evoked by the ritual performance seem 'uniquely realistic'" (Deeley 2004: 263).

Geertz himself was interested in developments in the neurosciences, social psychology and cultural psychology. His final collection of essays shows that he read a wide range of contemporary scholars in these areas.[9] There is no doubt that Geertz was excited about these developments, and he argued consistently that the days of disciplinary isolationism are over. In his 1997 essay "Imbalancing Act: Jerome Bruner's Cultural Psychology" (C. Geertz [1997] 2000), Geertz argued that what was needed were strategies that "confront, discompose, energize, and deprovincialize" these disciplines (*ibid*.: 199). He concluded that "psychology's next chapter", as he called it, "is more likely to be tumultuous than irenic as computational, biological, and cultural approaches grow in power and sophistication sufficient enough to assure that they will have transformative impacts upon one another" (197).

## Conclusion

Thus, Clifford Geertz is vindicated by cutting-edge advances in the social, affective and neurobiological sciences. Transforming Geertz into the straw man of the *tabula rasa* SSSM was a disservice not only to cognitive science but also to the creative interplay between the human, social and natural sciences. Furthermore, the caricature of the social sciences that many cognitivists maintain is nurtured by misguided conceptions of cognition. Confronting misguided conceptions of cognition and culture with contemporary insights in the social, affective and neurobiological sciences is one of the most important jobs of the future. Clifford Geertz knew this and practised it until his time was up.

### Notes

1. There are a number of studies, interviews and so on concerning Geertz. He himself has contributed interesting information on his background, not least his 1999 essay "Passage and Accident: A Life of Learning" (C. Geertz 2000: 3–20), which I have drawn on here. See also C. Geertz (1988), Handler (1991), Inglis (2000), Micheelsen (2002), Shankman (1984), Shweder (2010), Shweder & Good (2005) and White (2007).
2. See Asfaw *et al.* (1999). Discoveries have been made recently, pushing tool use several million years back: de Heinzelin *et al.* (1999), Kivell *et al.* (2011), McPherron *et al.* (2010), Braun (2010). The latter has raised some criticism, however: Domínguez-Rodrigo *et al.* (2010, 2011), McPherron *et al.* (2011).
3. By the way, if the reader, like myself, is particularly fond of Geertz's wit and style, this essay is priceless.
4. Three key publications in the early 1980s were Lumsden & Wilson (1981), Cavalli-Sforza

& Feldman (1981) and Boyd & Richerson (1985). All of these studies presented mathematical models of how genetic and cultural evolution affect each other.

5. The Baldwin effect is a precursor to Dual Inheritance Theory and was first coined by George Gaylord Simpson, who was sceptical of it, in 1953. James Mark Baldwin was, of course, the psychologist who in a lecture given in 1895, and published in two papers in 1896, argued that "learned behaviors can affect the direction and rate of evolutionary change by natural selection" (Depew 2003: 3). See Depew (2003: 6ff.) for a systematic overview of Baldwin's arguments.
6. This idea of cultural transmission as an evolutionary dimension is shared by a wide number of biologists such as Jablonka & Lamb (2005), Oyama (2000) and Solé & Goodwin (2000). Geneticist Gilbert Gottlieb termed it "probabilistic epigenesis" by which he meant that there are "completely bidirectional influences within and between…levels of analysis… (genetic activity, neural activity, behavior, physical, social, cultural aspects of environment)" (Gottlieb 2007: 2).
7. See also Van Orden & Kloos (2003) and Uttal (2001).
8. Several special issues on cognition and materiality have appeared recently, such as Chiao (2010), Knappett & Malafouris (2008), Renfrew & Scarre (1998) and Renfrew *et al.* (2009). See also Malafouris (2010), M. Wilson (2010) and A. W. Geertz (2010).
9. His index lists Jerome Bruner, Patricia Churchland, Andy Clark, Antonio Damasio, Daniel Dennett, Gerald Edelman, Jerry Fodor, George Lakoff, David Premack, Oliver Sacks and Richard Shweder. He also had read and greatly appreciated Quinton Deeley's above-mentioned article (Deeley, 23 March 2012, private correspondence, with permission).

# 13

# Cognitive science and religious thought

## The case of psychological interiority in the *Analects*

Edward Slingerland

One of the most commonly assigned secondary texts in university classes on early Chinese religious thought is Herbert Fingarette's classic *Confucius: The Secular as Sacred* (Fingarette 1972).[1] This is not only because of its brevity and the lucidity of its prose, but also because Fingarette's book marked a sea change in the manner in which Western philosophers approached early Chinese texts. Fingarette (1972) played a central role in inaugurating an era of much more nuanced, culturally sensitive interpretations of the *Analects*, as well as other early Chinese texts, in philosophical circles: an era in which Confucius no longer appeared as a watered-down Christian or "Axial Age" Kantian who occasionally liked to play dress-up and perform some strange rituals, but rather demanded serious philosophical attention as a unique thinker in his own right. Fingarette was one of the first Western philosophers to recognize that the early Confucian model of the self fundamentally challenges a particular understanding of the ethical self, and the self vis-à-vis culture and society, that remains quite prominent in modern Western philosophical and popular discourse. Taken seriously on its own terms, the *Analects* presents a vision wherein the individual is not an autonomous atom, freely pursuing its own rational self-interest, but is rather always already embedded in a web of familial, social and cultural connections. Cultural training is not perceived as an optional add-on to an otherwise self-sufficient and fully-developed individual, but rather as fundamentally constitutive of anything that could be acknowledged as genuine human personhood. Knowledge is not limited to abstract "knowing that" or mere assent to a set of principles, but is rather portrayed as a kind of embodied, and largely implicit, "know-how". Radical choice and self-conscious individualism are not, as Kant and his evil existentialist twins would have it, the very foundation of the ethical self, but rather symptoms of a historically and

globally quite anomalous modern Western *anomie*. *Confucius: The Secular as Sacred* can be seen as inaugurating an important trend in the study of early Chinese religious thought that holds up early Chinese conceptions of the self and society as important correctives to various excesses and blind-spots in modern Western philosophy.[2]

This trend has been, on the whole, a salutary one; a helpful antidote to Western cultural myopia, and particularly to the quite impoverished and psychologically implausible model of the self, rationality and culture that characterizes much of modern Western philosophical discourse.[3] However, as with any medicine, an overdose can be even more harmful than the original malady. I wish to argue here that the philosophical trend inaugurated by Fingarette has in several respects gone too far in emphasizing the uniqueness of early Chinese thought, crossing the line between an appreciation of genuine difference and a quite harmful form of cultural exoticization that might be labelled "reverse Orientalism".[4]

I will attempt to illustrate this point with a specific and quite dramatic claim that Fingarette made in his 1972 work: that Confucius of the *Analects* completely lacked any notion of psychological interiority. Fingarette makes it clear that he means this in the strongest possible sense:

> I must emphasize that my point here is not that Confucius' words are intended to exclude reference to the inner psyche. He could have done this if he had had such a basic metaphor in mind, had seen its plausibility, but on reflection had decided to reject it. But this is not what I am arguing here. My thesis is that the entire notion never entered his head. The metaphor of an inner psychic life, in all its ramifications so familiar to us, simply is not present in the *Analects*, not even as a rejected possibility.
>
> (Fingarette 1972: 45)

Although over thirty-five years have passed since Fingarette originally made this claim, and despite that fact that it has come under criticism from several different angles in recent decades,[5] it remains a viable position in the field. It is still maintained by Fingarette himself,[6] and related stances, such as the claim that early Confucian thought is concerned entirely with role performance rather than any type of inner psychological individuality, are widely asserted by prominent scholars of early Chinese thought.[7]

In this chapter I would like to put this argument finally to rest by means of a two-part critique, the first employing more traditional religious-studies methodologies and the second illustrating the manner in which cognitive science can make original and significant contributions to debates in the study of religious thought. In part one, I will begin with more traditional textual

evidence strongly suggesting that, *pace* Fingarette, Confucius clearly must have had access to a concept of psychological interiority because this concept plays a prominent role in a textual tradition that he was very much dedicated to, that of the *Book of Odes* (*shijing* 詩經). In addition, I will argue that we can find clear evidence of the concept of psychological interiority in the *Analects*; that, in fact, major themes in the *Analects* make no sense without such a concept. In part two, I will explore two ways in which evidence from cognitive science is relevant to the debate: our modern understanding of the cognitive reality of metaphor suggests that we must take the interiority metaphors we see in early Chinese texts seriously, and our best current understanding of human cognition makes it highly unlikely *any* psychologically healthy member of the species *Homo sapiens*, anytime or anywhere, has lacked a concept of inner–outer boundaries to the self or psychological interiority. I will argue that these two pieces of evidence so radically change the burden of proof for Fingarette's argument that it can no longer be plausibly maintained. I will then conclude with some thoughts on the important role that cognitive scientific evidence can serve as a hermeneutical limit-setter, and how adopting an empirically viable, embodied model of human cognition can significantly alter the interpretative landscape within which sinologists, philosophers and religious-studies scholars do our work.

## Textual evidence

### *Psychological interiority in the* Odes

Confucius of the *Analects* places enormous importance on the *Shijing* 詩經 or *Book of Odes*, which for him seemed to embody all of the aesthetic excellence and moral wisdom of the ancients. Although there has long been scholarly disagreement about the precise dating of the *Book of Odes*, it is the general consensus that the received text represents largely Western Zhou or earlier materials. That our received text has not been passed down to us unchanged since that time is made clear by the fact that Warring States texts often cite "lost" Odes, that is, verse that is attributed to the *Odes* but not present in our extant Mao edition. On the strength of this evidence alone it is difficult to specify with any precision or confidence the exact content of the text that Confucius so treasured. Recent archaeological evidence has demonstrated that there may have been more diversity in various editions of the *Odes* circulating in Warring States China than was previously thought (Kern 2005); nonetheless, it is clear that something broadly resembling our received version played a major role in Confucius' life.

This being the case, indications that psychological interiority plays an important role in the *Odes* would suggest that Confucius of the *Analects* at least had

access to the concept, even if he then decided to ignore or reject it. Let us consider briefly a few particularly relevant *Odes*. In Mao 35 ("Valley Breeze" or *Gufeng* 谷風), a virtuous wife being sent away by her husband, who has apparently tired of her, says "I go along the road slowly, slowly/ In my innermost heart-mind reluctant" (行道遲遲／中心有違). Although *xin* 心 here is probably best rendered as "heart", since it is emotions that are being emphasized, I will render it consistently as "heart-mind" because, as we shall see, it is the seat of both emotions and thoughts. The term that I have translated as "reluctant" (*wei* 違) means literally "opposed" or "going against", in the sense that the poetess's physical or outward behavior (travelling down the road, away from her former home) is in conflict with her "innermost heart-mind" (*zhongxin* 中心). One could not have clearer expression of conflict between inner psychological state and outer behaviour. Consider a similar sentiment expressed in Mao 65 ("The Wine-Millet Bends" or *Shuli* 黍離), where a poet filled with sorrow compares his bowed head and sunken posture to a millet stalk overladen with grain:

> Slowly I moved about,
> In my innermost heart-mind all-agitated.
> Those who know me,
> Say that my heart-mind is worried;
> Those who do not know me,
> Ask what it is that I am looking for.
>
> 行邁靡靡、中心搖搖。
> 知我者、謂我心憂、
> 不知我者、謂我何求。

The poet's physical posture, with his bowed head and slow gait, suggests someone searching the ground for a lost object, hence those who are unaware of his inner sorrow ask what he is looking for. Those who know him, though, realize that he is not looking for anything: his gait and posture reflect, in fact, the metaphorical weight of profound sorrow and worry. Here we see again the idea that inner feelings are not necessarily obvious from one's outward behaviour, with the additional implication that it is therefore difficult for outside observers to know for certain what is going on "inside" another person.

The term *zhongxin* 中心 (lit. "innermost heart-mind", "heart of hearts") appears sixteen times in the *Odes*, and clearly involves container logic, *zhong* 中 meaning "middle", "inside" or "centre". This innermost heart-mind contains one's most intimate personal thoughts and feelings, which, because the heart-mind is encompassed and therefore masked by the outer container of the external body, makes it difficult for interior thoughts and feelings to be perceived from the outside. This leads to the possibility of a disjunction

between inner psychology and outer behaviour, although outer behaviour can be used as a clue to infer indirectly the contents of the heart-mind. This would seem to correspond quite closely to what we have in mind when we talk about "psychological interiority".

## *The role of psychological interiority in the* Analects

The *Odes* are by their very nature rather terse and suggestive. By the time we get to the *Analects* itself,[8] the concept of psychological interiority can be found widely and clearly expressed, and indeed underlies some of the core themes and anxieties expressed in the text. Moreover, the container metaphor *zhong* ("centre" or "middle") that played such a dominant role in the *Odes* is joined by another vivid container metaphor, that of "inner" (nei 內) versus "outer" (*wai* 外). A nicely representative example is *Analects* 5.27, where Confucius laments "I should just give up! I have yet to meet someone who is able to perceive his own faults and then take himself to task inwardly" (已矣乎吾未見能見其過而內自訟者也). The phrase translated as "to take oneself to task inwardly" (*neizisong* 內自訟) means literally "to internally file a legal complaint against oneself"; the translator Simon Leys sacrifices literal fidelity in order to preserve the metaphorical thrust of this phrase in his translation: "exposing [his faults] in the tribunal of his heart" (Leys 1997: 23). It represents about as strong a sense of psychological interiority as one could wish: within the self is to unfold a metaphorical lawsuit in which one takes oneself to task. A very similar sentiment is expressed in *Analects* 4.17, where the aspiring gentleman is urged to "look within" himself (*neizixing* 內自省):

> The Master said, "When you see someone who is worthy, concentrate upon becoming their equal; when you see someone who is unworthy, use this as an opportunity to look within yourself."
>
> 子曰見賢思齊焉見不賢而內自省也

The result of this process of "looking within oneself" is an accurate measure of one's one state of moral self-cultivation, which in turn can give one confidence in one's own virtue even in the face of social disapproval or external difficulties. In *Analects* 12.4, the disciple Sima Niu asks Confucius to characterize the gentleman. The Master replies:

> "The gentleman is free of anxiety and fear."
>
> Sima Niu said, "'Free of anxiety and fear' – is that all there is to being a gentleman?"

> "If you can look inside yourself and find no faults, what cause is there for anxiety or fear?"
>
> 子曰君子不憂不懼曰不憂不懼斯謂之君子已乎子曰內省不疚夫何憂何懼

We see here the idea that introspection gives one access to what we might call the "true self": what is on the "inside" is the genuine self, which may or may not be reflected on the "outside" of the person.

Indeed, throughout the *Analects* we see a suspicion of the information that can be gleaned from the outside of the self. Confucius was famously dubious, for instance, of the reliability of a person's verbal assertions.[9] He often coupled his concerns about the unreliability of words with a suspicion of what could be determined from a person's countenance or facial expression (*se* 色), literally "colour", essentially the outside surface of the container of the self. In 1.3, Confucius famously declares that "a clever tongue and beguiling countenance are rarely signs of *ren*"[10] (巧言令色，鮮矣仁). This suspicion of glib speech and superficial appearance is found throughout the *Analects*. The saying found in 1.3 is repeated in 17.7,[11] and in 15.11 the danger presented by "glib people" (*ningren* 佞人) is compared to the derangement of morals brought about by the music of Zheng. David Nivison (1999: 751) has made a very interesting observation that may explain Confucius's hatred for clever, ingratiating people: in archaic Chinese (AC), *ning* was pronounced **nieng*[12] and is actually a graphic modification of its cognate *ren* 仁 (AC **nien*). The original meaning of *ren* was something like "noble in form", and it would appear that *ning* was its counterpart in the verbal realm: "attractive or noble in speech". In giving *ning* a negative meaning in the *Analects*, Confucius drives a wedge between the two qualities: *ren* now becomes "true", that is, inner nobleness or virtue, whereas *ning* represents the false, external counterfeit of *ren*. This is no doubt the sentiment behind such passages as 12.3 ("The Good person is sparing of speech") and 13.27 ("reticence is close to Goodness"), as well as Confucius' general suspicion of language and outward show.

We see concerns about hypocrisy explicitly linked to the container metaphor of "inner" in 17.12, where Confucius declares "To assume a severe countenance while being weak inside – is this not, to take an analogy from the common classes, like breaking into a home in order to commit burglary?" (色厲而內荏，譬諸小人，其猶穿窬之盜也與). "Lower classes" is here a rendering of *xiaoren* 小人 (lit. "small people"), more typically translated as "petty person". Here it is clearly being used in its socio-economic sense in order to make the point that while poverty-struck commoners commit transgressions in order to steal physical objects, the "petty people" among the aristocratic and educated classes, who, being well-off materially, have no need to literally

commit burglary, steal metaphorically, the object of their "burglary" being a good reputation or worldly renown.

This idea of hypocrisy as metaphorical thievery, to "lack the substance but steal the name", as the Song Dynasty commentator Zhu Xi puts it (1218), also features in the following passage, 17.13, where Confucius cryptically declares that "the village worthy is the thief of virtue". Probably the best commentary on this passage is by one of Confucius' Warring States followers, Mencius, found in *Mencius* 7:B:37. Here Mencius quotes 17.13, and then is asked for further explanation by the disciple Wan Zhang:

> "What sort of person is this, who is referred to as a 'village worthy'?"
>
> "He is the type of person who says, 'Why be so grandly ambitious?' His words have nothing to do with his actions, and his actions have nothing to do with his words. Such a person then goes on to declare, 'The ancients, the ancients, why were they so standoffish and cold? When you are born in an age, you should accommodate yourself to it. As long as you do so skilfully, this is acceptable.' Someone who, in this way, tries to surreptitiously curry favour with his contemporaries – this is the 'village worthy.'"
>
> "If everyone in a village praises a man as being worthy, and nowhere can you find someone who does not consider him worthy, what did Confucius mean by calling such a person a 'thief of virtue'?"
>
> "Those who try to censure him can find no basis; those who try to criticize him can find no faults. He follows along with all the vulgar trends and harmonizes with the sordid age. Dwelling in this way he seems dutiful and trustworthy; acting in this way, he seems honest and pure. The multitude are all pleased with him – he is pleased with himself as well – and yet you cannot enter with him into the Way of Yao and Shun. This is why he is called the 'thief of virtue'. Confucius said, 'I despise that which seems to be but in fact is not. I despise weeds, for fear they will be mistaken for domesticated sprouts. I despise glibness, for fear it will be mistaken for rightness. I despise cleverness of speech, for fear it will be mistaken for trustworthiness. I despise the tunes of Zheng, for fear they will be mistaken for true music. I despise the colour purple, for fear it will be mistaken for vermillion [*Analects* 17.18]. I despise the village worthy, for fear that he will be mistaken for one who truly possesses virtue.'"

The village worthy is thus one who carefully observes all of the outward practices dictated by convention and so attains a measure of social respect,

but who lacks the *inward* commitment to the Way that characterizes the true Confucian gentleman. Confucius refers to him as the "thief of virtue" because from the *outside* he seems to be a gentleman, and so lays a false claim to virtue. By serving as counterfeit models of virtue for the common people, the village worthy is in effect a false prophet, not only blocking the development of true virtue in himself but also leading others astray.

This issue of potential hypocrisy is a central theme in the *Analects*, and, as in the passages we have examined above, is often linked to the potentially misleading nature of container surfaces (facial expression, mere words, outer behaviour), whereas true virtue is consistently linked with the "inside" of the container self. In his discussion of the *Analects*, Fingarette at times acknowledges this emphasis on sincerity or genuineness, but systematically elides the connection between genuineness and interiority. For instance, in his discussion of 3.12, where Confucius declares that "If I am not fully present at the sacrifice, it is as if I did not sacrifice at all", Fingarette acknowledges that true ritual only works because "the individuals involved do it with seriousness and sincerity", concluding that "beautiful and effective ceremony requires the personal 'presence' to be fused with learned ceremonial skill" (1972: 8). As P. J. Ivanhoe observes regarding this comment, "The scare quotes around 'presence' cannot disguise what [Fingarette] has here admitted. There is a clear reference to an inner self that plays a critical role in ideal ritual interaction" (Ivanhoe 2008: 47). It is thus exceedingly hard to see, even limiting ourselves only to traditional textual analysis, how we might understand the *Analects* without attributing to Confucius a fairly robust sense of psychological interiority.

## Perspectives from cognitive science

### *The importance of metaphor*

At one point Fingarette does briefly address the presence in the *Analects* of the metaphor of "inner" (*nei* 內), but quickly dismisses the three occurrences of this word as "vague allusions" entirely lacking in conceptual importance (1972: 46). In fact, as the textual evidence examined above clearly demonstrates, these references to "inwardness" are anything but unimportant, and are deployed together with other similar metaphors throughout the text in a consistent and conceptually important manner. At a much more general level of analysis, the ease with which Fingarette dismisses the specific metaphors used in the text is symptomatic of a broader tendency of philosophers to give short shrift to the importance of metaphors. As Mark Johnson has observed (Johnson 1981), the Western philosophical tradition has long been characterized by a view of meta-

phor as philosophically superfluous: a decorative rhetorical device expressing a thought capable of being fully reduced to some literal equivalent, and therefore merely entertaining at best, and potentially misleading at worst. Scholars of early Chinese thought trained in analytic philosophy departments are typically heirs to this attitude, dismissing the metaphorical specificity of arguments in early Chinese thought in the belief that what really matters is extracting their abstract, logical and propositional essence.[13]

From the perspective of cognitive science, this attitude would seem to be empirically quite ill-advised. There is a growing body of evidence that human thought, far from involving exclusively amodal concepts linked to each other in a propositional manner, is rather primarily image-based and modal in character, that is, deriving its structure from sensory-motor patterns. Among cognitive scientists, this image-based view of human concepts has been perhaps most systematically developed by Lawrence Barsalou and his colleagues, who argue for a "perceptual symbol" account of human cognition. According to this model, the symbols manipulated in human thought are understood, not as pictures, but as "records of neural activation that arises during perception" (Barsalou 1999: 583). These records can be abstracted from and combined in various ways in areas of the brain "upstream" from the sensory-motor cortices, but they always remain to some extent grounded in sensory-motor systems. There is a huge and constantly growing body of evidence in favour of at least some version of the perceptual symbol account,[14] but perhaps the strongest argument in its favour is that it avoids two fundamental problems that plague amodal symbolic accounts: the transduction problem (how perceptual signals could get "translated" into amodal symbols) and the grounding problem (how arbitrary, abstract symbols could ever come to refer to something in the world); and it fits better with what we know about how the brain in general works.

This idea of bodily-based, concrete schemas serving as essential conceptual templates for our understanding of abstract, or less clearly structured, domains is also the basic insight behind conceptual metaphor theory, which the philosopher Mark Johnson and the linguist George Lakoff have done the most to develop. They were pioneers in formulating a comprehensive and coherent model of cross-domain projection and, most significantly, demonstrating the pervasiveness of these projections in all aspects of human conceptual life.[15] Against theories of metaphor that portray it as a relatively rare and somewhat "deviant" mode of communication thrown in to add rhetorical spice, Lakoff and Johnson argue that "conceptual metaphor" is in fact a ubiquitous and fundamental aspect of human cognition. Conceptual metaphor, as they understand it, involves the recruitment of structure from a concrete or clearly organized domain (the *source* domain) in order to understand and talk about another, usually more abstract or less clearly structured domain (the

*target* domain). This is the basic conception of metaphor as a cross-domain mapping introduced above, which encompasses similes and analogies as well as metaphors in the more traditional sense.

The most basic of these projective mappings are a set of "primary metaphors", which are the result of relatively abstract target domains becoming associated with some basic schema source domains (PATH or SCALE, for instance) through experiential correlation. Lakoff and Johnson (1999: 50–54) provide a short list of representative primary metaphors such as AFFECTION IS WARMTH, IMPORTANT IS BIG, MORE IS UP and so on, specifying their sensory-motor source domains and the primary experience correlations that give rise to them. Although they argue that *all* such primary metaphors develop gradually through experiential correlation, it is likely that at least some basic cross-domain associations are the result of fixed synaesthetic cross-wiring,[16] such as the correlation of tones with verticality, or textures such as sharpness with tones or tastes ("E-sharp" or "sharp cheddar").

However these primary metaphors are developed, all individuals have a huge store of them at their disposal by the time they are able to become productive users of language. These accumulated metaphorical associations then become one of the individual's primary tools for reasoning about him- or herself and the world, especially when it comes to relatively abstract or unstructured domains, as well as for communicating thoughts to others. While concepts such as "time" or "death" may have a skeleton structure that is represented conceptually in relatively amodal terms, in most cases this amodal structure is not rich or detailed enough to allow us to make useful inferences. Therefore, when we attempt to conceptualize and reason about relatively unstructured realms, this skeleton is fleshed out (usually automatically and unconsciously) with additional structure provided by primary metaphors derived from basic bodily experience, often invoked in combination with other primary metaphors to form complex metaphors or conceptual blends. When primary or complex source domains are activated in such cases and mapped onto the target domain, most aspects of the source domain's conceptual topology, that is, inference patterns, imagistic reasoning pattern, salient entities and so on, are preserved, thereby importing a high degree of structure into the target domain.

Image schemas and conceptual metaphors have been shown to play a foundational structuring role in everything from basic human categorization and grammatical structures to religious and philosophical discourse, scientific theorizing and legal reasoning.[17] Simple documentation of the pervasiveness and systematicity of conceptual metaphor in human cognition goes a long way toward demonstrating that such schemas play more of a role than as mere figures of speech. In addition to the more general experimental evidence for the imagistic basis for concepts discussed above with regard to the perceptual

symbol theory, there is also now a veritable mountain of linguistic and psychological evidence for the claim that conceptual metaphors in fact represent conceptually active, dynamic, language-independent structures that play an inevitable and fundamental role in embodied human cognition.[18] To be sure, the empirical science of metaphor is still in its infancy and many outstanding problems remain, including how precisely metaphors are instantiated neurobiologically and how they interact with relatively abstract or amodal propositions or conversational intentions. One may also, of course, question the details of specific metaphor analyses, or claims as to the extent to which particular metaphorical entailments are driving a given argument. What is emphatically *not* in doubt, however, is that conceptual metaphors are cognitively real, that is, metaphorical linguistic expressions do activate corresponding image schemas in the sensory-motor regions of the brain, and that these activated schemas play an important role in perception, semantic and syntactic processing, and at least certain sorts of reasoning processes.

This work on metaphor represents one important way in which cognitive science can be of use in the academic study of religion. We do not have direct access to the mind of Confucius or the compilers of the *Analects*. We *do*, however, share with them a common experience of interpersonal struggle, lawsuits and containers, which gives us conceptual access to passages such as 5.27. Another nice Warring States example of this sort of bodily-based access, which also provides a window onto otherwise inaccessible inner psychological experience, is a passage in the Confucian text *Xunzi*, where increasing severities of criticism are conceived of metaphorically as being stabbed with increasingly large weapons: a minor criticism is a "needle", whereas more serious criticism is a "spear-stab". We can compare this to such English expressions as "sharp" criticism, "cutting sarcasm" or gentle "needling". Here our common physiological responses to being prodded with pointy objects gives us insight into the common psychological pain of enduring criticism from others.

It is this common, embodied experience that can serve as a bridge to the otherwise inaccessible experience of the "Other", and this bridging function is precisely why we cannot ignore the metaphors employed in texts from other cultures or dismiss them as "vague allusions". At the same time, the recognition that these experiences are contingent upon bodies and physical environment, that no set of experientially derived conceptual schemas provides unmediated access to the "things in themselves" and that some degree of cultural variation in schemas is to be expected allows us to avoid the sort of rigid universalism that characterizes Enlightenment-inspired approaches to the study of thought and culture. Ideally, then, conceptual metaphor analysis represents a tool from cognitive science that can give scholars of comparative religion access to a universally shared conceptual grammar, which can then in turn serve as a tool for genuine cross-cultural dialogue.[19]

### *The biological self-container and Theory of Mind (ToM)*

It may seem like a rather trivial matter to emphasize, but it must be kept in mind that the early Chinese had *bodies*: they were *Homo sapiens*, a rather unusual but fully embodied species of great ape, and shared with their modern conspecifics a host of basic embodied experiences: ingesting food, expelling waste, coming into contact with other physical bodies and so on. As Antonio Damasio has pointed out, a basic, necessary precondition for *any* form of life is some sort of boundary between inner and outer:

> One key to understanding living organisms, from those that are made up of one cell to those that are made up of billions of cells, is the definition of their boundary, the separation between what is *in* and what is *out*. The structure of the organism is inside the boundary and the life of the organism is defined by the maintenance of internal states within the boundary. Singular individuality depends on the boundary. (Damasio 1999: 135–6)

The inner–outer boundary is necessary for physiological homeostasis, that is, assuring that environmental variation does not cause excessive variation within the organism itself. As Damasio notes, biological life simply stops if the profile of the "chemical bath" inside the boundary of the self varies outside very narrow range. He also observes that this necessity of a regulated boundary between inside and outside describes not only the specifications for survival of any organism, but also "some of the biological antecedents of the sense of self – the sense of a single, bounded, living organism bent on maintaining stability to maintain its life" (136). We thus should not be at all surprised to find inner–outer metaphors playing as an important role in early Chinese discourse about the self as in our own discourse.

Work in cognitive science also suggests that, when it comes to speculating about what goes on "inside" this container self, the vast majority of human beings will share a set of powerful and automatic intuitions. Cognitive scientists have been arguing for decades for the existence in human beings of a "Theory of Mind" (ToM),[20] which causes us to go beyond perceptual data to "paint" mental properties (desires, goals, thoughts) onto the world. It is apparent that, from a very early age, human beings conceive of intentionality as a distinct kind of causality, and distinguish it from both the kind of physical causation that characterizes folk physics and teleological, "vitalistic" causation.

The literature on ToM is vast; the reader is referred to Bloom (2004) for a helpful and quite readable review. Here I will merely note that there is increasingly clear evidence that the tendency to project agency onto the world appears to emerge quite early in development (Spelke *et al.* 1995; Bloom

2004; Phillips & Wellman 2005); has a largely automatic and perceptual component in addition to cognitive components emerging later in development (Scholl & Tremoulet 2000; Tager-Flusberg 2005; Senju *et al.* 2009); is present cross-culturally (Barrett *et al.* 2005; Cohen 2007); is vulnerable to selective and at least partial damage in conditions such as autism (Baron-Cohen 1995; Tager-Flusberg 2005); and would appear to be distributed in human populations in a spectrum ranging from autism (deficient ToM) to schizophrenia (excessive ToM) with a clear genetic basis (Crespi and Badcock 2008; Crespi *et al.* 2009). The accumulation of evidence concerning ToM in human cognition motivates Paul Bloom's famous argument that mind–body dualism is not an accidental philosophical legacy of Plato or Descartes, but rather a universal feature of human "folk" cognition (Bloom 2004).

The fact that seeing other agents as motivated by invisible, interior mental states appears to be an evolved, universal human cognitive default strikes me as a final and fatal bit of evidence against Fingarette's argument. All biological organisms are characterized by boundaries between inner and outer, and humans in particular automatically and effortlessly populate these interiors with psychological entities of various sorts. This being the case, it would really be quite shocking if such concepts did not inform the thought of Confucius of the *Analects*, and even more shocking if he did not even consider them as possibilities. When we combine this evidence from cognitive science with the textual evidence long available to sinologists that strongly suggests that Confucius *did*, in fact, reason in terms of container logic and psychological interiority, the "no interiority" argument is faced with an insurmountable barrier.

## Conclusion

As anyone engaged in the project of studying texts is aware, textual interpretation is not an analytic science: one cannot "prove" that one's interpretation of a text is correct with the same degree of confidence that one can demonstrate a geometrical or logical proof. Although I believe that the passages from Warring States texts that I have cited above are best understood as reflecting a sense of psychological interiority, one could conceivably try systematically to read all of these passages in a "non-interiority" fashion; as, indeed, Fingarette and his defenders attempt to do. In the final analysis, all that one can do when defending a particular line of interpretation is lay out one's textual evidence, add to it whatever extra-textual evidence one feels relevant and let the felt weight of this evidence do its work on one's audience.

In religious studies, the relevant extra-textual evidence has typically consisted of historical or archeological evidence. What I hope to have demonstrated

here is that a rich and powerful new source of evidence, evidence concerning likely human cognitive universals, can also throw its weight onto the hermeneutic scale, often with decisive effect. Moreover, I would also like to argue that, at a broader level, the model of human commonality that arises from an embodied, evolutionary-informed approach to the human self can and should transform the very interpretative landscape in which our hermeneutical debates occur. As I have argued in great detail elsewhere (Slingerland 2008), humanistic inquiry in Western academia has, especially over the last half century or so, been dominated by disembodied models of human cognition. Whether rationalistic and universalist or social constructivist and radically particularistic, these models have been based on the assumption that the basic architecture of human thought arises in a manner completely independent of our evolved, biological embodiment. Such a position is no longer empirically tenable. The human mind is inextricably embodied, and like all embodied minds is the product of evolutionary processes. In the case of humans, these evolutionary processes occur in both biological (genetic) and cultural forms,[21] but neither one has the effect of magically extracting us from the physical world in which we are embedded. The manner in which a hermeneutic journey unfolds depends very much upon its point of departure. In the academy today, that point of departure is typically the assumption of radical cultural difference, which in turn is based upon a disembodied, culturally or linguistically constructed model of human cognition. Adopting an embodied perspective dramatically alters the point from which we enter a text from another culture, with important implications for the manner in which the hermeneutical process will then subsequently unfold. This represents an important contribution of cognitive science to the academic study of culture, including religious culture.

As we have seen above in the case of the *Analects*, adopting the embodied perspective radically shifts the burden of proof onto those who would deny psychological interiority to Confucius, a burden that, as evidence reviewed suggests, the text cannot bear. This does not mean that early Confucian thought did not differ in important and revealing ways from that of, say, Descartes or Kant; it also does not mean that texts like the *Analects* do not challenge many basic elements of modern Western conceptions of the self, elements that very much deserve to be brought into question. What it *does* mean is that such conceptual variation needs to be contextualized within a framework of basic human cognitive universals. Indeed, it is this very framework that allows texts or thinkers from another era or cultural context to be comprehensible in the first place. It is important to recognize that a fully exoticized "Other" cannot engage us at all, and that the religious or philosophical challenge, the corrective force, of texts such as the *Analects* can only be felt against a background of cognitive universality.

## Notes

1. Recently translated into French and reprinted by University of Montréal Press (Fingarette 2004).
2. See especially the work of Roger Ames (e.g. Ames 1991) and Henry Rosemont Jr (e.g. Rosemont 1991).
3. For arguments concerning the superior empirical adequacy of certain early Chinese conceptions of the self and self-cultivation vis-à-vis Enlightenment models of the self, see Munro (2005) and Slingerland (2011b).
4. I refer to this trend as "reverse Orientalism" because it shares with classic Orientalism a monolithic conception of the "East" as opposed to an equally monolithic "West", as well as many of the same specific claims about the nature of "Eastern" thought, but reverses the normative evaluation: the East is no longer negatively portrayed as inferior or servile, but rather positively lauded as a "holistic" cure to the social and philosophical ailments of modern Western life. See Slingerland (2013) for a more thorough discussion of this trend in modern Western scholarship with regard to Chinese conceptions of mind–body relations.
5. In an early response to *The Secular As Sacred*, for instance, Henry Rosemont Jr criticized Fingarette's lack of interiority argument for resting on merely negative evidence (Rosemont 1976: 471), and Benjamin Schwartz similarly argued that the lack of lexical equivalents to "subjectivity" or "psychic states" does not mean that such concepts do not play an essential role in the text (Schwartz 1985: 71–5). Also see Ruskola (1992) for an important critique of relevant aspects of Fingarette's position.
6. In a recent book chapter, for instance, Fingarette notes that translations of the *Analects* have been distorted as a result of the "psychologizing of Confucius, particularly its subjective orientation. We in the West take subjective, 'Inner' life so much for granted that reading Confucius this way is quite unselfconscious, and hence all the more prejudicial" (Fingarette 2008).
7. See, for example, Rosemont & Ames (2009) on "role ethics" in early Confucian thought.
8. Traditionally, the *Analects* has been viewed as a coherent and accurate record of the teachings of the Master, recorded during his lifetime or perhaps shortly after his death in approximately 480 BCE, but the current consensus among contemporary scholars is that our received version is a somewhat heterogeneous collection of material from different time periods, assembled by an editor or series of editors, probably considerably after the death of Confucius, but likely completed by the late fifth century or early fourth century BCE.
9. See particularly 5.5, 11.25, 12.3, 13.27, 15.11, 16.4 and 17.18.
10. *Ren* (仁), often translated as "Goodness" or "humanity" is, for Confucius, the highest of the virtues, the "master virtue" of being a proper human being.
11. Cf. 5.5, 11.25, 12.3, 16.4.
12. Generally the modern Mandarin pronunciation of Chinese characters is given, the Mandarin dialect being the standard form of modern spoken Chinese. When relevant, however, it is the practice to provide postulated archaic pronunciation (reconstructed indirectly by historians of phonetics) denoted with an asterisk.
13. See, for instance, Shun (1997: 103–7) or Hutton (2002: 169). Interestingly, in the study of early Chinese thought one also often finds the mirror image of this attitude: the idea that Chinese thought, or East Asian or even Eastern thought more generally, is metaphorical through and through, in a manner that qualitatively distinguishes Eastern thought from logical, literal Western thought. For a critique of this counter-extreme, the reader is referred to Slingerland (2011a).

14. For reviews see the essays collected in Pecher and Zwaan (2005). Another important recent statement of the argument for mental images as foundational for human cognition is Kosslyn *et al.* (2006), which also includes a helpful review of the empirical evidence.
15. Lakoff & Johnson (1980, 1999) and Gibbs (2006) provide helpful introductions to conceptual metaphor theory.
16. For more on the relationship between synaesthesia (the unusual blending of two or more senses) and metaphor, see Slingerland (2008: 156–62).
17. See Slingerland (2008: 170–72) for extensive references.
18. For reviews of various convergent lines of linguistic and experimental evidence, see McNeill (1992), Lakoff & Johnson (1999: 81–9), Coulson (2001: 75–83), Rohrer (2005) and Gibbs (2006).
19. For more on this topic, see Slingerland (2004).
20. ToM is "theory"-like in that it goes beyond the available data to postulate the existence of unobservable, causal forces or principles. There is a lively debate concerning the appropriateness of the word "theory" when it comes to ToM. Some, such as Gopnik & Wellmann (1994), defend the position that theory of mind *is* a sort of implicit theory. The defenders of the "simulation" position (Gordon 1992; Gallese & Goldman 1998), on the contrary, argue that the achievements of ToM are the result of sensory-motor simulation, relying upon our mirror-neuron system. A third position is carved out by Shaun Gallagher with his claim that ToM is the result of perception-based "body-reading" (Gallagher 2005: 227).
21. For more on "dual inheritance theory", see Richerson & Boyd (2005) and Henrich & McElreath (2007).

# 14

# Conclusion

## Moving towards a new science of religion; or, have we already arrived?

Luther H. Martin and Ilkka Pyysiäinen

The editors of this volume suggest that cognitive science of religion (CSR) is maturing into a coherent field defined by a common assumption that the workings of the mind must be attended to in scholarly research. The editors' views about the emergence of a coherent research programme of CSR may, however, be somewhat overly optimistic.

Despite the common assumption by CSR researches that the workings of the mind must be attended to in the study of religion, which does offer some constraint upon the approaches employed, the field of CSR has, nevertheless, been developing as a number of somewhat different research programmes. Because of the differing methodological and theoretical emphases of these programmes, the concept "cognitive science of religion" more often serves as an umbrella term for a diversity of research agendas and strategies than for a coherent field of study. In addition to the "standard model" of CSR (Boyer 2005), for example, there is the adaptationist programme of religion represented by the journal *Religion, Brain and Behavior* (see Wilson 2008; Sosis 2009; Schloss & Murray 2011) and the "Aarhus school", that is, the Religion, Cognition and Culture Research Unit (RCC) established in 2004 by Armin W. Geertz and Jeppe Sinding Jensen (A. W. Geertz 2008, 2010; Schjoedt 2009), which emphasizes the role of culture for human cognition. Other centres dedicated to the study of cognition and culture are The Center for Anthropology and Mind at Oxford University, directed by social anthropologist Harvey Whitehouse; the Institute of Cognition and Culture at Queen's University Belfast, founded by Whitehouse and now headed by anthropologist Paulo Sousa; the Laboratory for the Experimental Research of Religion (LEVYNA) at Masaryk University, Brno, directed by experimental anthropologist Dimitris Xygalatas and anthropological historian Lee McCorkle; The

Center for Mind, Brain and Culture at Emory University, directed by philosopher of science Robert N. McCauley; and the Centre for Human Evolution, Cognition, and Culture (HECC) at the University of British Columbia and Simon Fraser University in Vancouver, directed by evolutionary psychologist Joseph Henrich, social psychologist Ara Norenzayan and cognitive historian Edward Slingerland (see Pyysiäinen 2012b). Most recently a focus on historical studies is represented by the forthcoming *Journal for Cognitive Historiography* (Equinox).

The optimism expressed by the editors of this volume about the emergence of a new coherent research programme in CSR is further tempered by the contents of the present volume. Although they have chosen the important topic of how these various CSR research agendas might be related to classical approaches to the study of religion, thereby integrating CSR into the broader history of and discussion about the study of religion and how CSR might build on and improve these approaches, the various contributors to the volume draw from (and/or themselves advocate) differing schools within the cognitive sciences and psychology.

The clearest contribution to this volume about how classical approaches in the study of religion have foreshadowed CSR is Pascal Boyer's chapter on Claude Lévi-Strauss. Lévi-Strauss, Boyer argues, was instrumental in renewing modern interest in understanding the "universal constraints on human cultures" (p. 164). He "described a cognitive unconscious that is highly counter-intuitive, because it does not consist in the kinds of thoughts we consciously entertain, but of correspondences within codes and analogical transfers between them" (p. 175).

Lévi-Strauss rejected "the tyranny of [such] misleading ideological terms like 'religion'", repeatedly emphasizing that his object of study was "mythical thought, understood as the brain-based underlying codes that informed our folk-knowledge" (p. 171). Consequently, there "was no need to think of myth as *sui generis*" (p. 171). However, Lévi-Strauss was unable to "relate his hypotheses and models of cultural phenomena to any precise cognitive models of psychological processes", because, of course, such models did not yet exist (p. 164).

Lévi-Strauss represented what Boyer identifies generally as a "scientific mode" of "legitimation strategy" in contrast to an "erudition mode" (p. 165). Boyer characterizes the science mode "as what people do when they test a model or set of hypotheses against some evidence, using statistics and other mathematical methods to evaluate the fit of the model". The erudition mode, on the other hand, "is typical of scholarly projects in which people aim to provide, not causal explanations for why the world is the way it is, but a catalogue of a particular domain of reality" (p. 165). Traditional anthropological studies and studies of religion have generally embraced the erudition model. As a

consequence of this lackadaisical approach to explaining religious thought and behaviour, Boyer concludes, "the field became theoretically amorphous, and unresponsive to actual scientific proposals about the way religious thought and behaviour could emerge in individuals, be distributed in groups and contribute to social dynamics" (p. 168). By contrast, Lévi-Strauss "pioneered a study of cultural phenomena that required a constant exchange between 'erudition' and 'science' projects" (p. 165). The proposal "constituted a radical departure from standard social science, including the standard approaches to religious thought and behaviour as social phenomena" (p. 166), which, consequently, had very limited influence on research in the social sciences or on the study of religion. Boyer concludes that while Lévi-Strauss was "quite admirable in his assumptions", he was nevertheless "interestingly wrong in his conclusions", a principle that Boyer recommends in the evaluation of all "scientific ancestors" of the CSR (p. 175), and that most closely approximates the editors' goals for this volume.

Gordon Ingram's discussion of Jean Piaget also follows Boyer's recommended "principle" for evaluating "scientific ancestors". Piaget's pioneering work in cognitive development provides an important challenge to CSR because developmental models have been largely neglected by cognitive scientists of religion (but see e.g. Karmiloff-Smith 1992; Kelemen 2004; Kelemen & DiYanni 2005; McCauley 2011). Although Piaget argued that childhood development results from individuals' exploration of their environment, he argued against historical and cultural factors emphasizing, instead, that this development happens in terms of "well-defined universal psychological stages" (p. 129). He also hypothesized that the "cognitive processes characteristic of children are retained to some degree in adult cognition" (p. 143), a view confirmed by recent cognitive research (e.g. Kelemen & Rosset 2009).

Since Piaget had little to say about religion, Ingram explores instead Piaget's views of moral reasoning, which Ingram, problematically, seems to equate with religion (pp. 133–7). Although there is historical documentation for such a relationship among many religions (but not all, e.g. the religions of ancient Greece and Rome or of classical Confucianism), this identification contrasts with recent studies that conclude an evolutionary rather than a religious basis for morality (e.g. Wright 1994; Hauser 2006), by which "morality is the occasion for religion" (Boyer 1996: 191, 202; Pyysiäinen & Hauser 2010). While Ingram's expositional strategy is understandable given Piaget's lack of attention to religion, might it not have been more interesting had Ingram himself applied Piaget's developmental insights, or his own neo-Piagetian developmental insights, to some religious tradition?

Whereas Boyer and Ingram exemplify the editors' ideal for this volume, most of the other authors do not explicitly embrace an agenda of exploring how CSR might build on and improve certain classical approaches to

the study of religion. While their contributions are generally interesting and often insightful, they tend, rather, to focus upon the ways by which older traditions might supplement the CSR approach, especially in relation to their own research agendas.

Stewart Guthrie attempts ambitiously to identify relationships between the history of philosophy and anthropology, Robin Horton's thought, and CSR. Guthrie argues that cognitive theories have their intellectual roots in Francis Bacon's observation that human cognition is biased, a view subsequently applied to religion by Benedict de Spinoza and David Hume. Horton, on the other hand, like E. B. Tylor, was aware of but little interested in non-rational biases in cognition (pp. 34, 43). Like Tylor, Horton argued that religion is cognitive in the sense of logical thought (p. 33) and, consequently, that religion and science have much in common in that both pursue knowledge of the external world by postulating systematic relations among phenomena, a view also advanced by Karl Popper (1972) and recently elaborated by McCauley (2011).

Horton's contribution to the cognitive science of religion, according to Guthrie, is that Horton, like Lévi-Strauss, argued against religion as something *sui generi*s (pp. 40, 43). Rather, religion is a process of explaining and attempting to control external phenomena. Consequently, reflective cognition (i.e. rational thought) is central to religion, which, nonetheless, extends social relationships beyond the human. However, Guthrie does not so much show how Horton's thinking might have anticipated CSR as it shows, rather, how Horton has done pioneering work that is in accordance with Guthrie's own theory of religion as a form of animism and anthropomorphism.

Guthrie is, himself, widely recognized as a pioneer of the cognitive approach (Guthrie 1980; see L. H. Martin 2003; Saler 2009) and his work is actually much closer to the standard model of CSR than he sometimes seems to think. For example, he interprets "(counter)intuitiveness", as it is employed in the standard model of CSR (e.g. Boyer 1996), to mean the same as "(non)naturalness". This identification, Guthrie maintains, is in contrast with his own view, and with that of Horton, that beliefs in spirits and other non-natural agents are continuous with, and draw upon, ordinary thought and are, therefore, intuitive rather than counter-intuitive. Guthrie's reading of "counter-intuitiveness" as used in the standard model would seem to be misleading at worse and a semantic hitch at best. However, Boyer has also recognized the ambiguity of the category "counter-intuitive" as employed in the standard model and suggests that "counter-ontological" may have been a better choice (Boyer 2001: 65). "Ontologically counter-intuitive" concepts can be and often are felt to be perfectly natural by "believers", as Guthrie emphasizes. This is not to say that the idea of counter-intuitive (or counter-ontological) violations of intuitive ontology is without problems. Whether

"God", for example, is a personal agent minus a physical body, or actually a category of its own (Franks 2003), remains an open question (see Shtulman 2008).

Guthrie concludes that were Horton's rationalism to be modified with contemporary views about the extent and importance of the cognitive unconscious, then his central ideas do not contradict those of CSR (p. 34). Since, however, the whole point of CSR is that cognitive models *do* stem from nonconscious processes, the argument seems forced. While Horton has made significant contributions to anthropology and to contemporary religious studies generally, his ideas would seem to have little specific relevance to CSR. Still, the issue, raised by Guthrie, of relationships to CSR from the history of philosophy is an important one that deserves further consideration; for example, the anticipation by Charles Sanders Peirce of conscious as well as intuitive motivations (Peirce 1929).

Harvey Whitehouse, for his part, notes that Emile Durkheim's emphasis on religion provides "a way of conceptualizing and cultivating attachment to the permanent, transcendent quality of society" (p. 67). Religious concepts, on this view, arise partly as ways of grappling with a sense that social groups transcend the people they comprise. They transcend us in three senses: they outlive us; we are socialized into them rather than creating them ourselves; they regulate our behaviour. For Durkheim, this sense of transcendence "encapsulated the essence of sacredness" (p. 67), which has prompted anthropologists to postulate a series of cross-culturally recurrent contrasts between "sacred and profane characteristics" (p. 71). He recognized, however, that cataloguing the characteristics of the "sacred and profane" in this way is problematic. Although he understood that the cultural traditions we call religions are inextricably connected and set apart from more mundane aspects of daily life, he lacked the tools to explain adequately why this domain of the sacred should constitute a discrete domain at all, given its heterogeneous contents.

Whitehouse argues that cognitive scientists of religion have, on the other hand, successfully adopted a "'fractionating' strategy, realizing that the intuitions undergirding our conceptions of gods, ghosts, creation and ritual, along with other features of the universal religious repertoire, are numerous and diverse" (p. 78). Apart from the problems in Whitehouse's position posed by modern Western assumptions about a sacred–profane dichotomy or of an *a priori* (culturally contingent) category of "religion" that may be "fractionated", Whitehouse identifies an important neglect in the study of religion, namely, how do certain pan-human cognitive dispositions result in just those bonded practices and ideas that modern scholars call "religion"? However, he provides no direction for how "cognitive and evolutionary approaches are", in his judgement, "now beginning to provide a fuller account of the contents of the sacred domain, to translate the inspiring metaphors of the Durkheimian

tradition into the empirically tractable theories of modern science" (p. 77). He does provide an interesting review of cognitive studies on mind–body dualism and on "promiscuous teleology", but the connection of such findings to Durkheim's views is not always clear.

In light of the general assumption by CSR researchers of attending to the mind, it is curious that Whitehouse did not address Durkheim's view of sacrality as "mental representations" in "individual minds" (e.g. Durkheim [1915] 1965: 252–3, 388), or Durkheim's insistence that "society exists and lives only in and through … individual minds … [and] is real only in so far as it has a place in human consciousness" (Durkheim [1915] 1965: 389; *à la* Sperber 1996). Warren Schmaus's erudite analysis of Durkheim's thought which shows that, although Durkheim was an anti-reductionist, he was not actually anti-psychological (Schmaus 2004, 2010) would have supported this more fundamental assumption of Durkheim's thought. After all, he did spend two years (1885–6) in Germany studying with Wilhelm Wundt (Durkheim 1887) prior to publishing his *Elementary Forms of the Religious Life* (1912).

Ann Taves analyses Max Weber's notion of "charisma" as an example of what a cognitive science of religion inspired by him might look like. Taves emphasizes that such an approach would focus, first of all, on "a cognitive science of *religious behaviour*" and on the motivations for that behaviour (p. 81). Second, it would encourage us to distinguish the metacognitive meanings of "cognition" at play in the scientific study of religious behaviour from those associated with mental processes, conscious as well as unconscious (pp. 80–81).

Taves is right in claiming that "charisma" is not, in Weber's view, the special property of an individual but refers rather to non-ordinary powers attributed to "charismatics" by their followers (Martin & Krymkowski 1998). According to Taves, Weber used the term "charisma" as a broad framework for thinking about behaviours "motivated by religious or magical factors" (p. 81). Rather than shying away from such behaviours, as have many social scientists, Taves proposes a focus by contemporary research on "the detection of agency and on the attribution of non-ordinary powers to (unseen) animates within a larger field of powers (ordinary and non-ordinary) that people attribute to objects, artifacts, animals and persons" (p. 82).

Taves wants to conceive of charismatic and magical powers as a type of socioculturally constructed "affordance" that is accessible to (or, more precisely, *believed* to be accessible to) only a small subset of persons or objects. She borrows the notion of "affordances" from environmental psychology to refer to what the environment "*offers* the animal, what it *provides* or *furnishes* either for good or ill" and which enables the goal-directed actions of animals in their environment (p. 91, quoting Gibson 1986: 127). This concept of affordances is a relational category that provides a crucial link between animals and their environments and so falls under the general heading of "situated cognition".

Thus, she conceptualizes charismatic and magical powers as a specialized type of affordance that enables a goal-directed action that is believed not to have been otherwise possible (see Talmont-Kaminiski, Chapter 7).

Taves's suggestion about how Weber's notion of charisma might be usefully developed in light of the notion of "affordances" is promising. "A fuller model of special affordances", she writes, "would not only allow us to organize relevant experimental research, but also, building on this research, to manipulate variables experimentally under conditions in which causation can be known and controlled" (p. 96). To further develop the idea of charisma, Taves might also have drawn fruitfully upon research insights from cognitive developmental modes, such as the developmentally early attributions of agent causality (i.e. Kelemen's "promiscuous teleology") or notions of "counter-intuitiveness" and "essentialism" (see Ketola 2008; Ingram, Chapter 9).

Karl Marx's insight about religion, Jason Slone emphasizes, was to understand its utility as a means to material ends. One of the very interesting things about Marx's assumptions for the cognitive sciences (as well as Darwin's, to whom Slone subsequently turns) is that both offered theories that replaced agent causality with natural causality, which is, after all, the hallmark of scientific knowledge. And providing a natural causality for human behaviour, including religious behaviour, is precisely the contemporary contribution of the cognitive sciences. Whether or not one agrees with Marx's "interesting conclusions", he was, nevertheless, "quite admirable in his assumptions".

Slone concludes his consideration of Marx's contribution to CSR with a "Darwinized" view of Marx in light of sexual selection theory. Slone suggests that rather than religion providing a strategy for (socio-economic) survival as suggested by Marx, it provides a reproductive strategy whereby "low-status individuals might not be using religion as opium for escape but, rather, as an aphrodisiac for attraction" (p. 65), a promising hypothesis that could be argued further and even be assessed experimentally, perhaps by employing the research methods of behavioural economists.

Joseph Bulbulia offers an insightful defence of Sigmund Freud's later theory of religion and why it "remains interesting to science" (p. 112). For Bulbulia, "the received interpretation of Freud, according to which religion is the product of wishful thinking, is correct as a rough description … of Freud's *proximate* explanation for religion" (p. 115). Although he is fully aware of the "sexual overstatement, pseudo-scientism, and biological naivety" that characterizes the work of Freund, Bulbulia argues that Freud presented "a proto-evolutionary theory of religion, noticing that religion endures from social–functional advantages" (p. 115). Bulbulia points out that, for Freud, "religious illusions suppress the recognition of cooperation-damaging inequalities, organise collective goals and afford optimism, in the face of nature's crushing horrors, from rectifying and distracting illusions in moralising protector

gods" (p. 121). Consequently, religious illusions are conserved, according to Bulbulia's reading of Freud, because they satisfy conditions for the possibility of large-scale civilizations. Nevertheless, Bulbulia notes that Freud does not discuss how loyalty to religious traditions actually binds groups together, or how religious rituals foster social commitment.

Bulbulia concludes that Freud has made a series of observations, some of which, he argues, are worth converting into testable hypotheses. And, while "there can be no substitute for experimentation when evaluating hypotheses", Bulbulia emphasizes, "naturalists should not be too satisfied with the models that inspire current investigations". Rather, Bulbulia sagely counsels that "anyone interested in scientific truth would be wise to read good fictions [such as Freud], carefully, for their authors [may well] notice facts that easily escape less discerning eyes" (p. 126).

In light of Boyer's "principle", and the theme of this volume, it is surprising that Bulbulia completely neglects Freud's "quite admirable assumptions" about the interiority of the mental and the primary significance of that interiority for all human thought and behaviour (e.g. Freud [1900] 1999: 405). Although his conclusions were "interestingly wrong", Freud's emphasis on the priority of unconscious functions for consciousness, on the ensuing selective interpretations of perceptions, both of self and of the environment, and on the relationship of these unconscious functions for the construction of social institutions such as "religion" surely anticipates contemporary research in the cognitive sciences to a greater extent than does Bulbulia's strained emphasis on his contributions to understanding the bases for large-scale social cooperation.

Tanya Luhrmann takes Freud's contemporary William James as her starting point to argue that James was only interested, in his explorations of the *Varieties of Religious Experience*, in spontaneous religious experiences and not in the ways that "spiritual training" might encourage such experiences. Her own argument is the claim that "the capacity to treat what the mind imagines as more real than the world one knows is the capacity at the heart of the experience of God" (p. 157). Common to imagination, as well as to trance, hypnosis, dissociation and spiritual experience is a notion of "absorption" (p. 149). According to Luhrmann, this notion of absorption is an evolved human capacity that helps explain why religious beliefs emerge for most humans and that "facilitates the unusual spiritual experience central to James's story" (p. 149). "But whereas James was eager to emphasize just how basic and universal these phenomena are", Luhrmann suggests that they illustrate that the capacity for absorption is "trainable" (p. 161).

Luhrmann's argument seems contrary to what most CSR researchers claim: first, the question of why "religion" emerged in the first place is intractable, and, second, extraordinary experiences play a very minor role in explaining why religion is widespread (Boyer 1994). Whereas "James concluded from

the bodily features of religious experience that God has a certain nature", Luhrmann argues that "it is more accurate to conclude that one learns to use the body to perceive God" (p. 161). Although Luhrmann concludes that paying attention to the human proclivity for absorption allows an understanding of "spirituality as a style of mental culture", her views about "spirituality" (including about God) approach the realm of metaphysics (see further, Luhrmann 2012: e.g. 325). And although she cites a few basic works of CSR as giving support to her own claims, her agenda of showing how one might learn "to use the body to perceive God" represents, at best, an example of the kind of ambiguities CSR should avoid and, at worse, seems much closer to neurotheology than to CSR. Nevertheless, her emphasis on the role of learning resonates with that of the "Aarhus school" and should not be disregarded.

Armin Geertz argues the contributions of Clifford Geertz to CSR. In contrast to what he identifies as misunderstandings of C. Geertz among cognitive scientists of religion, promoted especially by such evolutionary psychologists as John Tooby and Leda Cosmides (1992), A. Geertz argues, rather, that C. Geertz's ideas "mesh well with contemporary cognitive, social and affective neuroscience". C. Geertz, A. Geertz emphasizes, questioned traditional "stratigraphic" notions of research in the social sciences whereby differing levels as the biological, the psychological, the social and the cultural have been kept apart, "complete and autonomous in themselves". He argued, rather, that this stratigraphic view should be replaced by a "synthetic" approach, in which these various levels should be treated as variables within "unitary systems of analysis" (p. 179).

C. Geertz's call for "unitary systems of analysis" is a programmatic statement which, however, remained unrealized in his own work (see e.g. M. Martin 2000: 187–205). C. Geertz's view also involves philosophical problems of multi-level explanation such as those discussed by McCauley (Chapter 2) as well as by such philosophers of science as, for example, William Bechtel (2008) and Carl Craver (2007). There are several ways of distinguishing between the levels of nature and those of science. One issue is whether there is only within-level causation, or whether there are cross-level causal relationships, or only constitutive relationships between the levels. It is the *explanandum* that in each question determines at which level we look for the *explanans* (see Pyysiäinen 2009: 201–4; 2011; 2012a).

It is good and right to correct misconceptions regarding C. Geertz and, in this regard, A. Geertz has shown that C. Geertz was more concerned with the relationship between brain and culture than is acknowledged by most cognitive scientists of religion, a relationship especially of importance to those like A. Geertz who are interested in a "cognitive science of culture". There have been, however, many developments in this area since C. Geertz (and

since Tooby and Cosmides) (see e.g. McCauley 2007; Sun 2012). To put it starkly, there seems to be a distinction between those CSR researchers who understand the mind as a genetic reservoir of potential phenotypic diversity in terms of which the spread of culture is canalized (Atran 2002) and those who, in the view of C. Geertz, see cultures themselves as "control mechanisms – plans, recipes, rules, instructions (what computer engineers call 'programs')" for the governing of human behaviour (p. 179). By contrast, the culture-psychological relationship is, according to the "standard model" of CSR, not two different levels but rather separate measures of mental representations and of their spread (Sperber 2006).

For C. Geertz, the analysis of culture remained finally "an interpretive one in search of meaning" and "not an experimental science" (C. Geertz 1973: 5, 9, 20). Because CSR researchers, by and large, are engaged in explanations that draw upon experimental work, we are afraid that C. Geertz's hermeneutical emphases finally have little to contribute to contemporary CSR discussions. A. Geertz might have rather appealed to the discussion on the relationship between cognition and culture by E. Thomas Lawson and Robert N. McCauley (1990), who, in their study, widely acknowledged to be a vanguard of the cognitive science of religion, explored the interaction of interpretation and explanation "in the growth of knowledge and their interdependence as cognitive activities" (Lawson & McCauley 1990: 22–31; see also Boyer, Chapter 11, and Taves, Chapter 6).

Edward Slingerland offers an interesting case study by a historian of how "mind-blind" research (and assumptions), that is, research which takes no account of the recent findings by cognitive scientists about mental functions, can lead to erroneous historiographical conclusions, and he does so by re-examining the same evidence cited by previous scholarship. Specifically, Slingerland contrasts Herbert Fingarette's widely accepted denial of any idea of psychological interiority in the *Analects* of Confucius (Fingarette 1972) with his own analysis of the *Analects* informed by the theories of embodied cognition promulgated by George Lakoff and Mark Johnson (1980, 1999) and by Lawrence Barsalou (1999). Slingerland argues that human cognition is strongly embodied and thus not simply an abstract "program" supported by the brain. In other words, theories of embodied cognition are not that much in contrast with an anti-interiorist view as is the standard model of CSR (see Anttonen [1992, 1996] on the boundaries between inside and outside both with regard to territory and the human body). Slingerland rightly concludes that an understanding of human cognitive universals can aid hermeneutic work by providing relevant extra-textual evidence alongside that of historical and archaeological evidence (pp. 209–10; McCauley, Chapter 2; cf. L. H. Martin 2004).

The various differing, even contradictory, traditions drawn upon and appealed to by those now pursuing research in the broad area of CSR that

we noted earlier seem to have congealed, at least in the case of contributors to this volume, into two (very general) explanations for the "cognitive biases" first noted by F. Bacon (*à la* Guthrie, Chapter 3). A first explanatory tradition, exemplified by Tylor, Horton, Marx, Durkheim, Weber, C. Geertz and Fingarette, emphasizes sociocultural variables that operated upon minds from the top down. A second explanatory tradition, exemplified by Lévi-Strauss, Piaget, Freud and James emphasize pan-human mental biases that are expressed in sociocultural diversity. Two of the contributors to this volume have suggested ways by which these two modes of explanation might be reconciled. Konrad Talmont-Kaminski proposes that a unified evolutionary theory might show that these two levels of explanation are not mutually incompatible but may inform each other. By contrast, Robert McCauley contributes a discussion from the perspective of the philosophy of science about multi-level explanatory pluralism and its implication for the historical study of religions (see also Slingerland 2008; Pyysiäinen 2011).

Talmont-Kaminski compares the seemingly opposite conclusions about magical practices arrived at by B. Malinowski and B. F. Skinner, two of the "interesting ancestors" of CSR. Malinowski offered a motivational explanation of magical practices (and of religion) as having "the role of giving peace of mind by providing us with the illusion of control where no control can be had". Skinner concluded, on the other hand, that "such beliefs are not necessarily functional in themselves but are the by-product of cognitive processes that are functional" (p. 99). Talmont-Kaminski suggests that evolutionary theory, which underlies and frames the cognitive science of religion, can offer a reconciliatory frame. "In the case of the research carried out by Skinner and Malinowski, it is the grounding of function in evolutionary adaptation" that allows this resolution (p. 109) and, Talmont-Kaminski concludes, that can allow "us to bring together a lot of existing research in ways that are highly informative" (p. 109).

Robert McCauley argues that the study of religion is a field which has been tainted generally by a "special pleading" which arises when its inquirers seek to insulate their "cherished commitments from some of or the entire evidential onslaught" (p. 13). He argues, rather, that, an "explanatory pluralist model of cross-scientific relations illuminates the kind of multidisciplinary programmes of research that are pursued … in the contemporary cognitive sciences generally" (p. 12) and recommends this explanatory model for research by scholars of religion. "A consequence of using considerations of scale for differentiating levels in nature and levels of analysis in science", he argues:

> is that higher-level sciences treat big things and the lower-level sciences treat progressively smaller things. The physical sciences are the most fundamental sciences and operate at the lowest levels

> of analysis, because they deal with the smallest things that are the parts of everything else. The biological sciences treat larger systems that involve more complex physical arrangements. The psychological and social sciences tackle larger systems still. At least some of the time, psychology examines organisms situated in physical and social environments, and the sociocultural sciences address large collections of psychological systems that are causally connected in sociocultural networks. (p. 15)

We agree with McCauley that "the foremost form of interaction between" such a model for the "cognitive science of religion", including its reductionistic implications, and for "traditional religious studies" should, as McCauley insists, "be one of mutual enhancement" (p. 21).

Still, a number of problems remain if CSR is to be considered a coherent field of study. A general problem with more clearly defining a common cognitive science of religion research programme has to do with various uses of its central categories, especially the notion of "cognition" itself (Taves, Chapter 6). In the history of Western philosophy, and especially in its philosophy-of-mind tradition, "cognition" refers to something like "systematic modes of reflective thinking" (e.g. Horton *pace* Guthrie, Chapter 3), whether or not such modes of thinking are difficult but perfectible (e.g. logic, science, calculus, theology) or represent a "practised naturalness" (McCauley 2011: 5). Since the so-called "cognitive turn" in the last century, however, cognitive scientists representing the "standard model" generally employ the term to refer to the reflexive (intuitive) processes of the brain that influence and constrain human mental life, including the reflective (Lieberman *et al.* 2002). Further, some who are focused on the relationship of cognition and culture (or religion), for example, the "Aarhus School", use the term "cognition" inclusively (but often ambiguously) to refer both to internal (or developmentally early) reflexive dispositions as well as to external (learned cultural) influences on thought (also Pyysiäinen 2004b). All of these views are, of course, of significance to the work of a cognitive science of religion. If, however, there is to be any clearly defined field of study, it is important that researchers clearly indicate their uses of the category that defines the field (Boyer 2010).

A second example of categorical ambiguity is a conflation often made between "social" and "cultural". "Social", it would seem, refers to empirically tractable relationships between humans, or to systemic sets of such relationships. The cognitive study of the "social" involves evolutionary and cognitive proclivities towards sociality such as "theory of mind". "Culture", on the other hand, like "religion", is an abstraction referring broadly to the products of a given society, however similar or dissimilar the foundations of those products might be. So, for example, the predisposition for language, the prototype *par*

*excellence* of "culture", is presumably a product of our evolutionary history, whereas religion or economics or political systems are socially constructed (although they nevertheless exploit evolved cognitive dispositions). Nor has any consensus ever developed in the study of "religion" about its theoretical object of study (other than among its theological practitioners), although some progress, if still contested, has been made in this endeavour within CSR. Such idiosyncratic, ambiguous and fuzzy uses of terminology have resulted in a number of researchers talking past one another and in exaggerating, therefore, those real differences in research agendas which still need to be addressed.

On the other hand, the different approaches exemplified by the contributions to this volume do remain within a field of CSR as broadly defined by its editors, namely as a scientific approach to the study of religion which attends to the workings of the mind. Understanding how the mind (brain) works is, of course, based on research by an interdisciplinary range of scientists that is still very much in process. Consequently, different views are to be expected, especially when that research is employed to understand an even more perplexing sociocultural phenomenon such as "religious" behaviour. Not only are such differences to be expected, they are welcomed in any scientific pursuit, for competition among varying hypotheses results in the quest for confirming or falsifying evidence, which is the crux of the scientific method.

So, has CSR matured into a coherent research programme? Yes and no. Yes, CSR is now an established field of study at a growing number of research centres and is represented at international conferences and by several new professional journals and monograph series, however unlikely it is that any scientific approach to the study of religion will ever become significant in the context of university education (Martin & Wiebe 2012). But no in the sense that these activities have yet to gel into any common research paradigm, apart from the woolly agenda of attending somehow to "the workings of the mind" in the study of religion. But attending how? The methodological pluralism that has traditionally characterized the study of religion continues to characterize the interdisciplinary approaches of CSR. And while interdisciplinarity is fundamental to CSR, it sometimes tends, as in conventional studies of religion, toward a methodological promiscuity in which any approach to the study of "religion" is commended, despite incongruities and even incompatibilities that might occur in the commitments to such methods at the theoretical level.

The field of CSR is yet to be characterized by any cohesive theoretical framework, whether by a unifying theory of human behaviour (such as evolutionary theory), by theoretically compatible levels of theoretical explanation or by some other theoretical paradigm or consistent set of theoretical frameworks. Nor does discussion of a possible shared theoretical framework for a research paradigm for CSR seem to be a priority among most of those currently working in the field. And, does the "mind" that is attended to offer

a theoretical object of study that is any more precise than that of "religion"? Any consensus about its object of study has never developed in the history of the study of "religion" (other than among its theological practitioners), nor has one developed in CSR that might more clearly define it as a field of study.

But in our view, no is an optimistic assessment, not a pessimistic one. CSR is still a relatively new undertaking that has not yet acquired the overall theoretical and paradigmatic status of a "normal science". However, scientific knowledge, perhaps especially the science to which CSR aspires, requires a continuing competition of theories and approaches for there to be progress towards a corpus of consensual knowledge, a goal not otherwise achieved in the 150-year history of religious studies. To date, CSR offers the most promising agenda for creating and promulgating a truly scientific study of religion and for accruing a shared corpus of knowledge that future generations of scholars might continue to assess and to build upon (Martin 2003, 2012), a *desideratum* of those "ancestors" of the study of religion since the scientific turn in scholarship in the nineteenth century that has yet fully to be realized.

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# Index