



‘Belief in Spiritual Beings’: E. B. Tylor’s (Primitive) Cognitive Theory of Religion

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There is nothing terribly new about attempts to provide causal explanations of religion. Xenophanes (c. 570–475 BCE) thought of the traditional Greek gods as anthropomorphic projections, made in our own image. Lucretius (c. 99–55 BCE) attributes the belief in and worship of gods to fear. Both ideas remain influential today, not the least thanks to David Hume, who developed them more fully in what is perhaps the first modern theory of religion, laid out in his *Dialogues Concerning Natural Religion, and Natural History of Religion* (2008). Here, Hume aims to elucidate religion’s ‘origin in human nature’ (2008: 134), and proceeds to construct a genealogy, beginning with a psychological explanation of polytheism as the ‘primary religion of men’ (2008: 135) before theorizing about how monotheism eventually evolved: ‘from rude beginnings to a state of greater perfection’ (ibid.). E. B. Tylor’s account of religion stands firmly in this tradition, beginning as he does with a psychological explanation of animism, the ‘essential source’ (1871, 1: 383) of religion, before proceeding to theorize about the development of other beliefs: from souls to spirits, lower to higher deities. So too is the nascent cognitive science of religion (CSR) an heir to this project, in specifically neo-Tylorian mode. This chapter recasts Tylor’s own contributions to the scientific study of religion in a cognitive mould to consider what value his work, particularly in his magnum opus *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Art, and Custom*,¹ still holds for us today. First, the chapter examines the use of Tylor’s infamous and much contended minimum definition of religion – the ‘belief in spiritual beings’ – in CSR. Then, it evaluates his main aetiological contributions, chiefly his work on animism as a ‘primitive’ explanatory strategy. In each case, CSR’s relationship with its Tylorian heritage is ambivalent, albeit fruitfully so. Tylor’s definition



finds its place amid a characteristically deflationary account of 'religion' that generally denies the plausibility of real (as opposed to nominal) and substantive (as opposed to functional) definitions, while nevertheless prioritizing the belief in 'supernatural agents'. Tylor's progressivist view of animism as proto-science is also simultaneously endorsed and problematized by recent research on the evolutionary foundations of the cognitive biases involved in animistic and other related phenomena.

Tylor's minimum definition and theory of religion

Chapter XI of *Primitive Culture* opens with a consideration of the universality of religion, and quickly arrives at the familiar conclusion that it depends on what one means by 'religion'. Enter the 'minimum definition of Religion, the belief in Spiritual Beings' (1871, 1: 383). This definition, untethered as it is from more specific theological claims about supreme deities or afterlives, allows Tylor to claim that religion 'appears among all low races with whom we have attained to thoroughly intimate acquaintance' (1871, 1: 384). Furthermore, it is not only the low races that are religious – or, to use Tylor's preferred term, 'animistic' – in this way: the 'deep-lying doctrine of Spiritual Beings' (ibid.) is, Tylor asserts, 'the groundwork of the Philosophy of Religion, from that of savages up to that of civilized men' (1871, 1: 385). While a definition of 'Spiritual Beings' is never provided, Tylor does clarify that the doctrine consists of two parts. The first part concerns the 'souls of individual creatures, capable of continued existence after the death or destruction of the body', while the second concerns 'other spirits, upward to the rank of powerful deities' (ibid.). This, then, is Tylor's explanandum: Why do people believe in (and even worship) spiritual beings?

Tylor first attempts to explain the doctrine of human and other souls. His hypothesis is the classic expression of an intellectualist theory of religion. The concept of a soul, Tylor posits, emerged as a way in which our ancestors could account for two commonplace phenomena. First, it helped to account for the difference between living bodies and dead ones – the former possesses a soul, whereas the latter does not. Second, it helped to identify what people see in dreams and visions – either their souls are leaving their bodies, or other souls and spiritual beings are visiting and appearing before them. The concept of the soul is therefore functionally equivalent to hypothetical entities in the physical sciences, such as phlogiston or dark matter: all these play a role in explaining observable phenomena. Thus, Tylor argues that beliefs about the nature of the soul

come from 'the plain *evidence* of men's senses' (1871, 1: 387; emphasis added). Breathing – and its cessation – is so intimately associated with life and death that the soul is thought to resemble breath in some way. Thus, Tylor observes, the recurring tendency of people around the world to use the same word to refer both to soul and breath. Similarly, as we are conscious (or semiconscious) during dreams and often see vague apparitions during visions, souls and spirits are commonly conceived as 'thin, unsubstantial human image[s]' possessing 'personal consciousness and volition' (ibid.). These inferences are, Tylor insists, quite rational. Even the belief that inanimate objects and artefacts – 'stocks and stones, weapons, boats, food, clothes, ornaments, and other objects which to us are not merely soulless but lifeless' (1871, 1: 430) – have souls is reasonable, because these objects too appear in dreams and visions, just as persons and animals do. It is no wonder, then, that they are accounted for in the same way. This is a common thread in Tylor's theorizing, that religious beliefs are held by people, not irrationally or 'in the teeth of evidence' (Dawkins 1989: 198), but 'on the very evidence of their senses, interpreted on the biological theory which seems to them most reasonable' (Tylor 1871, 1: 451).

Equipped with the notion that things – humans and animals, perhaps even plants and other inanimate objects – possess souls that are the hidden causes of life and agency, people could now construct a more general causal theory. Tylor argues that the doctrine of spirits (i.e. spiritual beings that are not necessarily parts of more solid objects) is an extension of the doctrine of souls – like souls, spirits are personified causes² – and this applies to all kinds of spiritual beings, 'from the tiniest elf . . . to the heavenly Creator and Ruler of the world, the Great Spirit' (1871, 2: 100–01). Indeed, Tylor observes that in many cultures, the gods – and demons – are often the spirits of deceased ancestors or powerful wizards. Ancestor worship and the closely related veneration of saints are still among the most ubiquitous religious acts. If the doctrine of souls arose to explain dreams and death, then the doctrine of spirits arose to explain disease (and more positively, oracular inspiration) – both are due to possession or other forms of spiritual influence. From here, Tylor argues, it is a short step to the notion that spirits can possess inanimate objects, thus conferring powers upon them. These objects are therefore treated as sacred, and sometimes even venerated as the dwelling places, or at least symbolic representations, of gods. At this point of cultural evolution, spirits can possess or otherwise act upon both animate and inanimate objects: that is, they can influence *everything*, '[a]nd thus, Animism, starting as a philosophy of human life, extended and expanded itself till it became a philosophy of nature at large' (1871, 2: 169). Gods, then, are a proper subset

of these spiritual causes of things, personified and anthropomorphized; like people, gods can come in varieties, including varieties and hierarchies of power. There are, even in so-called monotheistic religions, high gods and low gods, even if such a description will be deemed theologically incorrect by religious experts: angels and demons are deities by any other name.

Conspicuously missing from the foregoing discussion is any mention of the role of emotion in religion (and vice versa), the role of religion in morality (and vice versa) and the relationship(s) between religious belief and ritual. Tylor cursorily acknowledges the first omission, saying only that his task was ‘not to discuss Religion in all its bearings, but to portray in outline the great doctrine of Animism’ (1871, 2: 326). Still, this implies that animism – the belief in Spiritual Beings – has little to do with emotions. On the second point, Tylor claims that ‘the relation of morality to religion is one that only belongs in its rudiments, or not at all, to rudimentary civilization’ (ibid.), and therefore excludes ethical questions from his investigation altogether. This is not to say that he has nothing to say about the religious beliefs of what he deems as the more civilized cultures. He does not, for example, shy away from extrapolating from ancestor worship to the Roman Catholic veneration of saints, or from overt polytheism to the subtler polytheism of the ostensibly monotheistic faiths; it is just that he thinks that morality is not intertwined with religion per se, even though religion can sometimes be an effective enforcer of moral norms. On the subject of ritual, Tylor finally arrives at this point in the penultimate chapter of *Primitive Culture*, just before his brief concluding remarks. Here, ritual is an expression of religious belief – ‘the dramatic utterance of religious thought’ (1871, 2: 328) on the one hand, and a means of communicating with and thereby influencing spiritual beings on the other. That is, ‘the belief in Spiritual Beings’ comes first, and rituals are secondary and supplementary.

Thus, we have Tylor’s ‘theory’ of religion. Despite the evident breadth of his investigation, however, Tylor’s theory itself is somewhat thin on detail, at least from a psychological perspective. What he provides in *Primitive Culture* is a genealogy of religious ideas, not unlike Hume’s, beginning from the doctrine of souls (of humans, and then of animals, and even plants and inanimate objects) and building up to so-called monotheism through the doctrine of spirits, idolatry and polytheism. In terms of an *explanatory* or *causal* theory, Tylor offers much less. Indeed, he does not go much beyond his summary in Chapter XV, ‘[F]irst, that spiritual beings are modelled by man on his primary conception of his own human soul, and second, that their purpose is to explain nature on the primitive and childlike theory that it is truly and throughout “Animated Nature”



(1871, 2: 168). No special religious faculty is invoked here, merely general principles of causal reasoning and inference or extrapolation. Why do people believe in gods? Because they encountered (and still encounter) phenomena – dreams, disease and death – for which gods are, given their state of knowledge, perfectly reasonable explanations. From there, theologies developed in accordance to people's observations and experiences: souls are likened to breath because breath ends at death; there are hierarchies of gods because there are hierarchies of people, and so forth. But why do people naturally land upon *personified causes*? For this, Tylor has no explanation, except to cite Hume approvingly, who asserts that the tendency to anthropomorphize – to project familiar human qualities to all manner of things – is a universal one.

The cognitive science of religion

The CSR shares with Tylor not only its definition of 'religion' (with some qualifications, more on which later), but also its focus on religious *thought* (hence 'cognitive'), and even its most prominent hypothesis revolving around anthropomorphism. Before we get to direct comparisons, however, some exposition of what CSR is might be helpful, starting at the beginning. E. Thomas Lawson and Robert McCauley's (1990) *Rethinking Religion: Connecting Cognition and Culture* is generally agreed to be the foundational text of the CSR, and its subtitle remains the field's clarion call. By 'cognition', CSR theorists refer to the universal features of human psychology. The assumption is that we are born, not with blank slates in our heads, but with a slew of predispositions to develop certain psychological abilities and constraints, shared by all normally functioning human beings. We are, for example, predisposed to learn language. Furthermore, while natural languages do vary widely, the possible variation is constrained by pancultural cognitive traits (e.g. Chomsky's 'Universal Grammar'; cf. Cook and Newson 2007). Our tacit assumptions are not restricted to the linguistic domain: human beings also share intuitions about causality and motion, physical and biological objects, agency and psychology (Sperber and Hirschfeld 2004; Sperber, Premack and Premack 1995). CSR builds on this view of human cognition, applying it to religious beliefs and behaviours. In their book, Lawson and McCauley first considered how these universal features of human psychology constrain the way we – that is, human beings in general – think about religious rituals. This is not to say that everybody thinks about religious rituals in exactly the same way; this is patently false. It is, however, to say that there are predictable limits to,



for example, the kinds of rituals that can exist and even the kinds of rituals that can be perceived to be efficacious. If the ‘cognition’ part of the formula helps to explain underlying cross-cultural similarities and recurring themes, then the ‘culture’ part refers to the historical and social contingencies that help to explain the rich varieties of religious belief and practice that exist around the world and across time. Furthermore, cognition and culture are not causally independent; rather, they interact, just as genetic and environmental factors interact in morphological development. Since *Rethinking Religion*, this basic explanatory strategy has been applied to other features of religious belief and practice, especially the belief in supernatural agents: gods and ghosts, souls and spirits (e.g. Atran 2002; Barrett 2004; Bering 2011; Boyer 2001; McCauley 2011; Pyysiäinen 2009, Tremlin 2006; in keeping with the convention in CSR, the term ‘gods’ will henceforth be used as shorthand for supernatural agents more broadly).

CSR as a neo-Tylorian project

Already, we can see potential similarities and differences between Tylor and CSR. Tylor relegates his discussion of ritual to the penultimate chapter of his magnum opus, whereas the seminal work in CSR is a book on ritual cognition. However, Lawson and McCauley also insist from the outset that ‘what is unique to *religious* ritual systems is their inclusion of culturally postulated superhuman agents’ (1990: 5). Pascal Boyer’s *Religion Explained: The Evolutionary Origins of Religious Thought* echoes this sense that there is no necessary connection between the belief in supernatural agents and the participation in rituals: ‘supernatural participation’ in rituals is an interesting added extra (2001: 236). Like Tylor, Boyer leaves his discussion of ritual to the end of the book, most of which is preoccupied with explaining the belief in gods. This focus on the belief in supernatural agents is also clear from book-length expositions of CSR, with titles like Justin Barrett’s (2004) *Why Would Anyone Believe in God?*, Scott Atran’s (2002) *In Gods We Trust: The Evolutionary Landscape of Religion*, Todd Tremlin’s (2006) *Minds and Gods: The Cognitive Foundations of Religion*, Ilkka Pyysiäinen’s (2009) *Supernatural Agents: Why We Believe in Souls, Gods, and Buddhas*, and Jesse Bering’s (2011) *The God Instinct: The Psychology of Souls, Destiny and the Meaning of Life*. In his *Modes of Religiosity: A Cognitive Theory of Religious Transmission*, Harvey Whitehouse (2004) even explicitly endorses Tylor’s minimum definition. However, he and other CSR theorists are less reticent than Tylor was, to offer a definition of ‘supernatural agent’. Whitehouse’s

definition is representative: agents are supernatural by virtue of their ability to 'supersede . . . natural constraints,' to overcome 'the intuitively expectable limitations of normal agents' (2004: 10–11). Thus, CSR's definition of 'supernatural agent' is decidedly *cognitive*, focusing as it does on our intuitive expectations: the term 'counterintuitive agent' is also often used interchangeably with 'supernatural agent' (e.g. Atran 2002; Barrett 2004; Boyer 2001; Jensen 2014; Pyysiäinen 2009; Whitehouse 2004). Furthermore, CSR theorists have a specific understanding of the 'counterintuitive' in mind. It is not simply that the concept is surprising, but that it violates very basic, psychologically universal (and therefore cross-culturally invariant) intuitive expectations. We shall return to this notion later on. In any case, this definition is clearly broad enough to capture the diversity of spiritual beings that Tylor describes, from souls to sprites to supreme deities.

So, CSR and Tylor are agreed on the definition of religion, notably *contra* Tylor's detractors – at least since Durkheim (2008) – who complain, for example, that religions like Buddhism are excluded by it. (In response, CSR theorists often point out that whereas Theravada Buddhism may well be atheistic, Theravada Buddhists are inveterate believers in gods. See, for example, Slone 2004). Indeed, CSR provides more detail to Tylor's minimum definition, and steers it in an overtly cognitive direction. Tylor would hardly disapprove. But what about the causal theories themselves? The difficulty with comparing Tylor's theory with CSR is twofold: first, as we have seen, Tylor does not really have a detailed causal theory so much as a genealogy of religion; second, CSR does not have a *single* theory, so much as a general approach to the scientific study of religion that comes with clusters of shared goals, theoretical commitments and methodological preferences (Barrett 2007; Visala 2011). On most of these points, CSR inherits many of Tylor's positions, albeit in an updated and more detailed form. Even methodologically – where Tylor's armchair theorizing seems so far removed from CSR's penchant for the research methods of quantitative experimental psychology – the latter inherits the former's empiricism, against the hermeneutic methods associated with the postmodern turn in the social sciences. Indeed, *Primitive Culture* consists mainly of (second-hand) observations and, as has already been mentioned, is relatively thin on theoretical speculation.

Similarly, evolutionary theorizing underpins both CSR and Tylor's work on religion in surprisingly similar ways, given the reputation of Victorian anthropologists on this point. Tylor's evolutionism has been widely criticized, with its assertion of cultural progress and its concomitantly condescending references to 'primitives' or even 'savages,' whom Tylor often compares to children. This

sentiment is best captured in his memorable statement in *Anthropology: An Introduction to the Study of Man and Civilization*: 'History, so far as it reaches back, shows arts, sciences, and political institutions beginning in ruder states, and becoming in the course of ages, more intelligent, more systematic, more perfectly arranged or organized, to answer their purposes' (1881: 15). Despite this reputation, however, Tylor did not think that progress was uniform across domains. While he certainly believed that the Western world occupied the superior end of the spectrum when it came to the industrial arts and scientific knowledge, he is happy to admit that other cultures might have them beat in other domains: the modern Chinese in artisanship, the ancient Greeks in oratory, the Creek Indians in religious tolerance, and so forth. Nor did he think that the minds possessed by people in his own 'civilized' or 'cultured' or 'modern educated' Victorian English context were essentially different and superior to those of the preceding 'savage' and 'barbaric' societies. Thus, in the first chapter of *Primitive Culture*, Tylor emphatically deals with 'a problem which would complicate the argument, namely, the question of race' (1871, 1: 6), first by arguing the then uncontroversial point that primitive cultures were all rather alike before swiftly following that up by pointing out that '[e]ven when it comes to comparing barbarous hordes with civilized nations, the differences were such that all human beings should be treated as 'homogenous in nature, though placed in different grades of civilization' (see also Opler 1964; Stocking 1963; Stringer 1999a).

In its commitment to 'the psychic unity of mankind', Tylor's evolutionism and contemporary evolutionary approaches to human behaviour are cut from the same cloth. CSR assumes a nativist view of human cognition. It explicitly rejects a 'blank slate' view of human cognitive development, in which psychology is strongly determined by culture. This entails that human beings across cultures all share certain psychological predispositions. These pancultural cognitive traits are part of our evolutionary endowment, having been selected for in the course of hominid evolution. Thus, CSR is committed to an evolutionary approach to psychology, though there is still much disagreement among CSR theorists about the extent and ways in which evolutionary theorizing is relevant to CSR's proximate explanatory goals. As we shall see, the so-called *standard model* in CSR posits religion as a by-product of other evolutionary adaptations, rather than it being adaptive itself. However, there are also adaptationist and exaptationist accounts, in which various aspects of religion did confer reproductive advantages to our ancestors. These accounts come in multiple flavours, some of which focus on the evolutionary benefits of religion for the individual,

while others focus on the benefits for the group. To complicate matters, most CSR theories involve cultural evolutionary hypotheses, according to which religious ideas and practices evolve in a Darwinian fashion more or less independently of biological evolution.

The starkest difference between Tylor and CSR is perhaps that we now have an allergy against the whiggishness evident in Tylor's progressivism: when we speak of evolution, we hasten to add that there is no teleology involved, not even when it comes to cultural evolution. We would be reticent to speak, as Tylor did following Montesquieu, of savagery, barbarism and civilization; we would certainly not argue for an inexorable march from the former through to the latter. This is not to deny that cultural evolution is cumulative, but only to doubt that it is irreversible. Evolution is not irreversible simply because selection pressures vary with context. What counts as *fitness* is not fixed: in some situations, it is better to have gills, and in others it is better to have lungs. So it is with cultural evolution. In contrast, while Tylor was certainly a Darwinian of sorts (as Opler 1964 has ably shown; but see Stocking 1965), he seemed to assume that cultural selection pressures generally – with occasional perturbations – moved in one direction, towards 'higher knowledge' and 'better life' (1881: 372). Tylor also assumed that the fitness of a belief or practice was tied closely either to some benefit for the believer or practitioner or even to some objective criterion (e.g. truth). This assumption is no longer widely held by evolutionary theorists. On a gene-centric conception of biological evolution, what matters is what is good for the propagation of our genes, not what is good for us per se. Similarly, in the case of cultural evolution, the beliefs and practices that are efficiently and effectively transmitted might not be those that benefit us either individually or collectively. Finally, whereas Tylor's Darwinism lies in the background of his work on religion – he rarely explicitly speculates about the selection pressures that worked in the evolutionary history of some belief or practice – CSR theorists are often overtly interested in specific evolutionary hypotheses, and the debates over whether or not religion is a biological evolutionary adaptation are very salient.

This brings us finally to Tylor's and CSR's goals vis-à-vis causal explanation. CSR aims to elucidate the cognitive processes at play in religion: that is, its goal is to provide a causal account of various aspects of religion in psychological terms. In contrast, as we have already seen, Tylor has little to say about psychological processes. However, this is not because he is uninterested in psychological questions. After all, the story he tells about the cultural evolution of religion – from souls to supreme deities – involves processes of causal attribution, anthropomorphism, inference and generalization. The 'ancient savage philosopher'

(1871, 1: 387) posited causes to explain her dreams and the difference between living bodies and dead corpses; furthermore, she posited *agentic* causes, even personified causes; from there, over the generations, people made inferences about what these causes were like, and generalized the notion of spiritual causation from human life to all of nature. This story is all about the human mind at work, though Tylor never spells out the cognitive mechanisms involved in these doctrinal developments. Perhaps it is asking too much, to expect Tylor to have speculated about cognitive mechanisms. After all, cognitive psychology was, at the time, as nascent a field as anthropology. Tylor, arguably the founding father of the latter, was born in the same year as Wilhelm Wundt, arguably the founding father of the former. Nevertheless, echoes of Tylor's general approach – an intellectualist account, with a focus on the widespread preference for personified explanations – can still be found in CSR. In this final section, we now turn to the dominant explanatory theory in CSR, to detect these Tylorian echoes.

The standard model of the cognitive science of religion

Having denied that CSR has a single theory, it is nevertheless the case that there may be said to be a 'standard model', accepted by most CSR researchers, even if not as an object of belief, then as source of testable hypotheses or even as foil to be falsified. Taken and abstracted from the work of key theorists including Pascal Boyer (1994, 2001), Justin Barrett (2004), Scott Atran (2002), Robert McCauley (2011), and others, the standard model provides a causal narrative for the psychological and cultural origins of religious belief – that is, belief in supernatural agents – that is empirically tractable and amenable to updation with incoming evidence. The model begins with two basic psychological traits: *hypersensitive agency detection* and *theory of mind*. Agency detection refers to our ability to efficiently distinguish between agents (e.g. conspecifics, prey, predators) and nonagents (e.g. plants, rocks, artefacts) in our physical environment; this ability is necessary for survival, not just for humans, but for other animals too. According to the standard model, human beings – and perhaps other animals – have a *hypersensitive* tendency to detect agents: we are biased to making false positives in our detection of agency in the environment. This too is advantageous: as Guthrie puts it, 'it is better for a hiker to mistake a boulder for a bear than to mistake a bear for a boulder' (1993: 6). And so it was for our phylogenetic ancestors: the former error might entail a loss of energy if it causes us to run needlessly, but the latter error is potentially fatal, which significantly curtails

our reproductive potential. Thus, a tendency to overdetect agency is more likely to have evolved than a tendency to underdetect agency. Theory of mind refers to a related ability, this time to make inferences about others' mental states. The ability to reason about others' beliefs and desires is of great social value, enabling cooperation and trade, courtship and mating. Indeed, deficits in theory of mind – as seen, for example, in autism – can be dysfunctional and maladaptive (Baron-Cohen, Leslie and Frith 1985). Like our tendency to detect agents, our tendency to attribute mental states is also hypersensitive: again, this is advantageous, because it is often necessary for us to infer mental states from very subtle behavioural data. We rely on facial cues and body postures, for example, not least because people do not reliably tell us how they feel or what they are thinking. As a consequence of this hypersensitivity, we attribute mental states – intentionality in particular – to diverse objects, including nonhuman animals and inanimate objects like personal computers and vending machines. Together, our tendencies to (over)detect agents and (over)attribute mental states form the primary building blocks of religious belief. Gods are, after all, perceptually ambiguous intentional agents: they are among the agents we (over)detect in the world, to whom we (over)attribute rich mental states. As hidden agents, gods can conveniently serve as means to explain otherwise unexplained phenomena. Furthermore, this tendency to (over)attribute mental states also contributes to our reluctance to treat dead animals and humans as mere objects, as well as our inability to comprehend death itself. On the latter point, cross-cultural studies on children and adults have shown that we find it much easier to deny the dead psychobiological and perceptual states like hunger and vision than to deny them richer psychological states like desire and knowledge (Bering 2011).

Gods are not merely perceptually ambiguous intentional agents. They are also memorable and useful. Were it not so, gods would not be culturally successful; stories about them would not spread. The standard model therefore posits various factors that promote the cultural transmission of gods. The first of these pertains to memorability. According to the standard model, gods are *counterintuitive* or *counterontological* agent concepts: that is, they violate our basic intuitive expectations. Recall that CSR assumes cognitive nativism. One aspect of this is the view that we share tacit assumptions about different domains of things: we share 'naïve' (i.e. intuitive) physics, biology and psychology, for example, as part of our evolutionary endowment. We just *know*, for example, that two physical objects cannot occupy the same space: experiments have shown that even 3.5 year old infants make such tacit assumptions (Baillargeon 1987). We also know that people have perceptual limitations: they cannot always see what we can see, for example, if

they are looking elsewhere. Our theory of mind leads us to automatically perform visual perspective taking, and make inferences about others' perceptual and cognitive states. But these assumptions and inferences can sometimes be violated. Magic tricks, for example, are all about violating our intuitive expectations, generally about physical properties. Experiments in child developmental psychology similarly exploit our intuitive expectations and gauge our responses to expectation violations. According to the CSR standard model, experiences and ideas that violate our intuitive expectations enjoy a mnemonic advantage (cf. Purzycki and Willard 2015): we are more likely to remember them than more mundane events, and are therefore more likely to tell others about them. Furthermore, according to CSR, gods – or, at least culturally successful gods – are counter-intuitive or counterontological. For example, one extremely widespread idea is that of spiritual beings that often behave like physical objects (e.g. they might walk on the ground, which requires physical contact with the ground, or produce sounds, which requires the physical movement of air), but are also able to do impossible things like pass through walls or even possess animal and human bodies. Similarly, gods also often violate our intuitive assumptions about agents' perceptual and cognitive limitations: they can see and know more than normal agents can. This, in turn, enables them to play a role in policing social and moral norms.

Finally, the standard model includes functionalist explanations for religious belief, though it is uncommitted to any particular functionalist view. Two hypotheses have already been alluded to. First, as perceptually ambiguous intentional agents, gods can play the role of hidden causes, and help to fulfil needs to explain, predict, or control events. Indeed, there is increasing evidence that, from an early age, human beings are cognitively biased toward intentional and functional explanations of natural things and life events: even before exposure to explicitly religious ideas, children believe that the rain is *for* growing crops and the rocks are *for* animals to rest on (Kelemen 2004; Rottman et al. 2017), while even atheists struggle to deny that significant life events happened *for a reason* (Heywood and Bering 2014; see also Järnefelt, Canfield and Kelemen 2015). None of this evidence guarantees that there is an inherently (or even culturally variable) human curiosity that requires satisfaction, or a need to understand phenomena for the sake of controlling them. However, this evidence can contribute to cumulative argument for such theories. In any case, gods provide convenient sources of intentionality in the world, and are thus able to fulfil any such explanatory goals. Second, as agents with special access to knowledge, gods can play the role of moral police. This role is not as ubiquitous

as the first, as not all gods are believed to have special access to information (Norenzayan 2013). However, gods' special access to knowledge and their moral concerns do tend to co-occur (Purzycki et al. 2012). Gods might also help to allay our existential concerns, including fears about our lack of control in the world (Kay, Gaucher, McGregor and Nash 2010), fears about loneliness and social ostracism (Aydin, Fischer and Frey 2010; Epley, Akalis, Waytz and Cacciopo 2008), and fears about death (Jong, Halberstadt and Bluemke 2012; Vail et al. 2010). Now, not only is CSR uncommitted to any particular functionalist view, but it is also uncommitted to the general view that there are universal human psychological needs that the belief in gods can fulfil. That is, the fear of death or the need for explanation may or may not be cross-culturally invariant. Furthermore, the role of religion in fulfilling any of these needs is not necessarily invariant either: they might depend on the particularities of the religious beliefs that are culturally available in any given context. However, given what gods are like at the most basic level – perceptually ambiguous intentional agents – they are potentially able to solve a wide variety of social and psychological problems in contextually sensitive ways. Here again, we see basic cognition and cultural contingency interacting.

Thus, the standard model consists of a biological evolutionary by-product account on one hand, and a cultural evolutionary adaptationist account on the other. However, acceptance of the standard model's account of how religious ideas arose in the first place does not preclude theorizing that they also conferred reproductive advantages to our ancestors. Indeed, many CSR theorists propose that while the emergence of religious ideas might be a by-product of other evolved cognitive abilities and tendencies, religious *commitments* were selected for by virtue of the various advantages they offered. Various proposals have been made about the adaptive functions of religious beliefs, including the role of morally policing gods ('supernatural watchers') in reducing potentially reputation damaging behaviour (Bering, 2011; Johnson and Bering 2006) and increasing social solidarity (Wilson 2002), and the role of afterlife beliefs in mitigating crippling existential anxiety (Greenberg, Landau, Solomon and Pyszczynski forthcoming; Vail et al. 2010). Religious rituals have also been speculated to have conferred evolutionary advantages by promoting cooperation within groups (Sosis and Alcorta 2003), and even by providing analgesic and other health-related benefits via placebo healing (Bulbulia 2006; Rossano 2010). The general thesis here is that individuals or groups in our phylogenetic past who were religiously committed enjoyed various benefits that translated into reproductive advantages. Given that religiosity is heritable, these reproductive

advantages led, over generations, to an increase in religiosity in the population, such that it is now endemic throughout the species.

Tylor begins his account with two intellectual puzzles to be solved by our ancestors – death and dreams – and asserts that the most obvious solution to these puzzles, to them, involved personified causes. CSR's standard model flips this order on its head. It begins with an account of why it should be, evolutionarily speaking, that we tend to detect persons – intentional agents – where there may be none. Only then, when perceptually ambiguous intentional agents are already in mind, can they be plausible candidates for solving such puzzles as the ones Tylor proposes. The standard model is not, strictly speaking, an intellectualist theory, but the notion that gods serve as causal explanations can hardly be said to be foreign to it; it comes at least in the work on teleofunctional biases. However, CSR theorists would argue that the desire to solve puzzles – to answer questions about death, or incidents in human life, or natural phenomena – stems out of affect-laden concerns, and not just basic curiosity. Human beings construe events as fortunes and misfortunes, and need to understand them, not least to try to control them or feel that they can. Furthermore, there are, in CSR, many more potential social and psychological functions for gods to play, such as the mitigation of existential anxieties and the formation of social bonds.

Reading Tylor in the twenty-first-century laboratory

Scientists are not known for their penchant for consulting Victorian scholarship. We can barely keep up with our contemporaries, let alone dead, white, English dons, whose views have long gone out of fashion or been empirically falsified. And yet, there are classics in every field, to which it is worth returning, time and time again. It is worth revisiting them, not because their answers were right, but because their questions were interesting, and we could do much worse than attempt to provide fresh answers with new methods. Or, it is worth revisiting them, not because they were accurate in detail, but because their broad strokes were realistic, and we could do much worse than spend our efforts filling them in. A hundred years after his death – 146 years after *Primitive Culture* was first published – we still do not know much about the role dreams and other atypical states of consciousness plays in the development and evolution of religion. We still do not know much about the historical and cultural processes that get us from basic animism and

polytheism to moral monotheism, or about why this only happened in some cultures and not others. Tylor's work is not just a treasure trove of hypotheses to be tested, but also a rich tapestry of ethnographic data. These data are, admittedly second hand and often haphazardly and unreliably collected, but nevertheless serve as an important reminder for those of us who work in laboratories that our findings are, in the final analysis, answerable to the world outside the laboratory, in mosques and temples, churches and gurdwaras. There is no need to fetishize our intellectual ancestors, nor to worship them, nor to venerate them; but the best among them – and Tylor surely counts in these ranks – still speak wisely from the dead.

Notes

- 1 For convenience, all references to *Primitive Culture* are from the first edition, published in 1871.
- 2 The phrase 'personified causes' first appears in *Primitive Culture* in its second edition, published in 1873.