

Review: The Cognitive Approach to Understanding Religion

Reviewed Work(s): In Gods We Trust: The Evolutionary Landscape of Religion by Samuel Atran; Religion Explained: The Human Instincts That Fashion Gods, Spirits and Ancestors by Pascal Boyer

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## The cognitive approach to understanding religion<sup>1</sup>

À propos de :

ATRAN Samuel, *In Gods we trust: the evolutionary landscape of religion*. New York, Oxford University Press, 2003.

BOYER Pascal, *Religion explained: the human instincts that fashion gods, spirits and ancestors*. London, Heinemann, 2001.

One reasonable response to the vast enterprise of comparing religions, their institutions and the behaviour of their followers is a nagging doubt: after all this, is there much difference among the world religions, or indeed between the world religions on one hand, and the innumerable polytheistic and pagan forms across the planet? Recent work in cognitive psychology applied to religion, especially that of Boyer and Atran (Boyer, 2001; Atran, 2003), both strongly influenced by Sperber (Sperber, 1996), has made a strong case for the claim that practices which, taken together, have come to be classified and bundled together as “religious”, can be explained in terms of human evolution. Part of their case rests on the observation of constants across vast distances in time, space and language, while another part rests on experimental evidence from cognitive and evolutionary psychology. In this paper I explain why social scientists cannot afford to ignore this work.

### Evolution

Social scientists tend to regard the use of evolutionary explanations of social phenomena with much distrust. Indeed, sociology itself as a discipline was built to a large extent on the rejection of versions of evolution. The reasons for this are several. Firstly, the word refers to a process whereby an institution or set of practices are suitable to the functioning of society – it is therefore regarded as a functionalist argument and vulnerable to the usual criticisms of functionalism –

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1. I am indebted to Rob Foley, Michael Mann and Dan Sperber for their comments on this paper, and to Ilona Roth for making me aware of the relevance of cognitive approaches to my work as a social scientist.

among which are functionalism's alleged prejudice in favour of the preservation of order over change, and its use of effects to explain causes. Secondly, because of the perverse, and perverted, history of social Darwinism and the importance of hostility to it in the history of sociology, evolution carries connotations of a concern with differences among human racial categories, even though these connotations are quite foreign to Darwinian evolution (if not precisely to Darwin's personal outlook) (Malik, 2000). (Though sociologists hypostasize "societies" and their boundaries in a manner which is just as vague and metaphorical, and with no firmer basis in demonstrable boundaries than those who would view races as bounded entities.) Thirdly, evolution is often associated by social scientists with an explanation in terms of teleology, whereby a process or institution is explained by its outcome – again something quite foreign to Darwinian evolution, which proceeds by adaptation and natural selection. And, fourthly, social scientists associate evolution with a crude notion of stages, or linearity, as vulgarized in certain versions of Marxism (the succession of modes of production), and of concepts of modernization, which have been much criticized, with reason, but which themselves were developed either in ignorance of biological evolution or on the basis of a misreading of it. The sense in which evolution is used here is totally different from these connotations attributed to it in common social science parlance<sup>2</sup>.

In Atran's formulation, religion is not in itself an evolutionary adaptation – indeed religion is hardly a single phenomenon at all. Rather, it involves "a variety of cognitive and affective systems, some with separate evolutionary histories, and some with no evolutionary history to speak of. Of those with an evolutionary history, some parts plausibly have an adaptive story, while others are more likely by-products. Both adaptations and by-products, in turn, have been culturally co-opted or 'exapted', in religion, to new functions absent from ancestral environments, and which may have little if any systematic relationship to genetic fitness, such as spiritual fulfilment, artistic creation, mass scarification, and human sacrifice." (p. 265). Unlike language, "for religion there is no integrated set of cognitive principles that could represent a task-specific evolution".

Exaptation, a term coined by the late Stephen Jay Gould (Gould and Vrba, 1982), closely linked to Darwin's idea of preadaptation, refers to forms

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2. There have been very few reviews or discussions of this work in the social anthropology literature. In France, where Boyer's book was published as *Et l'homme créa les dieux: comment expliquer la religion*, Robert Laffont, 2001, it was reviewed in *L'Homme* (Dupré, 2002) and discussed in a review article in *Critique* (Keck, 2004). The review in *L'Homme* is a bizarre patchwork of tirades and sarcasms against the free market (supposed to be a basis for experimental psychology) and the United States (where Boyer and Atran both work, though they are also Directeurs de Recherche at the CNRS). The *Critique* article is more sympathetic, placing Boyer's book in the lineage of Sperber and taking it to be the beginning of a possible paradigm shift in anthropology. Boyer himself has written a warm, but largely factual, review of Atran's book in *Current Anthropology* (Boyer, 2004).

or features whose function has changed, or which have acquired a function where none seemed to have existed before. For example, as a result of selection and adaptation, “insect wings and bird feathers... appear to have been initially selected for thermal regulation and only later co-opted for flight in the subsequent evolutionary history of insects and birds” (p. 44). Gould’s famous architectural example was the spandrel (Gould and Lewontin, 1979), the space between the outer curve of an arch and the imaginary square or rectangular shape which frames the arch: this space, originally functionless but essential for the construction of an arch, became, with Romanesque and Gothic architecture, the location for such elaborate and eye-catching decoration and visual exposition that it often even took precedence over the arch itself, as many tourists will testify. One big debate between Gould and evolutionary psychologists is whether, on the model of the spandrel, cultural phenomena are elaborated spandrels whose dormant potential has been co-opted by a “big brain” which itself “grew larger under selection for hunting and gathering” (Atran, p. 45): this is cultural, not natural selection. An alternative approach essentially finds this argument too vague: the “big brain” tells us nothing about cognitive structures (p. 46) and although elaborate cultural spandrels, like religion, may have no evolutionary history, their component parts do. Indeed, following Dennett (Dennett, 1995), Atran seems to question whether one can draw a clear line between “original” functionlessness and adaptation, since “to some degree all adaptations were originally functionless or secondary consequences of prior adaptations, then co-opted and subsequently adapted to perform new functions” (p. 44). This is a prelude to the argument that although evolution has little to contribute to an explanation of “religion” as a package, it does have much to say about the elements which make it up.

Ancestral environments mean simply the environments in which selection originally took place. They account for “much of human history because they are the conditions under which we evolved as a distinct species” (Boyer, p. 133). Institutional life – with formal rules – is only a few seconds of human history compared to the thousands of years of “foraging for food in small nomadic groups, in which close cooperation [was] a matter of survival and information [was] richly transmitted through example and communication” (*ibid.*), but without formal rules and the self-aware collective memory which goes with them. Many mechanisms of information-detection and interpretation, and of risk aversion, evolved during that long ancestral period and later acquired a common heading “religion”. Much of these two books describes and explains this. At the risk of simplifying, they confirm our common standard distinction between popular and erudite or institutional religion by showing how “supernatural agency”, described by Atran (p. 57) as “the most culturally recurrent, cognitively relevant and evolutionarily compelling concept in religion” is “culturally derived from innate cognitive schema”. But note the careful formulation: supernatural

agency (devils, spirits, and dragons appearing in cloud formations) is not itself innate – it is “culturally derived” from “innate cognitive schema”. The cultural derivation is seen, for example, in the creation of entities (gods, dragons, spirits) which activate modular processes by riding “piggy back” on modular processes: they are easily transmitted “from mind to mind” and also relevant across innumerable specific conditions, so they are more likely to endure over time, as we see in the pervasive belief in the supernatural across the globe and throughout human history (Atran, p. 70).

## **The individual as unit of analysis and “religion” as a category in folk anthropology**

Social scientists are not taken aback when authors skip back and forth between the Chassidim of Williamsburg, the Fang of Cameroon and Western France, for example, as Boyer and Atran do. But the difference is that, in tune with their unit of analysis, the individual, cognitivists treat these cases as illustrative of common features while social scientists look for differences. There is nothing wrong with this sort of macro-comparison, but, for all that it is fascinating and creative, its conclusions are undermined by the difficulty one experiences in drawing boundaries round units of analysis, and not only in the globalized world of today: where does “Western France” begin and end? Why should we take Spain or Italy to be units when for centuries they were spaces populated by peoples speaking different languages and then large proportions of their populations migrated to the Americas? At least individuals have tangible boundaries, and thus can be convincingly constituted as units of analysis. The cognitive approach provides a strategy for carving clearly delimited, researchable questions out of these big theoretical questions. The unit of analysis is the individual and the method is experimental or quasi-experimental, as when Atran or Barrett (who has worked with Boyer) or Boyer and Barrett test combinations of concepts or narrative sequences, for memorability. To decry this as reductionist is, as Sperber says, to imply that these objects of study command a clearly demarcated theory and that the social, or cultural, is also clearly demarcated from the psychological, which is not the case (Sperber, 1996). Sociologists and anthropologists have a longstanding hostility to psychological explanations but if the object of study is memory, it is hard to see why there should be a problem, especially if it can be related to neurobiology. In any case, care is taken to carry out the same or comparable experiments in radically different cultural settings (viz. among US university students and later among Yukatek Mayan speakers<sup>3</sup> or, in Boyer’s case, in Nepal, Cameroon and – again – with US university students.)

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3. The use by Atran of the term “Maya” did cause me some anxiety, as this is a retrospective modern reconstruction of a pre-colonial language or kingdom spread across a vast region. Is there such a thing today as a Mayan language?

More mundanely, we can note that religious rituals and practices become particularly prominent in all societies at times of stress and passage: it is a commonplace that people who would never otherwise set foot in a place of worship, often take care to celebrate or commemorate or mark a birth, marriage, or, most notably, death, with some sort of religious ritual. Atran quotes empirical psychological evidence of how people have a very pronounced tendency to associate the word "God" with death and sadness (p. 66). It is hard to imagine a society with no religion. It is likewise interesting to note that although little energy is spent in the literature on defining religion, there is little dispute about what constitutes an object of study for those studying religion: in other words, we share an intuition that a wide range of phenomena and practices do belong together. Although these phenomena take place in different languages and seem superficially to belong to utterly different domains (compare horror-inducing Balinese dances with a Quaker meeting or a 24-hour fast) humans from the most diverse backgrounds have no trouble in agreeing that they all fall into a single domain of thought and knowledge. Of course this assumption of sameness limits the scope of Atran's and Boyer's enquiries, which are very much focused on mental representations, rather than doctrines or institutions. Indeed, Boyer switches into a rational choice framework when he comes to discuss the institutionalized dimension of world religions – as opposed to their 'popular' dimension, which is very much the privileged object of cognitive analysis.

This non-institutionalized, non-theological, dimension of religion is precisely the dimension which is most commonly left unsaid and unenunciated by either religious office-holders (in institutionalized religions) or by their followers, and indeed often by sociologists. Boyer (p. 100-105), who can only rarely resist a joke, calls it the non-serious version, of the supernatural: people enunciate a theologically correct view (an expression coined by Justin Barrett) but in practice they implicitly hold to something rather different, if only because our lives would be unliveable if we attempted to live as if most theological claims were true (viz. to live as if God knew our every act and thought and would punish us correspondingly in the world to come; or to follow the Talmud's private law prescriptions which hundreds of thousands of yeshiva boys and adult students scrutinize and memorize daily worldwide.) And popular religion – healing, possession, rites of passage – exhibits striking similarities across cultural and geographical boundaries. So the use of the individual as the unit of analysis for understanding the archetypal constants of popular religion – though not, of course, all aspects of it – is perfectly defensible. And as we have said, advancing sociologically more acceptable claims about differences between "cultures" or "societies", in circumstances where it is impossible to know where these begin and where they end, imposes evident limitations on those categories as units of analysis (Lehmann, 2001).

## The cognitive agenda

Although, if we allow our imagination to wander, the possibilities for proliferating supernatural concepts may appear to be literally infinite, more careful observation shows that only a restricted range of representations are used anywhere. One set are representations which help us to detect what is going on in other minds – and to cope with the uncertainty that we can ever *really* know, or the certainty that we can *never* really know, what a colleague, a neighbour or a passer-by for that matter, is thinking of us! Another, not unrelated, is the attribution of agency in explaining that which we do not understand. A third is what I would call the way in which archetypal supernatural representations are “tweaked” versions of standard ontologies.

The idea that we need a “theory of mind” in order to function fully as individuals is by now a central concept in cognitive psychology which has gained widespread currency in studies of autism by Simon Baron-Cohen and many others, some even earlier (Byrne and Whiten, 1988; Baron-Cohen, 1995). The idea turns out to be extremely fertile in the understanding of religion, as belief in witchcraft illustrates. Much witchcraft is about divination, especially about finding out why misfortune happens to an individual: individuals know that misfortunes happen by chance, of course, but as anthropologists, beginning with Evans-Pritchard, have often said, they are mystified and often troubled by the question “why me?” One type of answer is that someone has put a spell on a person, which in turn produces anxiety about who did it, and why, and thus a deep curiosity about what is going on in that someone’s mind. Witches, sorcerers and soothsayers satisfy this curiosity but they do not fully relieve our anxiety and may even aggravate it, since they are not fully trusted and may be in league with rivals or enemies. (Psychoanalysis, with its codes of practice and regulatory associations, can be seen as providing a different type of confidante, in a modern, impersonal framework designed to ensure trust by establishing safeguards, boundaries and professional associations to police them. One can trust one’s psychoanalyst, or indeed one’s doctor, with the most embarrassing secrets precisely because one’s contact with the professional is cut off from private life – unlike contact with witches.) In our daily lives we are constantly assailed by doubts about what others are saying and doing and thinking about us: if we did not have such doubts we would not be human, because humans owe their uniqueness, and their survival as a species, to their ability to represent the thoughts and feelings of others. And of course anxiety in the face of others’ intentions makes people more alert to danger and thus more likely to survive. But, although anxiety can so easily go too far, and become a clinical condition – paranoia – to the point of self-destruction or destruction of others, people generally look for motivation without going mad: they ask whether someone is not taking advantage of them, whether they are not being cheated (p. 225-229)

or, worse, being mistaken for a cheat. In West Africa Pentecostal churches recruit, *inter alia*, among middle class people who, having made headway in the urban setting or having obtained a precious job in the bureaucracy, find themselves under siege from demanding relatives. They fear that the relatives will heap curses upon them if they are turned away – yet they know of course that if they are too generous they will bring themselves down again: so they join Pentecostal churches to take advantage of the protective shield of the churches' thick social frontiers and fiery anti-devil rhetoric (Meyer, 1998). In this light, the paradox of churches which, while decrying the paganism of indigenous cults, themselves practice exorcisms which mimic those cults, is understandable (Lehmann, 2001). The converts find protection in the multiple social obligations and frequent church attendance which come with the Pentecostal membership, and simply makes them unavailable to their troublesome kin. Not that their new life is without its burdens: Pentecostal conversion slots individuals into a new web of exchanges which replace those they are trying to shake off.

Boyer agrees with much of the traditional anthropological interpretation, but seems unsatisfied with the metaphorical interpretation of supernatural entities. After all, since people clearly know perfectly well, for example, that ancestors are not really agents, why do they attribute their misfortunes to punishments by those ancestors? They cannot be *consciously* using the ancestors as a kind of symbolic projection of their own moral code, for symbols do not work in such self-aware ways – yet for the most part if they attribute some injury or misfortune to the action of ancestors, they know it is because they have consciously or unconsciously broken some sort of norm or code. Boyer solves this puzzle by invoking people's "inference systems for social interaction, which...guide their intuitions about exchange and fairness" (p. 229). In other words, they experience feelings of guilt vis-à-vis ancestors to whom they owe so much. Boyer's application of the model of social exchange is evidently applicable to the innumerable pilgrimages and local cults which characterize popular Catholicism worldwide: people first go to ask for an intercession by a Saint or by a particular Virgin – viz. Guadalupe or Lourdes – by depositing a *voto*, and then later return with an *ex-voto* if their wishes are fulfilled. In Israel I attended the annual festivities at Meron on Lag B'Omer<sup>4</sup>. Here Chassidim would emerge from their buses unloading 54<sup>5</sup> bottles of grape juice to offer to others in the hope of achieving a desire, such as finding a wife or having a child. A *voto* in effect. Not any kind of desire of course – a desire which fits in to the cycle of Orthodox Jewish life.

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4. The 33<sup>rd</sup> day of the Omer, which is the period running from Passover to the Feast of Weeks (Shevuot). While "counting the Omer" observant Jews cannot get married or cut their hair – except on this day – a sort of Shrove Tuesday. Practices vary, inevitably, between Sephardim and Ashkenazim, and within the two communities as well.

5. 54 because it equals three time 18 – and the letters for 18 in Hebrew (*chai*) also mean "life".



Then, when the child is born, or the wedding held, the family makes a donation to their community to mark the occasion. If one does not fulfil the promise, one experiences feelings of guilt, and the ancestors, or a spirit, will threaten revenge.

Boyer also invokes, in this explanation of folk accounts of the supernatural, “our propensity to think of salient events in terms of human interaction” (p. 231): “whenever a striking occurrence is represented in the mind, this produces an interpretation in terms of ‘someone’ acting.” (p. 229). Atran is more forthright: “cognitive schemata for recognizing and interpreting animate agents may be part of our evolutionary heritage, which primes us to anticipate intention in the unseen causes of uncertain situations” (p. 61), a hypothesis which is developed into the human propensity to look for end-oriented agency. This is supported by evidence from experiments with babies and adults, showing that “the attribution of intentional agency to abstract objects is spontaneous and natural” (p. 63). In addition, Atran develops ideas about how we *interpret* events as guided by a controlling force, as goal-directed, even though we may not *perceive* agency behind them. Usually the howl of the wind is just the howl of the wind, but just in case it is a threatening being or animal our senses are honed to be frightened by it. Such propensities may sound fanciful to the sociologist, but as evolutionary outcomes they make sense; because they have been selected, of course, there remains enormous variation, ranging from blithe inattention to risk to caution, anxiety, and paranoia. Notions of the divine are, among other things, almost always notions about animate agency as a cause of the incomprehensible. Justin Barrett (Barrett, 2001) uses experimental evidence to show, albeit tentatively, that children’s God concepts, though highly agent-based, can accommodate more abstract features than expected, but also that adults “under cognitive pressure” revert to “simpler, more anthropomorphic concepts” (p. 180). Being cautious, he adds that many more studies across cultures are required to confirm this idea. Atran quotes experiments, including some conducted by him, which point to a “cognitive susceptibility” to invoke supernatural agents so as to account for “emotionally disruptive” events which seem to have a controlling force but no agent to guide them – typhoons, earthquakes, etc. Since any grasp of the passage of time entails an awareness of death, people risk being haunted by the thought of their own death on a more or less uninterrupted basis, and the introduction of a supernatural agent relieves this anxiety.

Conversation with *haredi* (ultra-Orthodox) Jews, as well as Jewish prayer, is punctuated by references to the *yetzer hara*, the ‘drive’ to evil, a concept which also embodies agency. While undertaking research in Jerusalem, I attended a study group where the leader spoke of this drive as developing freely in children until the age of 13, thus gaining thirteen years’ advantage over the countervailing forces of morality. He speculated that bad behaviour or impudence (*chutzpah*) in a child may be traced to the mother’s menstruation, or her failure to fulfil ritual bathing obligations, at the time of conception. (Sex is forbidden between

the first signs of a woman's period until the period is completed and she has visited the *mikveh*, or ritual bath.) The drive to evil, in his mind, was not just a drive, but had to be traced back to an act, and the punishment of that act. And that act in turn was a type of violation of an exchange: all these *mitzvot*, these commandments and their fulfilment, can be seen as one side of a contract (God's *covenant* with Abraham), and the supernatural elements as a vehicle for guilt feelings which cannot be expressed in terms of physical cause and effect.

Atran and Boyer do not, on the face of it, explain why successive generations might pay for the sins of their fathers, unto the "third and fourth generation" as the Ten Commandments so frighteningly spell out, or for the sins of the mothers in the words of the study group leader mentioned above. This is by no means an unusual notion, and is similar to that found in African and Brazilian possession cults, where personal problems, particularly perhaps those relating to fertility and marriage, are traced back to previous generations or lateral kin (Birman, 1998). Parents and grandparents, or sisters and brothers and cousins, said to have made unspeakable pacts with the Devil – in order to win a woman or even simply to have a child – are blamed for present ills: their offences are visited upon their lateral kin as well as their descendants. Their unclean or shameful exchange spreads pollution through their kindred, but it also opens the way to a solution. These beliefs facilitate release from the curse because the fault, once diagnosed, can be repaired: the medium, or, in another Ghanaian example, the Pentecostal pastor (Meyer, 1998; Lehmann, 2001), can perform the appropriate ceremony of unmaking the pledge, or exorcism. If the problem arises because of a promise or exchange entered into with dishonest intentions, then the ritual of exorcism may repair the offence by pronouncing that responsibility to lie not precisely with a person, but with the evil which was possessing an individual – and so the evil acquires a name and an identity and the person, the apparent agent, is absolved. Thus we make sense of an important role taken in Pentecostal exorcisms by the summoning of the evil to *say its name*, to admit an identity, an agency and a motive.

Neo-Pentecostal churches have elevated exchange into a central feature of their relationship with their followers: "only by giving will you receive", they tell them, and a half hour can easily be devoted to fund-raising during a religious service (Lehmann, 1996; Birman and Lehmann, 1999). In the Jewish case one type of exchange occurs when people go to obtain a blessing from an important Rabbi, which generally involves making a donation to his institution. The Lubavitcher Rebbe – a charismatic innovator who made his sect into the thriving evangelizing enterprise it now is – used to give all his visitors a dollar bill, but of course many of those visitors will have made generous donations to his organization. In all these examples, moral pressure is translated into the "inference system" in which fair exchange triggers very strong feelings: the ritual of giving in neo-Pentecostal churches makes non-givers feel very exposed and guilty, and

the multifarious activities Churches provide for their followers (choirs, business and labour market contacts, counselling) make them ever more beholden and therefore ever more vulnerable to feelings of guilt if they withhold their dues or even their supplementary contributions. At this point the rational choice approach converges with the cognitive, for the rational choice account revolves crucially around the “free rider problem”: in Iannacone’s interpretation, for example, and in Berman’s explanation of ultra-Orthodoxy in Israel (Iannacone, 1997; Berman, 2000), the stringency of Jewish haredi life and the heavy demands of evangelical churches on their members arise from a need to ensure that people do not join only for the advantages – the mutual aid, the low cost commercial circuits, the social support networks, and in some cases, as in Israel, the government subsidies – but also out of a real sense of commitment. The commitment is shown by contributing their “share”, by performing tasks in church, making donations, and in addition making non-reciprocal sacrifices, by dressing in certain ways, by renouncing certain types of sexual pleasure and the like. The rational choice approach has difficulty accounting for such gratuitous sacrifice, or, as Atran would put it, costly and hard-to-fake acts, because rational choice has a one-dimensional concept of the returns or rewards of religious – or any other – activity. However, Atran develops a cognitive extension of the free rider/stringency argument: a person ready to risk the ultimate sacrifice is more likely to be trusted by others as a partner in a cooperative venture, and so we demand leaders who make sacrifices: they give up sex, or the pursuit of worldly comforts, to be priests; they must sometimes make great sacrifices to make their promises convincing (p. 131). Atran gives chilling examples from Maya stelae and astonishing accounts of suicide bombers, but he might also have described how the contemporary media treat celebrities, public figures, politicians and royalty – or rather how these figures expose themselves to media-born abuse.

Atran states that “invocation of supernatural agents constitutes an ecologically rational response to the enhanced possibilities of deception inherent in the evolution of human representational skills and social interaction” (p. 117). Humans’ metarepresentational cognitive capacities mean that we all know that we can deceive one another yet we are also, broadly, aware that if we persist in deceiving one another we will cease to exist – and the “moral basis of community life” (*ibid.*) will founder. Witches and mafia, who live by deception, are held up as examples of what can go wrong. Yet of course we persist in wrongdoing, in deception, and in being tempted to deal with witches and the mafia, despite the warnings – from the Pentecostal churches for example – that, whatever their short-term benefits, such dealings bring disaster in the long run.

So we have simultaneously to prove to one another, on a continuous basis, both that we understand deception, and that we can be trusted. We also have to take account of the transparency of hypocrisy: pure exchange theories like

rational choice would not take into account the difficulties created by faking, yet it would be impossible to build the minimum cooperation required for social institutions to work even in the most adverse circumstances if people's commitment could be seen, or even just felt, to be too often insincere. Sincerity, however, is an emotion, and so there are occasions when sincerity goes overboard just as when distrust goes too far, in the same way as prudent risk aversion can spill over into paranoia. There are "fitness gains" (an evolutionary term) and there are costs in being sincere (p. 131), because we are for ever navigating in an uncertain world. In Bernard Williams' words: "We want people to have a disposition of sincerity which is centred on sustaining and developing relations with others that involve different kinds and degrees of trust." (Williams, 2002) He calls it a disposition, and specifically says that it is not just a disposition to follow a rule, because that would be too rigid. However, in his usage (Williams, 2002, p. 120) it could also be described as susceptibility to honour and shame, and thus an emotion.

The machines of cooperation, like those of hate and conflict, are driven by emotions. By taking emotions into account as products of evolution which help us to survive and reproduce, and as tools for understanding the motivations of others and their representations of the motivations of ourselves and "other others" ("metarepresentations"), we can see how to stand in awe of a supernatural entity is a very suitable device, because we use it in only a half-naïve manner. That is, individuals' own fear of supernatural agency may be naïve, but they are canny in their perceptions of other people's fear of it, and in their use of that insight. So we also recognize, intuitively, behaviour which arouses or responds to this fear, even across cultural boundaries, and this cognitive capacity enables people from the most diverse backgrounds to recognize certain types of behaviour, with no need for explanation or definition, as religious.

## Violated ontologies

The other core feature of supernatural representation in both Boyer and Atran is the frequent, even defining presence, in such representations of detailed, but crucial "ontological violations", (Boyer, p. 90-101) or violations of intuitive expectations about folkbiology and folkpsychology' (Atran, p. 99), prefigured in a lecture given in London by Sperber in 1984 (Sperber, 1996). In Boyer's words "the combination of ontological violation and preserved inferential potential explains the family resemblance among supernatural concepts" (p. 90). In Atran's "all religious traditions include ... public expressions of beliefs in which assignment to one of the primary ontological domains fails because further processing in accordance with intuitively innate expectations about folk-mechanics, folkbiology and folkpsychology is blocked" (p. 99) These ontological categories or domains are "innate, 'basic', commonsense", "intuitive" and so

on. One of their most arresting insights is that these violations – which we might in daily parlance call violations of archetypes or stereotypes – are small: that is to say, if they are to be successful, if they are to survive and be repeated over many generations, the violations must be limited. The explanation is that this facilitates memory: Atran explores what he calls memorability, after Sperber, in a manner which strikingly inverts our usual approaches to the sociology of belief, asking not what it is about individuals or groups that leads them to recall certain things, but what it is about certain things that makes them particularly suitable for retention in the memory. Where Boyer's research shows that there are better memory effects for ontological violations than for mere oddities, Atran goes further in order to understand how not just specific images or iconic representations, but long stories such as the life of Christ or of King David or the history of the Children of Israel (my examples) manage to survive over thousands of years, and finds, on the basis of further experiments, that a "small proportion of minimally counterintuitive beliefs give the story a mnemonic advantage over stories with no counterintuitive beliefs or with too many" (p. 107).

So what is meant by these weird violations? "[People] have a concept of agents that can hear you wherever you are; they also have a concept of artefacts that can hear you. But they do not have a concept of artefacts that can hear you wherever you are" (Boyer, p. 99-100). For example, we have innumerable accounts of visions of the Virgin in which she speaks to a person, and millions of Christians go and pray to the image of a particular saint or to a particular image of Christ or the Virgin (viz. the Virgin of Guadalupe); these apparitions and images communicate with each individual. But no one has claimed that one of these apparitions or images can address a crowd or see into the minds of millions of people at once: the accounts of eyewitnesses to Bernadette's visions at Lourdes and the conversations she had with *aqueyro* ("that thing") as she always called it, are from people who stood next to her, intimate associates or companions who did not themselves see the apparition (Harris, 1999). Boyer remarks that a "combination of one violation with preserved expectations is probably a cognitive optimum" (p. 100). Further examples which imitate, though they do not replicate, those which litter Boyer's text, could be of the following sort: we would not be surprised if someone told us that slaughtering a chicken in a particular procedure would protect them from betrayal by their spouse (especially if the person came from Brazil, or Cuba or West Africa); we might not agree with the causal inferences (and the speaker in any case would be talking of hope rather than experience, let alone experiment); but neither would we regard the implausibility of the person's expectations as evidence that they think in quite different ways from us, or that their mind or brain functioned strangely. After all, the chicken was still being slaughtered – the point is that it is not for eating and that the procedure is undertaken in a ritual setting, with performer and audience in their proper places. On the other hand, if they said they could

prevent their spouse's betrayal by running the washing machine on a particular programme we would think they were out of their mind and in need of psychiatric treatment.

## **Rational Choice, universal popular religion and non-universal institutional religion**

Both authors use rational choice, more avowedly in Boyer's case. Boyer switches gear audibly when he comes, towards the end, to "doctrines, exclusion and violence". For him institutional religion is a straightforwardly political phenomenon to be explained in terms of the pursuit of power, or coalitions. Atran makes use of rational choice in his account of suicide bombers, on the basis of evidence showing that they are not "suicidal" at all in the conventional sense, and also that they are inserted in a high-pressure environment, and their acts are explained by the social organization of Middle eastern society rather than their religion – he notes that the phenomenon did not arise in Bosnia, when Muslims were subjected to dreadful persecution, but the fierce Arab clan system was absent.

So although the cognitive approach is convincing as an explanation of the universal and enduring elements which, when taken together, we have come to call "religion", it sheds only limited light on the great problems which institutionalized religion is posing today. But this is hardly a criticism. It is extremely important to come to terms with the human universals which underpin religious emotions and which are omnipresent in today's institutionalized religions, in the form of what we call "popular religion". It is even more important that social scientists set aside their prejudices against evolutionary ideas and also against evolutionary psychology: we have but to read the literary magazines or watch the television to realize the enormous importance these ideas are acquiring in the mind of opinion-forming elites, and it is no longer tenable to dismiss them on implied grounds of racism, or reductionism. These books show that they are based on convincing empirical evidence and also that they can be expounded in a manner which is coherent and sometimes arresting.

Indeed, I end on the subject of style. Both Boyer and Atran have distinctive, highly literate ways of writing. Boyer addresses the reader economically and directly, makes judicious use of colloquial expressions, and appeals to one's intuition and experience of daily life, deploying his erudition lightly and explaining the experimental material with exemplary clarity. As a non-native English speaker, he has much to teach his colleagues in academia about the art of communication. Atran is more of a steamroller: not a stone left unturned, not an ancient authority unmentioned. He marshalls a vast range of experimental evidence, some his own and much drawn from others' research. He takes delight in making extensive use of what contemporary anthropologists would regard

as outdated authorities, like Tylor, and I am sure that by using these classic ethnographic sources he is marking himself off from the modish impenetrability of much contemporary anthropology. Where Boyer is carefully honed and almost glass-cut, Atran writes like a hungry predator, drawing on a myriad of sources and inspirations. The almost simultaneous appearance of the two books, so similar yet so different, is a strange occurrence about which there is little to say. What one has to say, however, is that although up till now social scientists have steadfastly ignored them, they will not be able to avert their eyes for very long, because they are genuinely original, deeply interesting, and their ample empirical basis makes them impossible to dismiss.

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