# Human Morality and Sociality

## Evolutionary and Comparative Perspectives

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### HENRIK HØGH-OLESEN

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# 4

# Why We Believe: Religion as a Human Universal

Ara Norenzayan

In a species with tremendous cultural diversity, the suite of propensities we call "religion" tops the list of species-specific human universals. Most people in most cultures throughout history are, and have been deeply religious, yet evolutionary science is only beginning to catch up with this phenomenon that is both a product and a shaper of the human mind. In this chapter, I argue that religion is not an evolutionary adaptation, but a recurring byproduct of the complex evolutionary landscape that canalizes the cultural transmission of religious beliefs and behaviors into convergent yet culturally distinct pathways. This means that religious beliefs are the product of cultural transmission constrained by evolutionary psychology. The core cognitive feature of religion – belief in supernatural agents, itself a byproduct of the naturally selected disposition for detecting agents – was further culturally transformed from counterintuitive agents to counterintuitive *and* morally concerned policing agents. This cultural innovation, along with costly commitment aided by ritual, made possible a novel social phenomenon – stable, large, cooperative moral communities of genetically unrelated individuals.

## The Psychological Foundations of Religion

The evolutionary origins of religion continue to be vigorously debated. One view among evolutionary theorists of religion is that

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religion is a naturally selected adaptation. Although theorists do not agree as to what religion is an adaptation for, they share the idea that some aspects of religious behavior are the product of a genetically transmitted, modular trait complex, in the same way that the vertebrate eye, or ecolocution in bats, or possibly language, is an adaptation that has conferred a reproductive advantage to ancestral organisms. Some of these theorists highlight the adaptive value of religion for life in socially cohesive moral communities, either at the individual level (e.g., Alexander 1987; Bering 2003; Sosis and Alcorta 2003), or at the group level (Wilson 2002) Others maintain that religion's adaptive value springs from its capacity to provide hope and immortality in the face of debilitating existential anxieties, in particular the terror of contemplating one's own death (Becker 1973; Solomon et al. 2004). Strong adaptationist accounts of religion are in principle plausible, and they may lead to fruitful research on religion. Furthermore, there is indeed a large body of evidence supporting the idea that aspects of religion address the dual human problems of existential anxieties and social defection. However, I argue that these are social functions of religion that have been culturally evolved. The idea that religion is a naturally selected module must meet tests of adaptive design that is standard in evolutionary biology: compelling adaptive function in ancestral environments, unitary and complex design, efficiency, precision, specificity, economy, and reliability (see Williams 1966; Tooby and Cosmides 1992). A strong adaptationist model also needs to rule out the possibility that religion is a cultural byproduct of adaptive design (Atran and Norenzayan 2004; Atran 2002). In my view religion fails on all of these criteria (for similar views, see Boyer 2001; Kirkpatrick 1999; Bloom, December 2005) and is more likely an evolutionary byproduct. This does not render the evolutionary perspective any less relevant to religion, however.

Religion is not an evolutionary adaptation per se. In fact, I argue – with Guthrie (1993), Boyer (2001), Atran (2002), Bloom (December 2005), and others – that "religion" is not even a structure with unitary design and a specific function, like vertebrate vision, but simply points to a family resemblance category of converging set of cultural byproducts, rooted in innate psychological tendencies that constrain and channel, though do not wholly determine, the transmission and survival of certain beliefs and practices. The four Cs of religion – counterintuition (supernatural agents), commitment (costly sacrifice), compassion (relief from existential anxieties), and communion (emotion-arousing ritual) are themselves cultural manipulations of

psychological adaptations. The hypersensitive tendency for detecting agents (basis of supernatural agency) and the motivation to commit to social groups (basis of sacrificial behavior) address panhuman existential concerns, in particular fear of death, loss of control, and the threat of social defection (Atran and Norenzayan 2004). In all societies there is an evolutionary canalization of these four features that tends toward what is commonly referred to as "religion"; passionate, ritualized communal displays of costly commitments to counterintuitive worlds governed by supernatural agents. These features of religion emerge in all known cultures and animate the majority of individual human beings in the world (Atran 2002). In this respect, the four Cs of religion are existential universals (Norenzayan and Heine 2005): they recruit psychological tendencies that are in principle available in the psychological repertoire of human beings everywhere, although the degree to which these tendencies are invoked can vary from culture to culture and across individuals, and the situations under which these tendencies are triggered can also vary.

These four conditions do not define the necessary and sufficient features of "religion." Rather, they provide a framework that delimits a causally interconnected set of phenomena. Thus, this canalization or convergence is not inevitable – it is simply the case that we point to "religion" when most or all of these features converge in a unified social and psychological configuration. We may or may not call the phenomena that fall under this set of conditions "religion." Nevertheless, this working framework offers an adequate conceptualization that roughly corresponds to what most social scientists consider religion (Atran and Norenzayan 2004). This framework, although takes its object of study from those features of religion that are pancultural, is not incompatible with the important task of examining how the culturally distinctive paths that religions take shape psychological tendencies (e.g., Weber 1946; for a recent exploration, see Cohen, Hall, Koenig, and Meador 2005). In fact, as I discuss later in this chapter, understanding exactly what are those features of religion that reliably occur across cultures will facilitate our understanding of the cultural transformations that have had a profound impact on the human mind, especially since the agricultural revolution.

Religion's conceptual foundations are given by task-specific, panhuman cognitive domains, including folkmechanics (object boundaries and movements), folkbiology (biological species configurations and relationships), and folkpsychology (intentional agents and goal-directed behavior) (Atran and Norenzayan 2004; Boyer 2001). God

concepts are thus counterintuitive because they violate what studies in cognitive anthropology and developmental psychology indicate are expectations about the world's everyday structure, including such basic categories of "intuitive ontology" as *person, animal, plant* and *substance* (Atran 1989). They are generally inconsistent with fact-based knowledge, though not randomly. Beliefs about invisible creatures who transform themselves at will, or who perceive events that are distant in time or space, contradict factual assumptions about physical, biological and psychological phenomena. For example, ghosts are similar to human agents in most respects, having beliefs, desires, thirst, and hunger, yet they violate a few core assumptions of folkphysics and folkbiology, such as their ability to move through solid objects and often being immune to death.

Consequently, certain religious beliefs are more likely to be retained and transmitted in a population than random departures from common sense, and thus are culturally stabilized. Insofar as category violations shake basic notions of ontology, they are attention-arresting, hence resistant to memory degradation. But only if the resultant impossible worlds remain bridged to the everyday world can information be stored, evoked, and transmitted (Atran and Sperber 1991; Boyer 1996). Several lines of experiments support these assertions, indicating that minimally counterintuitive concepts (Boyer and Ramble 2001; Barrett and Nyhof 2001), as well as minimally counterintuitive narrative structures such as folktales (Norenzayan, Atran, Faulkner, and Schaller 2006), have a cognitive advantage over other cognitive templates (e.g., entirely intuitive, or maximally counterintuitive). Thus, minimally counterintuitive supernatural agents help people remember and presumably transmit the more numerous intuitive statements that comprise the bulk of any religious tradition (mundane happenings). Such beliefs, even if they were initially evolutionary byproducts, grab attention, activate intuition, and mobilize inference in ways that greatly facilitate their mnemonic retention, cultural transmission, and historical survival. Once cognitively selected, these beliefs are available to serve secondary social functions and undergo cultural selection and stabilization.

## Supernatural Agents and the "Tragedy of Cognition"

One such social function relates to the emotionally eruptive existential anxieties (Malinowski 1922), particularly death (Becker 1973; Freud 1913; Solomon et al. 2004) common to all human lives in all

societies. This is the "tragedy of cognition": the fact that human beings, like other animals, have an innate survival instinct. Yet higher-order cognitive abilities to imagine the future inevitably lead to the overwhelming inductive evidence of our own eventual death, and that of persons to whom we are emotionally connected, such as relatives, friends and leaders. Such inductions activate existential anxieties that may lead to terror and paralysis (Becker 1973). Reason alone is unequipped to address this tragedy. All religions propose some kind of a supernatural resolution to this quandary in some minimally counterfactual afterlife that is governed and guaranteed by one or several powerful supernatural agents (Atran and Norenzayan 2004).

Often anxieties that bring on the supernatural are purposely excited then assuaged (Durkheim 1915). Ethnographic accounts of initiation rituals illustrate this pattern, as these rituals invariably involve "rites of terror" (Whitehouse 1996), as observed in a wide range of cultures (Atran and Norenzayan 2004). Death-related anxieties have been linked to religious behavior in psychology as well. In a classic psychological study, Allport, Gillespie, and Young (1948) found that, among returning World War II frontline soldiers, memories for fear of death were associated with heightened faith in divine intervention. If supernatural agents are cognitively salient and possess some degree of omniscient and omnipotent powers, then they can be invoked to ease these existential anxieties, particularly the awareness of death that forever threatens human life everywhere. If so, then experimentally, heightened awareness of death should increase the propensity to interpret events in terms of supernatural agency. This is indeed the case.

In priming experiments, participants were randomly assigned to write about their death or about a neutral topic. Then their commitment to God and to supernatural explanations was measured. Results showed that strength of belief in God's existence and in the efficacy of supernatural intervention were reliably stronger after exposure to the death prime than after the neutral (Norenzayan and Hansen 2006).

Terror Management Theory (TMT) maintains that cultural worldviews which infuse our lives with order, meaning, and a symbolic immortality, are a principal buffer against the terror of death. Accordingly, TMT experiments show that thoughts of death encourage people to reinforce their cultural (including religious) beliefs and derogate alien cultural worldviews (Greenberg et al. 1990; Pyszczynski et al. 1999). According to this reasoning, awareness of death should enhance belief in a worldview-consistent deity, but diminish belief in a worldview-threatening deity. In contrast,

my view suggests that the need for belief in supernatural agency is a buffer against the terror of death that is distinct from worldview-defense. To test this idea, North American (mostly Christian) participants were again primed with death or with a neutral topic. Then their commitment to a culturally alien supernatural agent, in this case a divine Buddha, was measured. The mostly Christian subjects who previously self-identified as believers in their own religion (none were Buddhists) were *more* likely to believe in the power of Buddhist prayer, but only when their awareness of mortality was heightened. Similarly, mostly Christian Canadian participants were *more* likely to believe in Shamanic spirits when their awareness of death was salient (Norenzayan and Hansen 2006).

In a cross-cultural extension, Yukatek-speaking Maya villagers were primed with death awareness, with our procedures modified to fit Maya cultural circumstances. We found no differences among primes for belief in the existence of God and forest spirits (near ceiling in this very religious society). However, belief in efficacy of prayer for invoking Maya deities (where there was more variability) was significantly greater with the death prime than with the neutral primes (Atran and Norenzayan 2004). These results encourage the idea that minimally counterintuitive supernatural agents achieve cultural success not only because of a memory advantage, but also because of powerful motivational reasons: they relieve existential anxieties that are not in principle resolvable by rational deliberation.

## Moralizing Supernatural Agents and the "Tragedy of Social Defection"

Another social function of some aspects of what we call "religion" is to facilitate social cohesion. In one study, for example, religious kibbutz members were found to be more cooperative in a public goods game than secular members, and religious attendance predicted cooperative decision-making when controlling for a number of variables (Sosis and Ruffle 2003). Sosis and colleagues have focused on religious ritual as a costly signal that curbs the free-rider problem and as a result facilitate the stabilization of large cohesive groups (Sosis and Alcorta 2003). Here I examine what role, if any, supernatural agents have played in this co-evolutionary process. Specifically, I describe how supernatural agent beliefs were culturally exploited to solve the problem of defection in large groups of genetically unrelated individuals.

Social organisms can reap the benefits of group living only to the extent that the selfishness of each individual in the group does not threaten the very stability of the group. This is the "tragedy of social defection:" on one hand social organisms are motivated to engage in fitness-maximizing behaviors that are often detrimental to other conspecifics; on the other, group living collapses if enough individuals free-ride – that is, reap the benefits of group living without contributing to the group.

This is why several adaptations have evolved that make group living possible, under certain conditions. In kin selection, altruism overcomes selfishness, but only among those that are genetically related, such as parents and offspring (Hamilton 1964). Reciprocal altruism extended the benefits of group living to non-kin, but only if there is reliable recognition of conspecifics and repeated social interactions (Axelrod 1984). Indirect reciprocity expands the circle of altruism further, if reputations can be ascertained by third parties rather than only through personal interactions. But this mechanism is dependent on reputations being reliable signals of trust (Nowak and Sigmund 1998).

We know that each of these strategies has allowed for human social groups to flourish, but only to a certain extent. Extrapolating from neocortex size, Dunbar (2003) has estimated that human group sizes cannot exceed 150 individuals. While this specific number has been disputed (e.g., Smith 1996), it is apparent today from the size of modern human settlements that additional mechanisms must operate to explain the existence of super-large groups. So what made such large groups possible? The answer must be found in the human capacity for culture. The idea of supernatural agents, a byproduct of mundane cognitive capacities, was culturally transformed into *morally concerned supernatural policing agents*. This idea became culturally widespread, as it allowed for further expansion of human cooperation beyond the constraints that marked the old strategies of kin selection and various kinds of reciprocity (Shariff, Norenzayan, and Henrich 2010). The omniscience of supernatural agents greatly extended the social accountability of human beings to all times and all places. Moreover, these omniscient agents could track the transgressions of as many individuals as needed. The consequence is that the tragedy of social defection was contained: in a group committed to the existence of supernatural moral watchers, there is always someone watching you (see also Johnson and Bering, 2006). These agents also solve the problem of costly punishment (Henrich and Boyd 2001; Johnson

and Bering, 2006). The costliness of punishing cheaters – both the act of punishing and the potential retribution for this act, itself creates a second order problem, as those who free ride on their punishing duties must also be punished. Belief in omniscient and powerful supernatural agents who can punish (in this lifetime or in another) is a marvelous cultural solution to this problem.

A growing body of empirical evidence supports this line of reasoning. Snarey (1996) examined the features of God concepts across cultures as a function of life-threatening water scarcity. Societies with high water scarcity were more likely to have high Gods – all-powerful, omniscient, and morally concerned deities who encouraged the pro-social use of natural resources. This finding held even when controlling for cultural diffusion of high Gods via missionary activities (Christian and Muslim). Thus, high Gods were culturally selected when freeloading was particularly detrimental to the cohesiveness of the social group.

In a different cross-cultural analysis, Roes and Raymond (2003) predicted, and found that, across cultures, large societies are more likely to invent and propagate high Gods – group size was correlated with the existence of high Gods, supernatural watchers who are omniscient and concerned about the morality of human interactions. This finding held controlling for the cultural diffusion of high Gods via missionary activity, as well as for societal inequality.

In societies with moralizing gods, a fear of supernatural agents among individuals can be evoked in order to enforce moral norms. In one study, children were explicitly told not to look inside a box, and then left alone in the room with it (Bering 2003). Those who were previously told that a fictional supernatural agent, Princess Alice, is watching were significantly less likely to peek inside the forbidden box. A later study (Bering 2006) found a similar effect among university students. Those who were casually told that the ghost of a dead student had been spotted in the experimental room were less willing to cheat on a rigged computer task.

Shariff and Norenzayan (2007) showed that this effect can occur even when thoughts of God are induced without explicit awareness, removing the possibility of demand characteristics leading to more pro-social behavior. Participants were randomly assigned to three groups. In the first group, participants unscrambled sentences that contained words like spirit, God, and divine. Another group played the game with words like court, civic, jury, and police – thereby priming them with thoughts of secular moral

authority. Finally, the control group played the same word game, but with non-religious content. In an anonymous, non-iterated version of the "dictator" game, participants were then randomly assigned to be either the "giver" or the "receiver". Those assigned to the role of the giver were allotted ten dollars which they were given the opportunity to share – in any amount they saw fit – with the receiver, who would otherwise receive nothing. Assured anonymity, 38 percent of givers in the control conditions kept all the money for themselves. This figure fell to 14 percent for participants implicitly primed with God concepts. At the same time, the proportion offering five dollars to the receiver – an even half of the money – rose from 20 percent in the control conditions to 48 percent in the religiously primed condition. Importantly, the secular prime increased altruism as much the religious prime did, suggesting that religion is an important factor in motivating generosity, but certainly not the only factor.

These results suggest that, in addition to curbing cheating behavior, the imagined presence of supernatural policing agents can reduce selfishness and increase the adoption of fairness norms, even with anonymous strangers. The combination of reduced cheating and free-riding, and increased altruism and pro-sociality, would have led to cohesive societies, paving the way for the rapid increase in the size of stable social groups.

## Psychological Mechanisms and a Possible Evolutionary Scenario

What specific psychological mechanisms account for the effect of religious thinking on pro-social behavior? Two possibilities present themselves. I discuss these two alternatives and the empirical evidence for each. I then discuss a possible evolutionary scenario which takes into account interactions between innate tendencies and cultural learning, suggesting how belief in moralizing gods spread in human populations.

A behavioral priming or ideomotor action account involves the fact that the activation of perceptual-conceptual representations increases the likelihood of goals, plans, and motor behavior consistent with these representations (Bargh et al. 1996). Supernatural concepts such as *God* and *prophet* are moral actors semantically and dynamically associated with acts of generosity and charitable giving. Irrespective of reputational concerns, participants may have

automatically behaved more generously when these concepts were activated, similar to when participants are more likely to interrupt a conversation when the trait construct "rude" is primed, or when university students walk more slowly when the elderly stereotype is activated (Bargh et al. 1996).

Another plausible explanation, not necessarily incompatible with the first, is that the religious prime activated the perceived presence of supernatural watchers, which then increased pro-social behavior (for similar observations about supernatural agent concepts, see Bering 2006; Boyer 2001; Johnson and Bering, 2006). Generosity in cooperative games has been shown to be sensitive to even subtle changes that compromise anonymity and activate reputational concerns (Hoffman et al. 1994; Haley and Fessler 2005). Debates continue as to whether cooperative behaviors toward unrelated individuals, especially those driven by passionate commitment, exist independent of short-term self-interest (e.g., Gintis, Bowles, Boyd, and Fehr 2003). However, reputation management can go a long way in explaining the evolutionary stability of cooperative behavior between strangers, to the extent that selfish individuals are detected and subsequently excluded from future cooperative venture. If the mere presence of eyespots could increase generosity (Haley and Fessler 2005), it is very plausible that rousing belief in a supernatural watcher could produce similar effects. In a species as intensely social and reputation-conscious as humans, the activation of God concepts, even outside of reflective awareness, matches the input conditions of our ordinary agency detector and as a result triggers this hyperactive tendency to infer the presence of an intentional watcher. This sense of being watched then activates reputational concerns, undermines the anonymity of the situation, and as a result curbs selfish behavior. From this perspective, reputational sensitivity is a naturally selected tendency, a part of human brain evolution that might explain why supernatural watchers are especially likely to have culturally succeeded in social groups.

Finally, how did belief in these moralizing Gods evolve? One view invokes a natural selection account, such that genes that coded for such beliefs conferred reproductive benefits to group-living individuals by curbing selfishness and encouraging cooperation (e.g., Johnson and Bering, 2006). In contrast, I argue that cultural evolution is a more compelling explanation for the rise and persistence of these beliefs. In this view, once supernatural agency emerged as a byproduct of mundane cognitive processes such as agency detection and mindreading, cultural evolution favored the spread of a special type of supernatural

agent —omniscient, moralizing supernatural watchers who facilitated cooperation and trust among strangers and contributed to the expansion of human group size (Norenzayan and Shariff, 2008). This latter evolutionary scenario is persuasive for at least two reasons. First, it accounts for an otherwise puzzling feature of religious pro-sociality – namely, the systematic cultural variability in the prevalence of moralizing Gods across societies that correlates with group size (e.g., Roes and Raymond, 2003). Many small-scale societies, which more closely approximate ancestral conditions, do not have omniscient and morally concerned deities. Belief in such Gods is ubiquitous in evolutionarily recent anonymous social groups, where reputational and kin selection mechanisms for cooperation are insufficient. Thus, beliefs in moralizing supernatural agents could be examples of culturally evolved variants that played a key historical role in the rise and stability of large cooperative communities since the agricultural revolution.

Second, mathematical modeling of cooperative behavior shows that reputation management as a strategy does not achieve evolutionary stability beyond dyadic relationships (Henrich and Henrich 2007). To the extent that these mathematical models provide a good fit to the empirical facts, widespread belief in God concepts cannot be explained by reputational sensitivity at the individual level. An alternative cultural evolutionary account would invoke cultural group selection, such that ancestral societies with moralizing God concepts would have outcompeted those without, given the cooperative advantage of believing groups (Wilson 2002). Unlike genetic group selectionist accounts of altruistic behavior, which face a number of well-known theoretical and empirical challenges (e.g., Atran 2002), cultural group selection is more plausible theoretically and substantiated empirically (see, e.g., Henrich and Henrich 2007).

## Conclusion

Religion is a species-specific human universal. It is both the product of genetic and cultural evolution, a dual inheritance that characterizes the peculiar nature of human evolution (Richerson and Boyd 2005). There is universality of (1) belief in supernatural agents who (2) relieve existential anxieties such as death and deception, but (3) demand a passionate and self-sacrificing commitment that is (4) validated through emotional ritual. A rich array of culture-specific beliefs and practices has supplemented and influenced these features, leading to the vast and complex religious traditions that exist today. Over time, some

cultural variants of supernatural agents emerged that facilitated the formation of large, cooperative societies of genetically unrelated individuals. Religions take culturally distinct but convergent paths that are constrained by a complex evolutionary landscape reflecting cognitive, emotional, and material conditions for social life.

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