Children are made into moral agents easily through socialization and social control mechanisms, as they are assigned blame and learn to blame others and especially themselves. The panhuman experience is that parents are the carriers of morality, as they convey to their children a fantasy of a world ordered into right and wrong, reward and punishment. The moral universe we all inhabit was developed in early childhood in our private consciousness, and it may be projected on the universe.

Do we need religion to support behavioral inhibition, as Bering claims? The basic pattern of socialization precedes the use of religious ideation. We are afraid of mother and father because they punish us, long before they become the souls of the ancestors. References to divine authority are sometimes used by parents to bolster their authority in disciplining children. Thus, the parents become allied with divine authority. Examples can be found in all cultures (Geertz 1960). Nunn (1964) found that this "coalition" with divinity was prevalent among parents who were ineffectual and powerless.

Bering correctly points out that the connection between morality and religion is rarely addressed in the behavioral literature. But this is true not only for cognitive science or psychology, but also for history, anthropology, and sociology, and with good reason. Showing that religion has any consequences in prosocial behavior has not been easy.

The four-dimensional model of religiosity (ideological, ritualistic, experiential, and intellectual) so often used, originally had a fifth dimension – the consequential – designed to measure the effects of religiosity on conduct in other spheres. It was dropped because consequences in nonreligious behavior could not be found (Beit-Hallahmi & Argyle 1997). Modern findings indicate that religion does have a considerable effect on secular behavior in two areas: sex and the use of illicit drugs. Generalizing beyond these specific areas has been difficult (Beit-Hallahmi & Argyle 1997). We should note that not only has the academic study of religion ignored morality, but the academic study of moral development has largely ignored religion, with no apparent damage or deficits.

The global secularization process means that we no longer interpret misfortune as caused by supernatural agents. Some misfortunes (earthquakes) result from inanimate natural forces, and are viewed as unrelated to any moral agents (Neiman 2004). What can be morally condemned is human action. We can condemn human cruelty, and we do. Moreover, the Enlightenment has led to a new, totally secular, public discourse about morality, focusing on justice, rights, equality, and human welfare, and marginalizing the impulse control discourse. This sea change in our moral outlook is evident in the Universal Declaration of Human Rights (1948) and in such secular groups as Amnesty International and Medecins sans Frontières. Lifelong atheists have been found to be well-socialized, law-abiding, and nonviolent (Beit-Hallahmi 2006). They obviously go through blaming themselves, and others, and feel guilty. They may anthropomorphize their diseases and inclement weather. They have have gotten all that from their evolved architecture and early experience, without the help of any functional religious illusions.

Religion and morality: An anthropological comment

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Abstract: This commentary criticises Bering on two counts. First, because we do not know what he attributes to natural selection and what he sees as derived representations. Second, Bering's ethnography of religion is inadequate. People who practise ancestor worship are not concerned with their own survival but with that of others. Many supernatural beings are not thought of as morally motivated.

Jesse Bering's article is nothing if not ambitious. It starts with an experiment showing that young children attributed psychological functions to a recently dead mouse and ends up with a proposal that amounts to saying that religion, especially religion of a kind which is strikingly similar to what Harold Bloom has called "American Religion" (Bloom 1992), is innate, since it is the product of natural selection. That is a long way to go, especially because, as far as I am aware, most religious systems are not much concerned with the survival of the souls of rodents.

The connecting links in the argument are that humans are natural dualists because they inevitably have a belief in the survival of some elements of agency on the part of the dead, who consequently are attributed with mental states; that this leads to similar beliefs about other supernatural beings such as God; that the existence of supernatural agents give meaning to the individual self in the world; that these beliefs make people behave morally; and that this is good for them and their inclusive fitness because a reputation for morality leads others to treat you and your offspring well.

I react to this proposal in two ways: first, as a critic of the general theoretical issues raised by Bering; second, as a traditional anthropologist who wants to test the theory against the ethnographic record.

Bering claims to give us an evolutionary account that, in certain respects, is critical of theories such as those of Boyer, Sperber, and Atran because these seem to make religion the product of an unfortunate malfunction of our cognitive apparatus. This indeed seems odd for such a central feature of human culture, and I too have been critical of these writers for linked reasons (Bloch 2002). Nonetheless, Boyer and those others seem to me to have an advantage over Bering in an important respect, that is, they are very clear as to what they are claiming. I do not find such clarity in Bering. Following such writers as Tooby and Cosmides, he tells us that natural selection has led to the evolution of certain necessarily innate characteristics, which, as dispositions, have affected the history of culture. Such a proposal requires a strict division between that which is claimed to be innate, the product of natural selection, and the cultural phenomena that have been affected by such innate dispositions – inevitably together with many other factors. It is precisely this distinction between exactly what it is claimed natural selection has bred in us and the derived factors that are affected by these inherited mechanisms which is missing. Is it the morality/religion complex that has been selected for in the distant past of the species? Or is it merely the belief in the survival of the dead? I am not sure. For example, Bering tells us, inter alia, that "people naturally endow their lives with a hidden purpose." What does "naturally" mean here? Does that mean that natural selection has made us into beings that "naturally" think in this way? Are we to understand that certain other dispositions inevitably, but indirectly, lead us to see our lives in this way? I do not feel I know.

Now let us turn to more ethnographic matters. At least two key elements in the argument are to me unacceptable. One concerns the characterisation of ancestors, the other concerns the characterisation of supernatural beings in general.

Even if we accept that it is frequent to believe in some aspect of the continuing functionality of the psyche of dead people, this does not mean that these are regularly represented as concerned with morality. However, it is this involvement which, for Bering, would explain the selective advantage of such a representation and therefore its frequent recurrence. For example, the Trobrianders famously described by Malinowski have elaborate beliefs in various forms of life after death, but they do not believe for all that, that the dead enforce the morality of the living (Malinowski 1916). There are many other examples of such moral indifference, as in the case of ancient Greece as described in *The Iliad*. Even in Catholic Christianity dead souls

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of ordinary people are not concerned with the morality of their descendents, and the early fathers of the church actually went out of their way to eradicate such "pagan" beliefs.

Those people who do believe in ancestors as some sort of moral police are also very different from what Bering seems to assume. Such people are not concerned about what happens after their own death; what matters is what the souls of already dead people might do to them if they are displeased. This makes Bering's argument about the importance of the belief in intelligent design for one's own behaviour irrelevant. And, even then, ancestors are rarely concerned with maintaining a universal morality; they are concerned with punishing or rewarding actions which ensure their own selfish reproduction via their descendants. This interest in their own inclusive fitness is not particularly altruistic and often overrides the interests of their own descendants (Fortes 1959). The ethnographic record of beliefs in an afterlife therefore gives us a quite different picture to that suggested in the target article.

This is equally true of Bering's characterisation of god-like supernatural beings. The author seems to assume that supernaturals are invariably on the side of good and against evil. This is to forget that such creatures as devils and witches are on the side of evil. Even more commonly, supernaturals are represented as neither good nor evil, but as simply unconcerned with moral issues, though their very existence certainly is believed to cause trouble. This is the case, for example, of the nature spirits common in Africa, of the spirits of aborted foetuses in Japan, and of the ancestral spirits of Amerindians. Similarly, there are many cases of supreme gods, such as the famous African otiose gods, who also are characterised by indifference and arbitrariness (Forde 1954).

Prosocial aspects of afterlife beliefs: Maybe another by-product

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Abstract: Bering argues that belief in posthumous intentional agency may confer added fitness via the inhibition of opportunistic behavior. This is true only if these agents are interested parties in our moral choices, a feature which does not result from Bering's imaginative constraint hypothesis and extends to supernatural agents other than dead people's souls. A by-product model might handle this better.

Bering's brilliant unpacking and explanation of afterlife beliefs includes the claim that a disposition to such cognitive errors may confer greater fitness by motivating prosocial (and inhibiting opportunistic) behaviors (sect. 2.4). Indeed, in most cultures, beliefs in dead agents are associated with moral feelings. However, the particular evolutionary argument offered here may not be the most parsimonious account of the evidence, because (a) people associate morality with their supernatural beliefs in many different ways, some of which do not mention afterlife beliefs; and (b) more important, there is massive evidence for these very same prosocial attitudes and inhibitions outside of supernatural beliefs.

In some cultures people construe morality in terms of a *code* given by the gods or a single god or ancestors or a specific cultural hero; in other cultural environments they express moral norms in terms of similarity to the behavior of *paragons* such as heroes or gods; in other places the norms derive from constant *interaction* with spirits or gods or ancestors; and in many places people mix all three modes (Boyer 2001). This is a problem for Bering's account. Such diversity suggests that the association between morality and supernatural beliefs is rather ad hoc, perhaps best seen as a relevant, attention-grabbing and inferentially powerful combination of prior elements that evolved for different reasons. Indeed, the evolution of prosocial behavior and moral feelings certainly does not require supernatural beliefs. A whole suite of prosocial cognitive mechanisms evolved in human beings. They include for instance *reputation-monitoring*, whereby we construct precise and dynamic databases about the reputational effects of own and others' actual behavior, as well as inferred dispositions and character (Wojciszke et al. 1998); *commitment signals* that evolved out of other forms of reliable, hard-to-fake signals and provide information about likely future behavior (Nesse 2000); a *coalitional psychology* that helps us maintain strong associations of non-kin and manage interaction with rival coalitions (Harcourt & de Waal 1992; Kurzban & Leary 2001); in-group *strong reciprocity* whereby we suspend ordinary principles of exchange to create a domain of valued and selfless interaction (Gintis 2000); *ethnic signals* that help maintain the boundaries of this domain (Kuran 1998); *commitment gadgets* that help us tie our own hands to force ourselves to behave non-opportunistically (Schelling 1960); and *moral feelings* that provide immediate, negative emotional rewards for opportunistic plans and thereby compensate the motivational effects of the discount curve (Frank 1988). All these dispositions and processes evolved independently of supernatural and religious beliefs, operate in similar ways in people with or without such beliefs and regardless of differences in these beliefs, and recruit different neuro-cognitive machinery from the supernatural imagination (Boyer 2003b).

So we seem to have plausible hypotheses for the *independent* development, cognitive implementation, and evolutionary history of (a) beliefs in supernatural agents (including dead people) and (b) prosocial dispositions. This may help provide a parsimonious "by-product" explanation of morally relevant dead agents.

If we accept the first part of Bering's scenario, a set of cognitive constraints lead us to construe dead people as intentional agents. These constraints do not necessarily imply that the agents are "interested parties" in our moral choices with "full-access" to morally relevant information about us (Boyer 2001). But all that is required to entertain concepts of such full-access agents is an assumption that is already contained in many of our prosocial cognitive mechanisms. The dispositions listed above all carry the assumption that information about our own behavior is not safely confined, that it may leak to other parties in unforeseen ways, and that it is generally safe to assume in others more knowledge of our decisions than can be observed. This assumption itself is not terribly mysterious in origin. There is a cognitive cost in computing the extent to which others do not share information that is manifest to us, which is why understanding false belief takes children more time than understanding belief, and can be impaired by a variety of pathologies, as well as attentional load or altered states. So the assumption that others know what is manifest to us is a default value of our intuitive psychology more than a special elaboration of it.

Given all these elements, it would seem that the notion of "full-access supernatural dead agents with moral interest" develops without much cognitive effort, as it only combines prior assumptions, and has great inferential potential. In particular, it provides an explanatory context in which one's own moral feelings, the outcome of implicit processes, may be readily explained. This by-product scenario seems more parsimonious than the one offered in the target article.

The principle of ontological commitment in pre- and postmortem multiple agent tracking

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