## Commentary/Bering: The folk psychology of souls

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 recipro*city* 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 "fullaccess 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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