

of ordinary people are not concerned with the morality of their descendants, 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 fetuses 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

Pascal Boyer

Departments of Psychology and Anthropology, Washington University,
St. Louis, MO 63130.

pboyer@artsci.wustl.edu <http://artsci.wustl.edu/~pboyer>

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

Nicolas J. Bullot

Department of Philosophy, University of Toronto, Toronto, ON L5L 1C6,
Canada.

nicolas@objectcognition.net

<http://www.nicolas-bullot.org/Publi/PubliFrame.html>

Abstract: This commentary suggests that understanding the “Folk Psychology of Souls” requires studying a problem articulating ontology with psychology: How do human beings, both as perceivers and thinkers, track and refer to (1) living and dead intentional agents and (2) supernatural agents? The problem is discussed in the light of the principle of the ontological commitment in agent tracking.

Jesse Bering’s article addresses fascinating questions that certainly deserve to be studied in an interdisciplinary science of the “Folk Psychology of Souls” (henceforth, FPS). Whereas the author alludes to *existentialist* philosophy, he nonetheless overlooks research in contemporary *analytic* philosophy about two relevant themes: (1) the problem of reference (Campbell 2002; Evans 1982; Kripke 1980; Perry 2001; Quine 1960; Strawson 1959) and (2) the problem of personal identity (Locke 1689/1975; Merricks 2001; Olson 1997; Parfit 1984; Rorty 1976; Shoemaker 1959). Understanding the FPS requires studying this fundamental question: *How do human beings, both as perceivers and thinkers, track and refer to (1) living and dead intentional agents and (2) supernatural agents such as ghosts and gods?* I name “tracking” the ability to trace, follow up, or pursue over space and time a set of traceable individuals; it is useful to distinguish *perceptual* tracking, in which a target individual is directly tracked by a sensory-motor system, from *epistemic* tracking, in which an individual is spatio-temporally pursued by indirect epistemic means such as communication and reasoning.

In several passages (e.g., about simulation, cognitive system), the author seems to overlook the problem raised by the multiplicity of skills and methods used by human beings to track (1) actual living and dead agents and (2) fictional mortal and immortal agents. An account of this multiplicity might threaten the hypothesis that evolution has selected a unique organized cognitive system dedicated to forming illusory representations of psychological immortality and supernatural agents. This multiplicity becomes apparent when one considers how deeply the varied kinds of agent tracking depend upon the *multiple* assumptions available about *agents’* (purported) *ontology*. By “ontology” I mean an implicit representation or an explicit understanding of the birth, persistence, and survival conditions of the tracked agent. Philosophers have distinguished bodily (Thomson 1997; Williams 1970) and biological criteria (Olson 1997) from psychological criteria (Parfit 1971; 1984; Shoemaker 1959; 1999) capable of defining the survival of a person, or intentional agent. As considered in the discussion of sortal concepts (Carey & Xu 2001; Hirsch 1982; Pylyshyn 2003; Wiggins 1997; 2001), subjects or cognitive systems performing tracking must possess information about some uniquely distinctive features of the tracked agent in order to direct their agent-tracking attitudes and actions appropriately. This can be expressed by this Principle of the Ontological Commitment in Agent Tracking:

The skill or method that a human subject (or a perceptual, cognitive system) *s* uses to track a unique target intentional agent *a* are dependent upon the ontology that she (or it) ascribes implicitly or explicitly to *a*. (Characters in italicized and bold fonts are standing for proper names.)

The author’s hypothesis is that the ontological commitment about the immortality of the soul of postmortem agents is the “default cognitive stance” selected by evolution. I would like to remark that even if the hypothesis were true, we would still have to account for multiple ontological commitments in agent tracking and multiple manners of referring to afterlife agency. This problem is relevant to the target article because it is sometimes difficult to determine *which kinds* of agent-tracking behaviors are discussed by the author. Do they involve behaviors and beliefs relating to interactions with the tracked immortal soul? Do they involve beliefs about the possibility of localizing the soul? What are the purported characteristics of individual souls that guarantee their survival and traceability? What are the relationships between visual tracking (Pylyshyn 1989; 2003)

and living/dead agent tracking (Bullot & Rysiew 2005)? Can these relations be studied experimentally? Some of the previous questions might have distinct answers in cultures that have evolved differently (Richerson & Boyd 2005) and are upholding different ontological commitments.

To focus on a precise case: the author mentions the “continued social relationships with the dead” (sect. 2, para. 4). Such a phrase is ambiguous with regard to ontological commitment and tracking. If one accepts empirical realism, this continued social *reference* can be of at least two different types (see Fig. 1): (1) reference to, and physical interactions with, existing material traces of a dead agent, or (2) reference to a fictional immortal soul as in “common-sense dualism” (Bloom 2004). (This dichotomy is reminiscent of the distinction between knowledge by acquaintance and by description; see Russell [1912; 1918; 1956], Strawson [1959, pp. 18–20], Evans [1982, pp. 143–203], Clark [2000, pp. 130–63] or Campbell [2002].) In type (1), the acquaintance- or *empirically grounded* reference, subjects are referring either to an actual agent *a* or to the material traces left by him. In type (2), the description- or *fictionally grounded* reference, subjects are referring to a nonexisting fictional agent *f* such as Sherlock Holmes or a ghost. When facing type (1), for example, if someone is heard having a discussion about an individual named “*a*,” you can search for that particular individual. In frequent cases, you may eventually find her and be in a situation to perceive *a*’s organism and the surfaces/movements that convey information about *a*’s mental states. Similarly to the case of other kinds of individuals (Campbell 2002; Pylyshyn 2003), perceptually tracking of *a*’s organism thus opens a wide range of epistemic possibilities, such as verifying propositions about *a*’s current properties via, for example, demonstrative identification, prosthetic perception, and biometric measures. Even after *a*’s death, it is usually still possible to trace and reach *a*’s remains or possessions (think about archeological investigations: *a*’s corpse is marked with perceivable traits or scars that are historical vestiges, which act as evidence of events in *a*’s life). These epistemic actions are not available with fictional reference, for the characteristics of a fictional agent can only be known by means of descriptions or imaginary depictions. If *f* is a fictional character, any search of the referent of the name “*f*” will end in a so-called “block” in the naming network (Donnellan 1974; Perry 2001). The dichotomy is



Figure 1 (Bullot). Fundamental differences between tracking actual and fictional agents.

essential for understanding the FPS, because each type implies drastically different cognitive procedures: type (1) accesses a realm of empirical and perceptual evidence that is ontologically closed to type (2) and type (2) accesses a realm which rests on descriptive resources and individual/collective imagination.

Ecological variability and religious beliefs

Adam B. Cohen, Douglas T. Kenrick, and Yexin Jessica Li
Department of Psychology, Arizona State University, Tempe, AZ 85287-1104.
adamcohen@asu.edu douglas.kenrick@asu.edu
yexin.li@asu.edu

Abstract: Religious beliefs, including those about an afterlife and omniscient spiritual beings, vary across cultures. We theorize that such variations may be predictably linked to ecological variations, just as differences in mating strategies covary with resource distribution. Perhaps beliefs in a soul or afterlife are more common when resources are unpredictable, and life is brutal and short.

Religious beliefs, including those about an afterlife and omniscient spiritual beings, vary across cultures (Cohen & Hall, submitted; Cohen et al. 2003). This does not mean they are not adaptations, because human behavior represents a continual and dynamic interplay between flexible evolved mechanisms and variable environmental inputs (Kenrick 2006; Kenrick et al. 2002). Rather, an evolutionary ecological perspective inspires questions about whether variations in religious beliefs and practices are adaptively keyed to variations in human physical and social environments (ranging from food and shelter to social structure: e.g., status hierarchies, access to mates, and geographical distribution of kin relative to self). Cultural norms surrounding sexual liaisons (often centrally incorporated into religious beliefs) provide one illustrative case. Such norms vary widely, with some societies and some religions sanctioning only monogamy, many also accepting polygyny, and a small percentage permitting polyandry. These variations correlate predictably with physical and social ecology. For example, Tibetan families in which one man marries one woman have fewer surviving children than do families in which brothers pool their resources (Crook & Crook 1988). By sharing one wife, brothers can preserve the family estate, which would not even support one family if it were subdivided each generation. Brothers in other species also engage in polyandrous mating when resources are scarce. Regarding polygyny, multiple women are particularly likely to marry one man when several conditions converge: (1) a steep social hierarchy, (2) a generally rich environment so one family can accumulate vast wealth, (3) occasional famines so the poor face occasional danger of starvation (Crook & Crook 1988). Under these circumstances, a woman who joins a large wealthy family reaps benefits, even if she would have to share her husband with other women. This pattern is also found in other species. For example, indigo buntings vary between monogamy and polygyny, but multiple females only pair up with the same male when that male controls a resource-rich territory and his neighbors have poorer territories (Orians 1969).

We wish to apply a similar analytic strategy to variations in belief in souls and the afterlife. Different religions have very different emphases on the importance of belief in an afterlife (emphasized less by Jews, more by Fundamentalist Protestants, for example; Cohen & Hall, submitted). And within a religion, some individuals have much stronger beliefs in an afterlife than others do (Cohen et al. 2005). Furthermore, there are vastly different forms of belief in life after death, including reincarnation, heaven and hell, ghosts, and so forth. Similarly, individuals and cultures vary in views of God as vengeful and punishing (Abramowitz et al. 2002). It is sometimes claimed that the Old Testament God is more vengeful, whereas the New Testament God is more forgiving (but see Cohen et al. 2006).

Certainly, such variations may be due to particular historical factors affecting the development of a particular religion or the learning history of a particular individual. However, taking a cue from Bering, and Atran and Norenzayan (2004) and others, we propose a novel direction for theorizing about belief in life after death. It would be worth investigating whether variations in beliefs in afterlife or observant spirits are linked to recurrent variations in social or physical ecology. Bering has proposed that belief in souls has a moral function, among others. Perhaps beliefs in a soul or afterlife are more common when resources are unpredictable, and life is brutal and short. If most people have predictable and sufficient resources, there may be less need to regulate cooperation. If resources are unpredictable or scarce, however, supernatural agents may be more necessary: As Durant and Durant (1968, p. 51) suggested, “as long as there is poverty there will be gods.”

Similarly, a belief in an omniscient God (who also metes out punishment, both during life and after) might be more common in societies in which people spend more time around non-relatives (who are more likely to punish your transgressions severely, and to cheat on you). If true, one would expect not to find such beliefs as commonly in small groups of closely related hunter-gatherers. In social groups including unrelated individuals, on the other hand, other people can't be watching you all the time to make sure you are not poaching others' mates or stealing their food. But invisible, supernatural agents can (or, at least, you don't know when they are and when they are not). According to this line of reasoning, one might suppose that the variable and harsh desert culture in which the Old Testament is rooted promoted a view of God as harsh and vindictive, whereas the more stable societal structure of the New Testament promoted a view of God as more forgiving. Religions that exist in harsh or unpredictable environments (or religions rooted in such environments) may be more prone to belief in souls, or may view God as more punitive. Religions that exist in stable or resource-rich environment (or religions rooted in such environments) may be less prone to belief in souls, or may view God as more forgiving.

This analysis suggests a need for a functionally based taxonomy of religious beliefs and practices, which can be mapped onto a taxonomy of ecological variations to which human groups need to adjust. An ecological approach suggests that the traditional beliefs of international religions originally emerged in interaction with particular environmental factors. There are likely pressures to maintain the belief systems intact as members migrate to new physical and social environments. Our analysis implies that the group-level beliefs will change (perhaps slowly) to match new habitats, and that individual commitment to particular features of those beliefs will change (perhaps more rapidly) to reflect operation of context-triggered behavioral and cognitive mechanisms. It may be, for example, that even Roman Catholics (who belong to a religion with strongly institutionalized checks on heretical thinking) have very different complexes of supernatural beliefs and imagined offenses depending on whether they are from an Irish fishing village, a Sicilian farming community, or a California suburb.

Production of supernatural beliefs during Cotard's syndrome, a rare psychotic depression

David Cohen and Angèle Consoli

Department of Child and Adolescent Psychiatry, CNRS FRE 2987 Cognition et Comportement, Université Pierre et Marie Curie, APHP, Hôpital Pitié-Salpêtrière, 75013 Paris, France.

david.cohen@psl.aphp.fr angele.consoli@psl.aphp.fr

Abstract: Cotard's syndrome is a psychotic condition that includes delusion of a supernatural nature. Based on insights from recovered