

# Religious Concepts are Probably Epiphenomena: A Reply to Pyysiäinen, Boyer, and Barrett

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It is to the commentators' great credit that they have managed to cull the conceptual imperfections of my article "The Natural Foundations of Afterlife Beliefs" (Bering 2002a) into a fairly coherent discussion of the "innateness" of representations of dead agents' minds. In response to their insightful remarks, I will do my best to clarify my position on precisely this topic of the etiology of religious concepts.<sup>1</sup> Unlike Barrett, who stated that "the chicken-and-egg problem of whether intuitive ideas fill in explicit ones or the other way around may be moot" (p. \*), I cannot think of a more important, central question for researchers to be concerned with.

Still, because experimental research on the cognitive bases of religion has only recently begun in earnest (e.g., Barrett 1998; Barrett & Keil 1996; Barrett, Richert & Driesenga 2001; Bering 2002; Bering & Bjorklund 2003; Barrett & Nyhof 2001; Boyer & Ramble 2001; Evans 2001; Kelemen 1999; Norenzayan & Atran, in press; Walker 1992; Woolley & Phelps 2001), to some extent I feel it premature to forcibly argue the position

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<sup>1</sup>Although my response will focus on theoretical implications, it is important to point out an interpretive error in Pyysiäinen's commentary. Pyysiäinen comments that, "The subjects were only asked whether the dead person of the stimulus story 'still' was angry, etc., or whether (s)he was 'now' happy. Answering these questions does not imply any stance on the question of a complete cessation of emotions. . ." In fact, the methodological design (which included critical follow-up questions) was especially sensitive to just this issue, and the discontinuity measure reflected *cessation of ability* to experience such states, not the transient absence of particular states after death, e.g., see "Coding of Interview Sessions" (pp. 279-280).

to which I am most inclined, which is that the human mind possesses architectural constraints (cf. Elman et al. 1996) that act as probabilistic tributaries toward implicit forms of causal reasoning that are functionally indistinguishable from explicit, declarative religious beliefs. Furthermore, although I view human cognitive systems as being highly receptive to the same types of salient, counterintuitive concepts that Pyysiäinen (2001), Boyer (1994, 2001), and, to a lesser extent, Barrett (2000; Barrett & Nyhof 2001), claim underlay all categories of religion, I remain unconvinced that the ontogenetic expression of implicit religious beliefs turns on children's conceptual slots being filled by such counterintuitive representations.

### **On the origins of ghosts and gods**

Rather, it seems equally, if not more (based on recent data, Barrett et al. 2001; Bering 2002a; Bering & Bjorklund 2003; Kelemen 1999), plausible that the generativity of religious concepts is nothing more than an epiphenomenal process that maps descriptive, memorable ontological properties onto already existing causal inferences that are spontaneously generated by individual minds (for related discussion, see Kelemen, in press). In other words, default inferences that are typically associated with religious thinking (e.g., belief in the continuity of personal consciousness after death; belief in an abstract intentional agency as the arbiter of life events, and the creator of species and natural inanimates) are not activated *by* culturally transmitted religious concepts, but instead give rise to religious concepts themselves. In turn, these concepts, which are highly variable in nature but which possess characteristics that likely conform to the socioecological demands of the cultures harboring them (see Reynolds & Tanner 1995), do not play any causal role in generating general patterns of belief, but only allow declarative access to intuitive patterns of reasoning about typically religious matters. That is, it is unclear how culturally acquired religious concepts can actually *endow* individuals with the cognitive incentive to, for instance, envision personal consciousness as surviving death, or to envision life events (which are the "actions" of the gods), as being purposeful or meaningful.

Specific cultural concepts, made salient by their minimal ontological deviance from mundane concepts, might indeed trip-wire default notions of psychological, biological, or physical properties of agents, as cultural

epidemiologists such as Pyysiäinen and Boyer hold. This can account for the “theologically correct” and “theologically incorrect” findings of Barrett and Keil (1996; also Barrett 1998), who asked their subjects about God, a culturally specific and socially acquired, explicit supernatural agent. Likewise, the belief that there exist such things as ghosts, who are invisible but are human nonetheless, may well occur by way of exposure to such an explicit concept during development, and the concept might indeed arouse an arsenal of implicit inferences about ghosts’ minds. Pyysiäinen may be entirely right in saying that it is misleading to claim that the cultural concept of ghost (which is but an unrefined category of dead agent), and the attributions made toward such supernatural agents, is the same as personal beliefs about specific, recently deceased agents and the attributions made thereof. “Ghosts are different from deceased persons in that they come back on earth to haunt on us. Entertaining this kind of idea must require different cognitive operations than the representation of mere dead agents” (p. \*).

Then again, what is a ghost but an invisible dead person with a mind? My results do not resolve the question of whether belief in “ghosts,” per se, requires gathering information about such agents through cultural mechanisms, but they do strongly suggest that reasoning about dead agents’ minds is only superficially influenced by explicit religious beliefs (presumed to be an artifact of social learning) about what becomes of the mind at death. People draw inferences about dead agents’ psychological states on the basis of their own capacity to simulate the absence of these states; some of these inferences are easier to make than others – the belief that a dead agent can *want* something encounters substantially less resistance than the belief that a dead agent can *taste* something. Despite their explicit beliefs (e.g., whether an individual classified himself as an extintivist or immortalist), this general pattern held constant.

### **Children’s beliefs about the psychological states of dead agents**

Boyer writes that these data provide “some initial evidence for the fact that some mental properties are more ‘sticky’ than others” (p. \*), but if he means by this that these state categories within dead agent concepts are more easily *acquired*, this runs counter to my position. What I am claiming, in contrast, is that some state categories within dead agent concepts are

more easily *lost* than others. That is, individuals' regular, everyday cognitive profiles makes them immediate "immortalists," wherein *all* mental state properties are initially envisioned as continuing after death, but that (a) some state categories (e.g., perceptual and psychobiological states) are prone to "falling off" of intuitive concepts of dead agents' minds when they come into conflict with biological knowledge and explicit concepts about death, whereas; (b) other states (e.g., desire, emotional and epistemic states) are more resistant to discontinuity reasoning because their absence cannot be simulated.

Support for this position comes in the way of empirical data assessing children's beliefs about the psychological continuity of the same state categories measured for adults in the target article (Bering & Bjorklund 2003; Bering, Hernández-Blasi & Bjorklund 2003). Bering and Bjorklund (2003) asked kindergartners ( $M = 5$  years 3 months) and late elementary aged children ( $M = 11$  years 8 months) about the psychological functioning and biological imperatives of an anthropomorphized mouse that was preyed upon and killed by an alligator (see also H. Barrett 1999).<sup>2</sup> Although kindergartners were nearly at ceiling for discontinuity responses on the biological imperatives questions (e.g., "Does the mouse's brain still work?"), just as the older children were, they were significantly less likely than the older children to reason that the dead mouse's psychological states ceased at death. Also, unlike the older children, who demonstrated the same pattern of discontinuity responses as the adults in the target article (i.e., psychobiological = perceptual > desire = emotional = epistemic), younger children failed to distinguish between any of the state categories (e.g., they were just as likely to say that psychobiological states continued as they were emotional states). Even questions from state categories that were conceptually yoked to the biological imperatives questions did not encourage discontinuity responses from the kindergartners. For example, although nearly all children at this age understood that the dead mouse did not need to eat food once it was dead, they believed that the dead mouse continued to be hungry.

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<sup>2</sup>Adult participants were also included in Bering and Bjorklund (2003), and were tested with the puppets. Findings with the adults were similar to the oldest children, and replicated the pattern of findings reported by Bering (2002a).

This suggests that children have naïve theories about psychological functioning after death that initially include all psychological states and which are gradually narrowed to include a more restrictive range of functioning. Similarly, Barrett, Richert, and Driesenga's (2001) data seem to show that, due to their immature theory of mind, preschoolers are cognitively biased toward the representation of a generic omniscient agency. However, in response to children's concept acquisition throughout their development, and in combination with a burgeoning theory of mind, this concept of agency branches out into new agent figures with diversified mental properties. Most of these figures (e.g., "Mom," "monkey," and "kitty") are endowed with a more restricted range of epistemic abilities, but culture also provides children with an explicit supernatural agent concept (i.e., God) that is capable of mapping onto the initially omniscient intuitive concept of agency held by preschoolers. For the "afterlife" data, this conceptual narrowing comes in response to explicit religious and biological concepts about death; but again, drawing inferences about dead agents' intentionality seems to be orthogonal to such explicit concepts (i.e., they are not required to activate inferential systems).

First, if making inferences about the psychological states of dead agents required the possession of a counterintuitive cultural concept of "spirit" or "ghost" or "soul," one might expect older children to be more likely than younger children to believe psychological functioning continued after death, because they have had more secular and religious indoctrination. In fact, in a replication of the study by Bering, Hernández-Blasi, and Bjorklund (2003) that included Spanish children enrolled in religious schools, preschoolers and kindergartners were also more likely than older children to report the psychological continuity of dead agents. Second, it is striking how few children used eschatological terms (e.g., "heaven," "ghost," "spirit," "God" and so on) in answering the experimenter's questions. Although this does not rule out the possibility that such explicit concepts played a role in children's answers, it does suggest that children were predominantly relying on inferential means that were unrelated to what they had been taught about dead agents.

## **Hyperactive agency detectors are environment-bound**

As Boyer rightly points out, it is incorrect to speak of culture as being a separate entity that contains and transmits concepts to individuals, wherein children's brains might be viewed as passive receptacles of especially potent ideas – in this context, ones of religious varieties. Evolved cognitive mechanisms are not only receptive to but are also *reactive* to social environments; they are adaptively organized in response to learning, and constrain the broad parameters of specific cultural concepts to promote ready and rapid inferences about the way the world works (see Bjorklund & Pellegrini 2002). Particular ideas circulating in a given culture may indeed primarily be 'captured by' and 'adhere to' evolved cognitive templates, but this does not address the question of where the inferential mechanisms supporting supernatural concepts (which are the real cognitive engines behind religious beliefs and behaviors) come from. Rather, it is more or less assumed that these inferential mechanisms are indistinguishable from those responsible for people's reasoning about intentional agents (e.g., orcas and lemurs and physicians) and events (e.g., people listening to our conversations and responding to our requests through their behaviors) in the everyday world (Atran 2002; Barrett 2000; Boyer 1994, 2001; Guthrie 1993). Guthrie (1993) and Barrett (2000), for instance, have argued that humans have a sort of hyperactive agency detection which primes them for perceiving intentional agency in the natural environment. This capacity is selectively advantageous, because, as Guthrie (1993) notes, "It is better for a hiker to mistake a boulder for a bear, than to mistake a bear for a boulder" (p. 6). When it comes to religion, these authors claim environmental information containing agency relevant stimuli (e.g., a stick breaking in the forest), in the perceptual absence of natural agency, will encourage the representation of supernatural agent concepts (e.g., a forest spirit).

But when it comes to how people *actually* make religious attributions, this explanation for the mechanisms behind spontaneous agency attributions is insufficient, for the following reasons. Although environmental events associated with agency, such as movement and noise, inarguably promote attributions of intentionality, causal reasoning that taps into religious beliefs is hardly limited to these objective (e.g., environment-bound) event categories. Rather, the bulk of people's reasoning about supernat-

ural agency concerns events that bear *narratively* on people's lives, such as subjectively traumatic experiences (McAdams, Josselson & Lieblich 2001). These experiences are conceptually distinct from the events that typically co-occur with intentional behaviors (e.g., walking in the forest causes sticks on the ground to break), because they are abstract (e.g., "losing a child"), subjective (e.g., winning the lottery might be seen as a blessing for one person, and a curse for another), and are not always environment-bound (e.g., we might perceive our spouse to be angry, when in fact she is not). For example, Gilbert, Brown, Pinel & Wilson (2000) showed that people frequently "subjectively optimize" negative outcomes that they have no control over, oftentimes mistaking the workings of their own psychological immune systems (which are designed to guard against anxiety and loss of self-esteem caused by environmental assaults) with the benevolent intentions of an external agency (e.g., God).

### **Wherein lies meaning, and the representational self, in cognitive models of religion?**

What each of the commentators have failed to demonstrate in their previous work is how events occurring "out there" in the objective environment are indistinguishable from events occurring "in here" in the subjective environment. Reasoning that a stick breaking in the middle of a dark forest is caused by a supernatural agent is critically different from reasoning that one's miscarriage is caused by a supernatural agent; thinking that an aspen tree that is shivering human-like in the wind is watching us is different from thinking that the tree is an omen carrying a message for us. Only the second case in each comparison requires social cognitive skills capable of disambiguating communicative messages from an intentional agency – or, in other words, deriving *existential meaning* from perceptual experiences (Bering 2002b). This form of meaning has been altogether absent in contemporary cognitive models of religion, which is surprising considering that it is likely at the heart of individual people's everyday experiences with religion. Most theorists in this area, rightly eschewing the muddled framework of earlier relativistic accounts that viewed religion as private and subjective, have adopted a stance that views human minds as astregetic and non-social in nature. Although scholars such as Boyer (2001) and Atran (2002) do note that human minds become strategic in religious

matters when they are faced with specific supernatural agents that are said to have “full-access” to their thoughts and behaviors, neither evolutionary theorist spends time articulating the cognitive mechanisms that allow (and impel) people to *make sense of* random events *as they relate to the self*, discuss under what subjective circumstances events are perceived as being about the supernatural agent’s intentional states, or define the event parameters that are likely to solicit meaning-making from individual minds.

In general, current models lean heavily on cultural mechanisms of concept transmission, viewing individual minds as “input-output” memeprocessing and replicating machines. Contrary to Pyysiäinen’s claim that cultural epidemiologists “emphasize the powers of individual minds more than what Bering thinks” (p. \*), there is, in fact, a noticeable absence in the role of the self in the development of reasoning about religious matters. Concepts are indeed portrayed as coming from outside the head and “exploiting” or “parasitizing” templates meant for processing information in core ontological domains, and these processes are seen as constituting the “natural foundations of religion.” To me, the findings borne of the simulation constraint hypothesis on children and adult’s intuitive reasoning about death serve as a clear departure from the dominant “counterintuitive concept” theoretical skein, in that it is one of the first examples to show the active, generative processes of individual minds in forming proto-religious beliefs. In some cases, these beliefs occur in spite of explicit religious concepts.

But the real distinction between my own perspective and those of the commentators (at least Pyysiäinen and Boyer) is that only the latter believe that the tendency to make inferences about supernatural agency is dependent upon the presence of explicit concepts that have been introduced through social channels. Boyer (2001, p. 40), for instance, writes that “people have religious notions and beliefs because they acquired them from other people . . . people get their religion from other members of their social group.” In contrast, my own view is that the same automatic inferences driving the real-time representation of supernatural agents occurs independent of such explicit religious concepts.

There is increasing evidence that such *content-free inferential processes* arise through individual cognitive systems (which includes self-awareness) being confronted with broad categories of experiential invariants that character-

ize early human development (Spelke & Newport 1998; Wynn 1992). The acquisition of explicit concepts through cultural means of transmission appears to be critical for “filling in” these general inferential processes with content enriched information about agency, but the inferential processes themselves are neither enabled by nor activated by such concepts. Instead, explicit religious concepts might be epiphenomena that shadow the operations of intuitive patterns of reasoning. My current view is that these patterns of reasoning are functionally indistinguishable from those that occur under the cultural *and* academic label of religion.

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