A case of stunted development? Existential reasoning is contingent on a developing theory of mind

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Abstract: Missing from Bering's account of the evolutionary origins of existential reasoning is an explicit developmental framework, one that takes into account community input. If Bering's selectionist explanation was on target then one might predict a unique and relatively robust developmental trajectory, regardless of input. Evidence suggests instead that children's existential reasoning is contingent on their developing theory of mind.

Bering's focus is naive or intuitive religion in the sense of its import and place in human thinking about one's own soul, values, and place – its existential focus. He highlights important issues, and presents many intriguing ideas concerning the evolutionary origins of these existential themes. But missing is an explicitly developmental framework; in the absence of such a framework, it is difficult to agree with his claims.

Modern evolutionary theory is itself undergoing a radical reconceptualization with development playing a central role, so-called Evo-Devo (e.g., Carroll 2006). The discovery of critical regulatory genes that alter patterns of gene expression over development was only made possible because of this focus. Similarly, any attempt to offer a modern evolutionary account of a psychological process should incorporate development. Intuitive existential psychology is closely aligned with intuitive psychology – our everyday understanding of self and others as intentional, believing-desiring, communicating agents – and, according to Bering, with intuitive conceptions of intelligent design. Past research is clear: intuitive psychology (theory of mind) develops – initial infant biases lead to early conceptions that are considerably revised and expanded in the course of childhood development – and intuitive understanding of the origins and functions of human life also develops. If Bering is correct and existential reasoning is a consequence of selection pressures, and not a spandrel, then one might predict a unique trajectory, one that is robust and relatively independent of these other developments. Bering indeed talks of possible developments. One clear point is that, unfortunately, little is known, yet both the developmental and evolutionary stories to be told must be tightly constrained by such details. Developmental details are also needed to frame and evaluate the connections between existential psychology, theory of mind, and intuitive conceptions of origins.

Regarding existence and mind, Bering's selectionist arguments encompass claims of early appearing existential sensitivities backed by some admittedly preliminary data. The data definitely demonstrate development, but the details are not only unknown and insufficiently established, they are currently contradictory. For example, Bering suggests (following Barrett) that young children's conceptions might be specially commensurate with supernatural conceptions (e.g., gods are not subject to false beliefs). But Barrett et al.'s (2001) work is just as easily interpreted to show that conceptions of God as omniscient are only made possible when children are able to reason about false beliefs. Prior to that point, children cannot make such judgments. Moreover, in Bering's Princess Alice studies, for example, the youngest children (4-year-olds) interpret unexpected events as physically caused and only older children see them as indicative of supernatural acts. Such findings suggest that existential reasoning is contingent on a developing theory of mind.

An important claim is that a naïve dualism leads to beliefs in an afterlife in which mind continues independent of body (psychological immortality) after death. The developmental unfolding of understandings of mind and of death thus becomes intriguing indeed. Bering (also Bering & Bjorklund 2004) presents a scenario in which younger children (5-year-olds) attribute ongoing mental functions after death and such attributions decrease with development. Although 5-year-olds attribute mental functions to dead individuals in Bering's research, they do not do so (and neither do 4-year-olds) in other research (e.g., Barrett & Behne 2005; Poling & Evans 2004). Furthermore, in Flavell's research 5-year-olds often fail to attribute ongoing mental functions (thinking) to waking persons; relative to older children, they systematically downplay the amount of consciousness that everyday folk have in everyday life (Flavell et al. 2000). These findings provide an unlikely platform for the bold proposal that rampant attribution of mental life to the dead provides a natural starting point for intuitive existential questions. We agree that how children understand these issues is important and can inform our theories of intuitive understandings of mind, existence, and the divine. But, those developments, while to-be-discovered, do not as yet conform to Bering's initial outlines. Understandings of death also figure into children's understandings of origins and design.

Regarding existence and origins, Bering argues that conceptions of intelligent design are effortlessly aligned with beliefs in immortal souls. Yet, Evans' (2000; 2001) studies of concepts of species origins tell a more extended developmental story, and one that varies depending on the context. Not surprisingly, children from Christian fundamentalist communities, whatever their age, prefer creationist (God made "X") ideas. Younger children from non-fundamentalist communities, on the other hand, endorse a mixture of spontaneous generationist (the very first "X" came out of the ground) and creationist ideas. Not until 8 to 9 years of age were children consistently creationist, regardless of community of origin. More recent work along these lines suggests that the younger children were not in a position to grasp origins concepts, because they had not yet fully confronted existential questions (Evans 2005; Evans et al. 2001). To be able to respond to questions about the origins of animal kinds, children have to understand that animals are not eternal, in that they were not always here on earth, nor will they continue to be on earth. In the latter studies, the creationism of 4- to 10-year-olds was related to their ability to grapple with existential concepts (death, eternity), and to their understanding that humans (not God) create artifacts, independently of the effects of age. Once such existential questions have been grasped, only then can the "origins" question arise: How did the animals get on earth in the first place? Evans' claim (2001; 2005) is that children transfer their understanding of the human as an intentional manufacturer of new tools, and apply that to objects that have arisen naturally, such as "new" species. For younger children, the idea that "God did it," appears to be loosely associated knowledge, not yet integrated into a conceptual structure (Evans 2001), suggesting that "testimony" (Harris & Koenig 2006) plays a crucial role in early God concepts. In sum, God as intelligent designer is a complex (albeit possibly naturally developing), not an effortless, idea, which becomes firmly rooted only at the point when children reliably confront existential questions and fully understand the role of human artifice (Evans 2005; see also Defeyter & German 2003).

Thus predictions that might follow from Bering's thesis, such that existential reasoning is effortless, early acquired, and relatively independent of other developmental processes, are not borne out. On the contrary, we suggest that children's developing understanding of the mind, in particular, their naïve theories of intention, undergird and make possible religious/existential reasoning. Furthermore, this development seems to require an interaction between these processes and community input. Ideally, we need an evolutionary-*developmental* theory of existential reasoning that takes into account cultural context. We are grateful to Bering for initiating this process.

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Culture and development matter to understanding souls, no matter what our evolutionary design

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Abstract: For Bering, appreciating that people are objects is a developmental accomplishment. Baldwin and Piaget agree. However, for Piaget, an immanent conception of the divine is more developed than a separate transcendent God. Culture also matters. In Plato's *Phaedo*, Socrates' belief in immortality was a reasoned conclusion – not "built in" – for reasons similar to those still held by modern scientists.

Almost a century ago, J. R. Angell (1911) wrote, "The term soul has generally been applied to the supposed spiritual essence of human personality which persists after death. As such, it is connected with problems not soluble by empirical methods. Psychology as an empirical natural science has consequently ceased to use it as a familiar part of its terminology" (p. 46). He goes on to say, "the term consciousness itself is likewise in danger of extinction or at least essential modification" (p. 47). Prophetic words. But with the return of an "essentially modified" science of consciousness, the soul is again a candidate for rehabilitation – as long as it remains subject to Neo-Darwinian natural selection within a distinctively human social environment, and as long as it is "illusory" (or at least that its immortality and purpose are illusory).

For Bering, asking "Why am I here?" suggests a social relationship between the self and a presumed supernatural creator – a "cognitive illusion" that can help produce "genetic fitness-enhancing" behavior by promoting normative prosocial behavior that that creator has mandated. Bering also suggests that because human social interaction relies on believing that absent agents continue to exist, we have a hard time imagining anyone to be dead; that our minds/brains are not well equipped to update complex social rosters. But why go so far? Without invoking anything supernatural, Parker's (1998) proposal that self-conscious emotions, like shame, may have evolved to allow parents to govern their children when not physically present to enforce social norms – an influence that might persist beyond death. If so, then the idea of a universal care-giver, God, is a natural (but culturally bound) extension of this direct social experience.

Piaget devoted his first lab at the Jean Jacques Rousseau Institute to the study of religious experience, and lectured on his results and their implications at Sainte Croix (1923; 1928; 1930). Vidal (1994a; 1994b) claims that Piaget's early empirical work on religious experience aimed to provide empirical evidence for his own metaphysical framework, centered around the idea of the "immanence" of the divine in human experience. Indeed, these early studies by Piaget showed that unconscious and affective attachment to different kinds of religious experiences of God (transcendent or immanent) depends on the type of parenting one receives and the general socio-political cultural environment of one's upbringing (see also Bemmer 2002). Piaget's (1932/1978) studies of morality grew directly out of his work on religious belief.

God thus becomes a "super-parent" – an idea also advocated by James Mark Baldwin at the turn of the last century. Bering's very interesting point that it is structurally simpler and so developmentally easier to imagine an omniscient other, God, than to imagine someone who holds false beliefs is directly in line with these older theories of development. Likewise, Bering's claim that appreciating people to be "just objects" is a developmental accomplishment is exactly Baldwin's thesis – an idea he leverages for a very creative resolution of the mind–body problem (Baldwin 1903; see also Ferrari 2003). Similarly, Piaget's (1928; 1930) mature thoughts on religious experience led him to believe that the tension between transcendent and immanent conceptions of God could be resolved developmentally – that an *immanent* conception of the divine (i.e., God as intrinsic to our lived experience) was a more developed stage of religious experience than experience of a separate, transcendent God. Writing in a very different Zen tradition, Suzuki (1962/1972) captures this view well when he writes that, the "ultimate Self is above all forms of dichotomy, it is neither inner nor outer, neither metaphysical nor psychological, neither objective nor subjective. If the term 'Self' is misleading, we may designate it as 'God' or 'Being' or 'the Soul,' 'Nothing' or 'anything'" (p. 3).

Are these claims unscientific? I agree with James (1902/1961), that a "rigorously impersonal view of science might one day appear as having been a temporarily useful eccentricity rather than the definitively triumphant position which the sectarian scientist at present so confidently announces it to be (p. 395, footnote 8)." Certainly, empirical studies support the claim that immanent experience of the divine is indeed much rarer and develops later than transcendent experiences, documented in children as young as age six (Argyle 2000). Thus, Bering's suggestion that children understand God to be a separate and higher being is only half of a more sophisticated developmental argument proposed by developmental psychologists of the last century.

In another line of reasoning, Bering also proposes that because we find it impossible to imagine what it is like for ourselves to be dead (what he calls a "simulation constraint") people – especially children – naturally tend to think that psychological agents survive death. The "simulation constraint" on imagining death is very plausible. However, although it may be impossible to imagine our own nonexistence psychologically, we need not reason about the afterlife by analogy to our own spiritual life. As Bering himself says, we know and understand forms of human existence in which we are unaware – a dreamless sleep, for example – and can imagine not returning from that state. Or, to take a classic example, in Plato's *Phaedo* (c. 350 bce/1977, subtitled, *On the soul*), Socrates believes he will survive death but wants to debate this so as not to die holding a false belief. One objection, made by Cebes, is that most "men find it very hard to believe what you said about the soul [i.e., that it survives death]. They think that after it has left the body it no longer exists anywhere, but that it is destroyed and dissolved on the day the man dies, as soon as it leaves the body; [. . .] dispersed like breath or smoke, has flown away and gone and is no longer anything anywhere" (*Phaedo*, 70a). A little later (85e–86d), Simmias proposes this analogy: the soul is a kind of harmony produced by the body, like the music of a lyre; smash the instrument and the harmony is lost. This analogy is essentially the Darwinian analogy for mind, something generated by the body through the course of human evolution to help it survive. Socrates has an answer to these objections, although one that may not convince a modern audience – perhaps not even Aristotle, writing a few decades later (see Wilkes 1992) – but this shows that the idea of immortality was a reasoned conclusion. It was not "built in," at least not for most adults of that time, for reasons that resemble those still held by modern scientists; that is, that the soul is nothing other than an expression of the operation of the body, which itself is just a biological material thing, having nothing immaterial about it that can survive death.