Evans, E. M. & Wellman, H. M. (2006). A Case of Stunted Development? Existential Reasoning is Contingent on a Developing Theory of Mind. [Commentary on Bering's *The folk psychology of souls*] *Brain and Behavioral Sciences, 29,* 471-472.

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.

COMMENT
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; absent 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.

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 (4s) interpret unexpected events as physically caused and only older children saw 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 become intriguing indeed. Bering (also Bering & Bjorklund 2004) presents a scenario in which younger children (5s) attribute ongoing mental functions after death and such attributions decrease with development. Although 5s attribute mental functions to dead individuals in Bering's research they do not do so (and neither do 4s) in other research (e.g., Barrett & Behne, 2005; Poling & Evans, 2004). Further in Flavell's research 5s 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, Green & Flavell, 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.

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, Poling & Mull, 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. Further, 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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