

Autism, language, and the folk psychology of souls

Stephen Flusberg^a and Helen Tager-Flusberg^b

^aDepartment of Psychology, Stanford University, Stanford, CA 94305;

^bDepartment of Anatomy and Neurobiology, Boston University School of Medicine, Boston, MA 02118.

sflus@stanford.edu htagerf@bu.edu

Abstract: Anecdotal evidence suggests that people with autism, with known impairments in mechanisms supporting a folk psychology of mind or souls, can hold a belief in an afterlife. We focus on the role language plays, not just in acquiring the specific content of beliefs, but more significantly, in the acquisition of the concept of life after death for all people.

The main goal of Bering's article is to sketch a Darwinian model that accounts for the near-universal belief in an immortal soul and an afterlife. He argues that human social cognition has evolved to process information in specific ways that both allow for and engender dualistic thinking about mind and body, as well as related areas of religious or existential thought. It is this underlying cognitive architecture that constitutes the "folk psychology of souls." Bering stresses the role of theory of mind and related cognitive systems in promoting default representations of mental states surviving death.

This is an interesting and important hypothesis that has many ramifications for the study of human cognition and culture. Our commentary focuses on the consequences of this view for predicting how people with specific social-cognitive deficits might conceive of and react to death. We then explore the implications of social-cognitive deficits for Bering's model, to address the question of whether underlying cognitive architecture is both necessary and sufficient for representing life after death.

Can people with autism believe in life after death? Bering's model offers guidelines for who is most likely to entertain beliefs in a soul and afterlife, namely, individuals with an intact theory of mind. Indeed, Bering cites evidence that most people claim that what endures after death is the person's mental states. What about populations with deficits in this domain of human cognition? It is widely accepted that autism (ASD) is, in part, characterized by atypical social-cognitive development and domain-specific impairments in theory of mind (e.g., Baron-Cohen et al. 2000). People with ASD have difficulty representing the mental states of themselves and others even when high-functioning individuals with ASD have above-average IQ scores and relatively good language skills (Baron-Cohen 2000).

Bering's model suggests that people with autism would be much less likely to engage in "existential" thought or to consider mental states surviving death, given that they generally fail to consider a person's mental states even when they are alive. Although we know of no systematic research that has tested this hypothesis, anecdotal evidence suggests a more complex picture. On the one hand, although people with ASD do form emotional attachments (Rutgers et al. 2004), in our experience, it seems that they do not respond with the same degree of distress to the death of a loved one as do non-autistic individuals. This provides support for Bering's view, as he argues that affective responses may trigger the formation of afterlife representations based on existing social-cognitive mechanisms. Because people with ASD have deficits in these underlying mechanisms, they may not react to death with the same kind of existential crisis, and may therefore be less likely to represent life after death. On the other hand, this picture is complicated by the fact that, again based on anecdotal evidence, some people with ASD can hold a *belief* in a soul and afterlife. When asked about what happens to a person after they die, some people with autism claim that they continue to exist in some form; for example, that dead people ascend to heaven.

We hypothesize that a person with autism may acquire the belief in an afterlife via *language*, in the same way as they can learn to pass false belief tasks (Tager-Flusberg & Joseph 2005). Numerous studies have demonstrated that for children with autism, the single best predictor of passing false belief and other theory of mind tasks is linguistic knowledge, especially vocabulary and grammatical knowledge. However, even people who pass theory of mind tasks seem not to engage the same neurocognitive mechanisms when reasoning about beliefs (e.g., Castelli et al. 2002), suggesting that language may provide an alternative way of bootstrapping mental state attribution in people who have impairments to the mechanisms that are generally engaged for processing theory of mind tasks.

Does language contribute to the folk psychology of souls? While Bering acknowledges the role of socio-cultural indoctrination in the formation of *specific* religious concepts, his theory emphasizes the causal role of underlying cognitive mechanisms in giving rise to *generally* dualistic concepts and modes of thought. However, given that people with autism can hold dualistic religious beliefs, might language play a more significant role in the development of the folk psychology of souls? That is, does the structure of our linguistic concepts help shape the way we think about mind, body, and soul? Again, we know of no empirical research addressing this specific claim, but the behavior of people with autism suggests that language may play a *causal* role in the development of the folk psychology of souls. Consistent with this hypothesis, many philosophers have proposed that it is conceptual and linguistic confusion that encourages mind/body separation, rather than any innate predisposition. Specifically, they highlight the various metaphorical ways we talk about the mind and mental activity and argue that it is these disparate conceptual representations that propel dualistic thought (e.g., Lakoff & Johnson 1999; Melser 2004; Papineau 2002; Ryle 1949; Wittgenstein 1953). Language and cognition are intimately tied together, and the experimental evidence cited by Bering cannot distinguish between the cognitive and linguistic factors that could be driving universal dualistic beliefs.

Human social-cognition may have evolved in such a way so as to support belief in a soul and afterlife, but this underlying architecture may be neither sufficient nor necessary for such beliefs. In our view, the prevalence of these beliefs likely indicates a complex and dynamic process consisting of multiple interdependent cognitive, affective, linguistic, and cultural components. As Bering's own research demonstrates, most people probably do not have a stable, rational set of beliefs in the afterlife. It may therefore be premature to privilege specific social-cognitive factors underlying the "folk psychology of souls." There is an important need for future research to disentangle the different elements that motivate these beliefs, and to address the issues raised in both Bering's article and in these commentaries.

ACKNOWLEDGMENT

Preparation of this commentary was supported by grants from NIH (U19 DC 03610; U54 MH 66398) to Helen Tager-Flusberg.

The supernatural guilt trip does not take us far enough

Nathalia L. Gjersoe and Bruce M. Hood

Bristol Cognitive Development Centre, Department of Experimental Psychology, University of Bristol, Bristol, BS8 1TU, United Kingdom.

n.l.gjersoe@bristol.ac.uk <http://bcdc.psy.bris.ac.uk/>
bruce.hood@bristol.ac.uk <http://bcdc.psy.bris.ac.uk/>

Abstract: Belief in souls is only one component of supernatural thinking in which individuals infer the presence of invisible mechanisms that explain events as paranormal rather than natural. We believe it is

important to place greater emphasis on the prevalence of supernatural beliefs across other domains, if only to counter simplistic divisions between rationality and irrationality recently aligned with the contentious science/religion debate.

We are in agreement with Bering's general thesis that the folk psychology of the soul can be traced to the development of intuitive theories regarding the nature of the reality and intentionality, as well as the difficulty of conceiving of the state of nonexistence. However, we contend Bering's claim that there exists an "organized cognitive 'system' dedicated to forming illusory representations" of an afterlife that has "evolved in response to the unique selective pressures of the human social environment" (target article, sect. 1, para. 5). Bering has proposed that a belief in the afterlife has the effect of promoting prosocial behavior because of the perceived connection between the moral implications of our actions whilst alive and the possible recriminations from the deceased and/or possible jeopardizing of our immortal souls on death. The first problem we have with this central thesis is that there are other social mechanisms that do not have anything to do with the folk psychology of souls that also act to constrain and control social behaviour. A brief consideration of the vast research field on compliance and cognitive dissonance proves that people conform to social conventions through the effect of peer pressure and social evaluation. A belief in retribution from beyond the grave may contribute to this list of cognitive mechanisms for socialization but it does seem a little ad hoc to make it a primary mechanism operating under Darwinian selection. After all, many social animals also show behavioural inhibition and prosocial behaviour without necessitating a specialised cognitive mechanism for a belief in souls.

Our second problem with this central thesis, and the alternative theoretical standpoints addressed in the article, is that they fail to appreciate the extent of supernatural thinking as a general feature of human cognition. Bering offers a convincing range of evidence for the universality of beliefs in an afterlife to cast doubt over the "spandrel hypothesis" of supernatural thought. We would add that a growing body of literature suggests that belief in an afterlife has many positive cognitive effects, such as perceptions of control and security, which may have adaptive advantages. We also agree that previous models of supernatural belief based only on agency-detectors may be sufficient for deities and ghosts but fail to capture many aspects of human experience that are perceived to be under supernatural control. For example, compelling evidence for supernatural beliefs in the domain of folk biology comes from Paul Rozin and colleagues (e.g., Nemeroff & Rozin 1994) who have repeatedly shown that moral contagion from items associated with "evil" people is extraordinarily difficult to ignore and is supported by a belief in a physical manifestation of a moral stance. Or consider the peculiar and yet prevalent belief (found in around 90% of adults) that we can detect the unseen gaze of others (Titchener 1898). In both these examples, we expect that a sizeable number of individuals who explicitly reject notions of the afterlife and souls would still nevertheless follow the general position that garments can be contaminated and that they can feel the unseen gaze of others.

There are similar examples of naïve beliefs in supernatural forces in the domain of folk physics. For instance, naïve reasoning about dynamics is predominantly in terms of the belief that objects are kept moving by internal forces and not external ones (e.g., McClosky et al. 1980). These supernatural internal forces are in direct contradiction to Newtonian laws of physics, but are characteristic of medieval impetus theories and are widely spread throughout both naïve populations and those with formal physics training. Like supernatural beliefs in an afterlife, these naïve impetus theories can be very hard to overcome and are often held simultaneously with formal theories of Newtonian dynamics and used interchangeably (e.g., Viennot 1979). The "hyperactive agency detector" could not extend to

explain these diverse supernatural beliefs across domains of thought. On the other hand, it has not been suggested that dedicated and uniquely human cognitive systems have evolved individually in each of these domains that account for these pan-cultural, early developing, and intransient naïve errors. So while we agree that supernatural thinking about the soul could serve to cement social cohesion, supernatural thinking in many domains could operate as socializing mechanisms that enable us to think of ourselves as connected to others by tangible forces, even though much of that reasoning may be implicitly held. We would argue that supernatural thinking, in the form of positing invisible forces that defy scientific validation, is an innate human tendency that goes far beyond the realm of religious thought into all domains of knowledge. We see little evidence in this article that proves that naïve beliefs in an afterlife are qualitatively different from naïve theories in folk biology and folk physics.

We feel that it is important to extend this work into other realms of reasoning because recent commentary, figure-headed by such prestigious names as Richard Dawkins and Daniel Dennett, polarizes the debate by aligning religious belief with irrational memes propagated by the church and aligning atheism with rationality. If religious inclination instead proves to be associated with a universal human tendency towards supernatural beliefs, from which even atheists are not exempt, this arbitrary divide could prove to be both dangerous and scientifically untenable. Rather, we would prefer that the proposal for future research, and the debate in general, recognized that we all entertain supernatural belief systems which must be taken into account when studying human cognition and behavior.

Souls do not live by cognitive inclinations alone, but by the desire to exist beyond death as well

Jeff Greenberg,^a Daniel Sullivan,^a Spee Kosloff,^a and Sheldon Solomon^b

^aDepartment of Psychology, University of Arizona, Tucson, AZ 85721;

^bDepartment of Psychology, Skidmore College, Saratoga Springs, NY 12866.

Jeff@email.arizona.edu swolf22@email.arizona.edu

kosloff@email.arizona.edu ssolomon@skidmore.edu

Abstract: Bering's analysis is inadequate because it fails to consider past and present adult soul beliefs and the psychological functions they serve. We suggest that a valid folk psychology of souls must consider features of adult soul beliefs, the unique problem engendered by awareness of death, and terror management findings, in addition to cognitive inclinations toward dualistic and teleological thinking.

Bering's analysis provides an inadequate "folk psychology of souls" because folks have motivational and affective concerns and are heavily influenced by culture, and these factors must be considered, along with cognitive propensities, to account for soul beliefs.

Bering's reliance on cognitive biases particularly pronounced in children is insufficient for two reasons. First, people relinquish many childish beliefs as they mature, as Bering's research shows. Adults generally do not believe dead mice get hungry, or that taller glasses necessarily contain more milk. Why do soul beliefs persist, when so many childhood ideas do not? How can someone smart enough to elude security and commandeering and steer an airliner precisely into a building believe he will enter a paradise filled with 72 virgins on impact?

Second, adult spiritual beliefs seem quite different than mere cognitive errors of imputing mind; they vary widely across cultures and are often quite complex (e.g., Watson 2005). In some cultures, there was no immortal soul, in others only the