The Nature of Belief
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To cite this version:

HAL Id: ijn_00505174
https://jeannicod.ccsd.cnrs.fr/ijn_00505174
Submitted on 22 Jul 2010

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entific truth. And we learn why other animals can’t truly imitate or learn a new dance and why homeopathic medicine and psychotherapy involve “beliefs related to witchcraft.”

The book’s unifying theme is that all belief is ultimately rooted in causal understanding and has its evolutionary origins in the use and manufacture of tools. This lets Wolpert scan the landscape of belief with clarity and direction but leads down the wrong path in key areas. He argues that managing fire “might have been one of the origins of market exchange, and might have led to the advantage of humans knowing about numbers.” Yet defining aspects of number, such as the concept of a class of similar classes or of infinite discreteness, relate more to categorization processes and language structure than to causality. We are told “Verbs ranging from ‘go’ to ‘hit’ to ‘throw’ require causal thinking … an essential prerequisite for language development.” Now Kanzi, a brilliant bonobo, can use symbolic tokens to reference causal relations between actions and goals; however, Kanzi’s strings are usually action-action combinations, such as “chase bite.” These strings employ two “predicates” and no subject. No human language allows sentences that have no syntactic arguments and thus cannot express a subject-predicate proposition. Hominid tool play tells us little of testable, scientific interest about linguistic structure, number, or markets.

But it is Wolpert’s speculation on religion that is needlessly awry. He claims religious beliefs “all had their origin in the evolution of causal beliefs, which in turn had its origins in tool use.” Gods and prayer act in tandem to promote “optimism and hope” by providing special controlling forces when common-sense expectations fail, catastrophe or chaos leaves life to chance, or death looms. “And since causal beliefs that promote survival are partly programmed by our genes, could that not also be true of some aspects of religious beliefs that promote survival, particularly those that relate to mystical forces, and even, perhaps to the gods themselves?”

Wolpert identifies religion with belief in the supernatural, which is fine by me, but recent work in the cognitive science of religion indicates that there is no genetically privileged “supernatural imagination” or “biologically determined module for making myths.” Rather, cognitive production of the supernatural occurs by purposely violating our ordinary and innate ideas about causality. Wolpert acknowledges that “what makes an event magical is that it goes against our natural expectations about causes,” just as dragons and other monstrous hybrids violate innate assumptions about essentialized biological categories. But this is not because some extraordinary, parallel faculty of causal reasoning evolved through genetic adaptation.

Religion involves the same causal categories that evolution endowed us with for everyday thinking—including folk mechanics (object boundaries and movements), folk biology (species-like essences and relations), and folk psychology (interactive agents and goal-directed behavior)—and which constrain the ways children learn language. Core religious beliefs minimally violate ordinary notions about how the world is, with all of its inescapable problems, thus enabling cognitively manageable and memorable supernatural worlds that treat existential problems, including death and deception—for example, a world with beings (angels, ghosts, ancestral spirits) that resemble us emotionally, intellectually, and even physically except they can move through solid objects and be immortal.

That “lower blood pressure … has a positive association with religious belief” may be true in settings most familiar to many of us, but it is doubtful for more passionate contexts (e.g., pentecostal or jihadi). And although “one can see how valuable the possible force of prayer is to the more or less helpless individual suffering from severe pain,” most prayer—indeed, most religious ceremony—occurs in ritualized social settings that coordinate the congregation’s body states (chanting, swaying, displays of submission, etc.) and that arguably promote an emotional consensus that can trump even the most logically compelling and evidence-based beliefs.

If religion is, as Wolpert suggests, a special form of causal belief—immune to logic and evidence—about how things are in the world, then it is true that “science is basically in conflict with religion.” But if religion is primarily about what ought to be, including moral framing that convinces people to commit to others beyond the logic and evidence for advancing self-interest, then conflict is not inevitable. Understanding and manipulating causality, though key to science, is only one integral component of religion and other aspects of human brain development, knowledge, and belief that bind us to one another and the world.