Searching for Darwin: Metaphor, Collusion, and Natural Selection

A review of Lyle B. Steadman and Craig T. Palmer, *The Supernatural and Natural Selection: Religion and Evolutionary Success.* Paradigm Publishers: Boulder, 2008, 272 pp., US$85.00, ISBN 978-1594515651 (hardcover).

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> One would naturally expect that prediction of the behavior of a complex organism (or machine) would require, in addition to information about external stimulation, knowledge of the internal structure of the organism, the ways in which it processes input information and organizes its own behavior (Chomsky, 1959, p. 27).

The Supernatural and Natural Selection: Religion and Evolutionary Success, by anthropologists Lyle Steadman and Craig Palmer, is another addition to the recent deluge of books (Atran, 2002; Barrett, 2004; Boyer, 2001; Bulbulia et al., 2008; Dennett, 2007; Pyysiäinen, 2004; Wilson, 2003) devoted to understanding religion from an evolutionary perspective. The evolutionary and cognitive study of religion is flourishing, and research programs examining the structure and retention of religious beliefs and behaviors are producing novel and exciting results at a remarkable pace. *The Supernatural and Natural Selection* (*SNS*) germinated in a series of articles published in the 1990s; unfortunately the authors have failed to adequately situate their arguments within the significant literature that has emerged since they initially offered their ideas, particularly those focused on understanding the "internal structure of the organism" as Chomsky's famous critique of Skinner's radical behaviorism put it. As such, *SNS* lacks a thorough treatment of the multiple levels of analysis that are currently being employed by those engaged in the evolutionary study of religion.

Steadman and Palmer (S&P) argue that classical and contemporary approaches to the study of religion are united in a fundamental flaw: each relies on the assumption that

people actually believe what they claim to believe. Because we cannot empirically support or refute whether or not people actually believe in religious ideas, the drive to scientifically understand religion must be motivated by individuals' *stated claims* of *acceptance* of religious beliefs. As such, S&P take the lead on what they hope is an overhaul of the study of religion. Their argument, however, suffers from a number of key problems: 1) the main thesis of the book—that the study of religion will be enhanced by disregarding beliefs and internal states altogether—is an unnecessary limitation that ignores vital progress in cognitive science, 2) they claim to offer an evolutionary account of religion, but they fail to detail the selective processes that have shaped religious behaviors, beliefs, and institutions; instead their account is limited to the proximate and cultural-historical levels of explanation, 3) their evidence is overly interpretive and exclusively anecdotal, and 4) they offer few ideas on how one would systematically test their claims.

On the Alleged Unreliability of Belief as a Unit of Analysis: The Proximate

   Throughout *SNS*, S&P argue that because beliefs are "unidentifiable" and we cannot verify whether or not our informants believe what they claim to believe (2008, pp. 28, 34), all studies of religion (other than their own) fail as science. Rather than investigating beliefs, researchers should be asking: "Why do people communicate their acceptance of statements that are not demonstrably true by the senses?" (pp. 19-20). S&P characterize religious *behavior*—rather than beliefs—as metaphors "*whose metaphorical status is denied*" (p. 38). Although we might "understand a metaphor by converting it into a simile," we enter into a "kind of collusion, a conspiracy, which is a form of cooperation" with others when we accept their metaphors as being literally true. Religious claims and other behaviors, then, are metaphors which are accepted literally. Through this process, speakers create kin-like relationships similar to those between parents and children, based on one party's willingness to accept the influence of the other without question: "To communicate acceptance of a metaphor…communicates a willingness to suspend skepticism" (p. 39). The authors maintain that accepting others' religious claims fosters cooperation, which was favored by natural selection. This is an interesting argument, but there are a number of crucial problems that need to be resolved.

   First, we use metaphors in both religious and secular contexts and often assume the literalness of both. As Lakoff and Johnson (1980) demonstrated in their landmark text *Metaphors We Live By*, human thought is pervaded by metaphor. Consider the statements "I can't keep up with the pace of modern life" or "her head is full of ideas" (1980, p. 27). We tend to think and behave in these terms as though "modern life" moves a certain distance in a certain time or that our heads are containers. We even react to them as though they were literally true (e.g., "You need to slow down" or cursing advertisers for taking up precious cranial space with their nonsense). S&P's assumption that there is a clear distinction between the literalness and figurativeness of metaphor constitutes a false dichotomy that allows them to ignore nuances that might be crucial to understanding how people actually think. In the case of souls, for instance, S&P write "talk of souls implies the continued existence of an individual after he or she dies, literally a contradiction. The simile? We should *act* (to some extent) *as if* the dead individual were still alive" (p. 40). However, the mind appears predisposed to perceive a distinction between mental state and physical body (see Bloom, 2004), and to use social cognition to reason about dead agents (Bering, 2006), neither of which suggest that souls are understood merely metaphorically. But S&P ignore the cognitive processes underlying their claims and fail to acknowledge

that informants have minds. These problems have broader implications if we consider populations rather than individuals.

Searle (1997) defines institutions as the *shared* transference of brute facts (X) to social facts (Y) in a particular context (C). Religious metaphors are institutions *par excellence*. In a Christian service (C), for instance, fermented grape juice (X) represents the blood of Christ (Y). Surely there is variation in how individual congregants conceive of this, yet all participate in rites to partake in consuming the "blood of Christ". Violating the expectations congregants have in others' participation (e.g., loudly proclaiming that the wine tastes cheap) would likely result in scolding or sanction. With regard to secular institutions, anyone who has taught Searle's distinction between *brute* and *social* facts knows that it can be quite challenging for students to accept that objectively, $100 bills have no essential value, hammers have no intrinsic function, and the sun neither rises nor sets. Our minds are designed to think of objects with essential functions and values and that the planet we stand on does not move. The point is that to succeed within a group and avoid social sanctions, one must embrace or at least entertain such "metaphors" or institutions. We do not enter into "conspiracies" with others by accepting the value of money; rather, we avoid the maladaptive results of rejecting them.

If we consider taking a metaphor literally, as S&P suggest, we must also consider how literal metaphors are embraced. What are the contexts in which individuals reject such ideas? In their chapter on shamanism, S&P discuss the influence of shamans and religious leaders in general: "To communicate acceptance of the assertion that an individual has supernatural power is to accept his or her influence" (p. 108). But S&P fail to consider the cognitive underpinnings and socioecological context of acceptance and rejection. Skepticism is a cognitive act which may inform behavior (e.g., "He's a fraud! Charlatan!"), but if the context dictates that one must accept a religious proposition or suffer (e.g., refusal to submit one's child to brutal rites of passage), no amount of skepticism—behavioral or otherwise—changes the dynamics of a heavy reliance on institutions. In order to function in social environments successfully, individuals must account for the collectively shared social meanings attached to their behavior. However, institutions are often merely assumptions that are rarely, if ever, reflected upon, suggesting that such "collusion" or "conspiracy" is implicit. Again, S&P's ideas are thought provoking, but ignoring the nature of the mind renders their presentation of religion lacking.

A second problem is that S&P grant equal weight to all religious claims by virtue of the unverifiability of informants' belief in them. While the question of whether or not people actually believe their religious claims is an interesting one, none of the current research programs examining the evolution of religion rely on this, contrary to S&P's claim. Many have focused on the *retention* of religious concepts (e.g., Boyer and Ramble, 2001; Norenzayan, Atran, Faulkner, and Schaller, 2006) and rituals (e.g., McCauley and Lawson, 2002; Whitehouse, 2000; 2004). Retention itself does not entail belief, otherwise we would believe in Mickey Mouse (see Atran, 1998; Pyysiäinen, 2004, pp. 116-119). A lack of skepticism surely explains many of our beliefs, but there are also internal motivations and external pressures to (claim to) believe. More importantly, we have evidence of the inconsistency of *stated* religious beliefs and *actual* cognitions of religious concepts, meaning that not only are there at least two levels of processing for such propositions, but also that a science of religious beliefs can detail this very problem! The

distinction between what people *claim* they believe (theologically correct) and what people *actually* think (theologically incorrect) has driven a significant literature (Barrett, 1998; 1999; Barrett and Keil, 1996; Slone, 2004) that is entirely ignored by S&P. For example, while people claim to believe that God is everywhere, they will also reason about him as though he is physically located in a particular place. Purzycki and Sosis (in press) suggest that the inconsistency between stated and real-time beliefs is necessary to convey theologically correct (i.e., institutional) versions of their worldviews in order to signal solidarity. What is lacking in most contemporary approaches, however, is a focus on receiver psychology of such signals (Alcorta and Sosis, 2005).

Throughout *SNS*, S&P repeat that the significance of their approach lies in explaining religious traditions by their effects rather than with their mental representations (i.e. beliefs). While we agree that *believing* in something (genuinely or *pro forma*) does not necessarily entail a motivation or a concomitant behavior, researchers' alleged claims that belief motivates behavior are not as problematic as S&P suggest. What matters—in both evolutionary and interpersonal terms—is that individuals behave as though they agree, a behavior which S&P refer to as "acceptance". However, the causal pathways and feedback loops between beliefs, motivations, behaviors, benefits, costs, and socioecological context can be studied if guided by an appropriate theory. Unfortunately, S&P simply declare that "beliefs cannot be demonstrated to have any effects at all" (p. 34) rather than review the evidence. In experimental studies, believing that supernatural agents are watching has been shown to change the way subjects make moral decisions (Bering, McLeod, and Shackelford, 2005) and influence conduct in economic transactions (Shariff and Norenzayan, 2007). Haley and Fessler (2005) demonstrated that people are more generous with their money when primed with a drawing of two eyes, suggesting that even subtle perceptions influence behavior.

Despite S&P's resistance toward accepting that beliefs actually motivate behavior, there is evidence that entertaining particular religious beliefs not only helps rationalize behaviors that are otherwise irrational, but also radically alters the ways in which individuals invest in others. Bulbulia (2004; 2008) and Sosis (2003) both argue that the presence of religious post-mortem delayed payoffs (e.g., blissful afterlife, honor, etc.) predicts prosocial behavior, and various studies have supported this prediction (Bulbulia and Mahoney, 2008; Johnson, 2005; Johnson and Kruger, 2004; Soler, 2008; Sosis and Alcorta, 2008; Sosis and Bressler, 2003; Sosis, Kress, and Boster, 2007). That we can test for differences between stated beliefs and real-time computations *and* the influence of beliefs on behaviors suggests that we should not abandon the focus on our evolved minds. No ultimate understanding of religion is possible without attention to all its working components.

The Supernatural, Costly Signaling, and Natural Selection: The Ultimate

Aside from its light treatment in Chapter 3, natural selection receives no detailed discussion in the book. Determining how selection will favor or not favor a certain behavior requires tabulation of its specific costs and benefits. Instead, S&P often assume that the benefits of cooperation trump any costs involved. At times this attitude slips into teleology: "Acquisitions from ancestors are invariably associated with descendant-leaving success" (Steadman and Palmer, 2008, p. 45) and "sorcery can be seen as one kind of ancestral influence on descendants to cooperate with one another. Although it appears to be anticooperative, if not actually destructive, it must have enhanced the descendant-leaving

success of ancestors" (p. 134). It does not follow from the mere fact that one's ancestors left descendants that everything they did was adaptive. Nor does it follow that a behavior that seems adaptive actually was an adaptation. While we are in general agreement that it is very probable that religious behavior was selected for in humans due to its consequences for cooperation, S&P often assert this by fiat, providing little support for their claims. This is particularly evident in their discussion of costly signaling theory (CST).

Citing Smith and Bliege Bird (2000), they characterize the "standard conception" of CST as engaging in "sacrifice" in order to reliably convey one's fitness. S&P's wrong turn follows:

> Such behavior attracts mates and/or allies to the signaler. However, this explanation is inconsistent with traditional sacrifices found in religion because all members of a religion are often traditionally prescribed to make the same specific sacrifices. In such instances no individual gains a competitive advantage. More fundamentally, the sacrifices are not followed by the hedonistic enjoyment of greater rewards that might translate into increased fitness, but by a future of continued sacrifice (Steadman and Palmer, 2008, p. 153).

The point S&P raise is an important one. Reliable signals ought to be variable so that individuals can use the information carried in the signals to decide with whom to mate or forge an alliance (Zahavi and Zahavi, 1999). S&P's assessment, however, suffers from a number of key flaws. First, it is not the case that there is no intracultural variation in religious ritual participation, as countless ethnographies attest (e.g., Gilmore, 1990). Moreover, there is always significant variation in information that is conveyed by those who *do* participate in ritual. Indeed, intracultural variance in ritual performance has been shown experimentally to influence cooperative behavior in several populations (Ruffle and Sosis, 2007; Soler, 2008; Sosis and Ruffle, 2003, 2004). Second, the cost of *not* participating—a breach in perceived solidarity—often outweighs the cost of participating. Individuals need to avoid social sanctions on free-riding. Even if they are very cooperative, they cannot default on sending the signal that has come to mean that an individual is committed to the group. In this frequency-dependent scenario, defying the expectations of others in the community in favor of short-term gains is a losing strategy.

S&P also criticize CST for not being costly enough: "commitment theory does not take the *contrary to one's self-interest* aspect of sacrifice far enough. It still tries to explain the sacrifice by an overall, or slightly delayed, benefit that comes back to the self-interest of the sacrificer during his or her lifetime" (p. 154). Here the strength of signaling theory as applied to religion is taken as its weakness, namely that individuals who incur significant costs in time, energy, and resources, recoup them in the form of enhanced fitness (Bliege Bird and Smith, 2005; Sosis and Alcorta, 2003). But we fail to see 1) how great sacrifice without direct benefit to the individual is more evolutionarily plausible than the alternative (recouping their costs), or 2) how—if the communication that is the aim of sacrifice results in higher descendant leaving strategies—their scenario is any different. Again, relying exclusively on corroborating ethnographic accounts without any experimental or systematically collected and analyzed data, S&P do not present a convincing account of actual selective processes.

How, then, do S&P propose that selection has affected religious behavior? They write:

religious behavior is an adaptation; the ultimate…cause of religion is that such cooperation has promoted, not just the reproductive success of individuals over one generation…but also the leaving of descendants of those involved over many generations. It is in the effect of kinshiplike behavior that the success of both primitive and modern religions…can be understood" (2008, pp. 41-42).

As "humans are influenced by the traditions deriving from very distant ancestors," they offer a measure of "descendant-leaving success" (p. 44). They argue that those ancestors who create traditions that positively influence the reproduction of their descendants can get around the dilemma of not having direct influence on relatives several generations removed. Given the relevant constraints, selection should favor an organism that teaches its offspring the necessary institutions to successfully navigate a social environment. This might explain the evolution of *tradition* and its behavioral corollary of participating in the institutions your parents do because it worked for them, but it falls far short of explaining the evolution of religion, cross-cultural variation in religious practices and beliefs, religious change, or human interaction with socioecological contexts, as S&P assert. It is true that a trait that encouraged reproductive success over a long chain of descendants would spread in a population, as long as its effect was robust enough to avoid selective elimination at each link along that chain. We caution that viewing selection from such a broad temporal scale has advantages and disadvantages. It would be a mistake to attribute vast functional significance to traits that are selectively neutral or that have become vestigial. Thinking in terms of transgenerational "influence" may be susceptible to our tendency to perceive history rather than natural selection, forces which have neither hindsight nor foresight. As the environment changes, its inhabitants must as well. When can we expect flexibility to be more adaptive than rigidity in adherence to tradition? Here we are also left with little in the way of explanation.

S&P offer no evidence that children accept the influence of their parents nonskeptically or that coreligionists who use kinship terms for each other actually behave like kin, both of which are crucial to their argument. In the United States, at least 28% of adults have left the religion in which they were raised and up to 44% have switched religious affiliation, become affiliated, or dropped affiliation altogether[1]. This suggests that children do not even accept their parents' *religious* claims nonskeptically into their adulthood. Also, as has become painfully apparent in recent years, those who are called "father" sometimes betray this "metaphorical" relationship to behave in the most violative manner (Mercado, Tallon, and Terry, 2008).

S&P fail to bolster their arguments with any real input from disciplines outside of anthropology. Work on the cognitive, psychological, emotional, neurobiological, and evolutionary ecological aspects of religion is flourishing, but *SNS* is noticeably neither contemporary nor interdisciplinary. Given the recent progress in the field, S&P's limited engagement with this emerging literature is unfortunate. S&P submit that their approach

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[1] Pew Forum on Religion and Public Life. (2008). U.S. Religious Landscape Survey. Pew Research Center.

   http://religions.pewforum.org/reports. Accessed November 17, 2008.

supplies a necessary redefinition of religion and a radical realignment of the goals of the scientific study thereof. Future research will judge the utility of their framework, especially whether or not it constitutes such an advance. Indeed, the definition of religion must be continually scrutinized simply because it is such a complex constellation of behaviors and, yes, beliefs. An effort such as S&P's is always welcome as researchers in different disciplines analyzing disparate phenomena struggle for synthesis. The scientific study of religion has never looked more promising. Although the consequences of entering into cooperative relationships based on a suspension of skepticism merit further investigation, ignoring the role of our evolved minds will only serve to impede progress. We stress the need for balance in the evolutionary analysis of religion, in weighing cost and benefit, past and future, mind and behavior.

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