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PRECIS: ATTACHMENT, EVOLUTION,
AND THE PSYCHOLOGY OF RELIGION*

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ABSTRACT

In this summary of my recent book (Kirkpatrick, 2004), I outline a general theoretical approach for the psychology of religion and develop one component of it in detail. First I review arguments and research demonstrating the utility of attachment theory for understanding many aspects of religious belief and behavior, particularly within modern Christianity. I then introduce evolutionary psychology as a general paradigm for psychology and the social sciences, arguing that religion is not an adaptation in the evolutionary sense but rather a byproduct of numerous psychological systems that evolved for other adaptive purposes, of which the attachment system is just one example. I conclude by summarizing numerous advantages of this framework over other extant approaches to the psychology of religion.

Despite much empirical research, the psychology of religion field has made sadly little progress toward a comprehensive scientific understanding of religion. This is not to say that we haven't learned anything, but rather that we have bits and pieces that overlap in some ways and fail to fit together into any kind of meaningful framework. What I think we *have* learned is this: From the endless debate over the definition of religion, we have learned that the topic of investigation is enormously complex and multifaceted; thus any comprehensive theory will have to be commensurately multifaceted to accommodate it. From the measurement work in psychology we have learned that beliefs about God, religious motivation, and other psychological aspects of religion are similarly complex and multifaceted, again pointing to the need for a large-scale, all-encompassing framework. Cutting through the countless debates over interpretation, we have learned from anthropology that religion is (in some form or another) universal across human societies, yet also is highly variable

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in specific form across cultures. Again setting aside the details, we have learned from sociology that religions more often than not involve groups, which compete with one another, splinter, and evolve in various ways over time. A comprehensive approach to religion will have to provide a framework for dealing with these issues as well.

In this essay, and the book it summarizes, I propose a couple of starting points: first, one particular psychological theory that I believe is useful for understanding a wide range of religious phenomena, and then a larger metatheory within which the theory fits and which provides a paradigm for organizing and integrating psychology in general as well as the psychology of religion in particular.

Introduction to Attachment Theory

John Bowlby may well have been the first modern evolutionary psychologist, as his conceptualization of the attachment system is a prototypical example of the way evolutionary psychologists today view the organization of behavioral and cognitive systems. Trained in the object relations school of psychoanalysis, he intended his theory to replace psychoanalytic theory based on important developments in the emerging field of ethology. Lorenz's famous work on imprinting suggested the existence of a behavioral system that served to keep goslings close to their mothers; Harlow's equally famous work with cloth and wire monkeys demonstrated that infants sought physical contact with mothers for reasons other than food. Bowlby also adopted the ethologists' general conceptualization of the organization of behavior and motivation. In contrast to psychic-energy models that postulated instinctive drives welling up until finding a release, *control systems theory* postulated distinct behavioral *systems* that are turned on and turned off by particular kinds of stimuli.

Based on these and many other observations, Bowlby postulated the existence of the *attachment system* as an evolved behavioral system in humans and other primates, which was designed by natural selection to maintain proximity between infants and their primary caregivers (i.e., *attachment figures*), with the ultimate purpose of protection of helpless infants from environmental dangers such as predators. It is a goal-corrected system that monitors a variety of internal and external variables and determines whether the primary caregiver is

sufficiently close and available, with closer proximity desirable if the environment appears dangerous or one's current health status makes one especially vulnerable. If, compared to the current system set point, the attachment figure is regarded as insufficiently proximal and available, a suite of behavioral options is activated. These *attachment behaviors*, including crying, calling, and reaching, are designed to bring the attachment figure into closer proximity. The attachment figure is said to function in this context as a *haven of safety*.

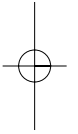
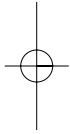
Bowlby emphasized that attachment is just one of numerous evolved, functionally specialized behavioral systems underlying infant behavior. In the absence of danger and illness, the caregiver functions as a *secure base*, allowing the activation of other behavioral systems such as the *exploration* system and *affiliative* or *sociable* systems regulating relationships with peers. Phenomenologically, the current state of the attachment system is experienced in terms of level of *felt security*. In Bowlby's (1973, p. 202) words, "When an individual is confident that an attachment figure will be available to him whenever he desires it, that person will be much less prone to either intense or chronic fear than will an individual who for any reason has no such confidence."

Individual Differences

Perhaps the best-known aspect of attachment theory concerns the nature and measurement of *individual differences* in attachment. Empirical research on attachment was pioneered by Mary Ainsworth and her colleagues, who developed a laboratory procedure known as the *Strange Situation* to assess individual differences in infant-mother attachment (Ainsworth, Blehar, Waters, & Wall 1978). Based on extensive research with this system, Ainsworth identified three general *patterns* of attachment, the origins of which are found in large part in maternal behavior—that is, the child's experience in relevant situations across the first year or so of life. The child develops *internal working models* (or *mental models*) about the availability and responsiveness of their primary caregivers which guide future behavioral, emotional, and cognitive responses in social interactions. Much empirical research demonstrates that classifications based on the Strange Situation paradigm are fairly stable between one and six years of age, and are predictive of many aspects of personality and social behavior throughout childhood.

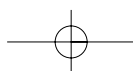
*Attachment in Adulthood*

Bowlby clearly believed that attachment processes were important across the entire lifespan—“from the cradle to the grave,” in an oft-quoted phrase. Shaver, Hazan, and Bradshaw (1988) outlined a case for conceptualizing adult romantic love relationships as the “integration of three behavioral systems”: *attachment*, *caregiving*, and *sex/reproduction*. In such relationships, they argued, romantic partners serve as attachment figures for one another, turning to each other for comfort and support in times of distress and using each other as a secure base. Shaver et al. reviewed a diverse array of research findings and observations to demonstrate the many similarities and parallels between infant-mother interactions and interactions between adult lovers. For example, prolonged eye contact, cooing or talking “baby talk,” and other intimate behaviors are similar to the sorts of behaviors displayed by infants to elicit and maintain contact with an attachment figure. Hazan and Shaver (1988) subsequently reasoned that if adult love relationships function in part as attachments, then patterns of individual differences—“attachment styles”—may exist among adults that parallel those documented by Ainsworth in infants. In their two studies and hundreds of studies by other researchers since, self-report measures of these styles have been shown to correlate with countless theoretically relevant variables ranging from relationship satisfaction to physiological responses to stress.

*God as an Attachment Figure*

The principal and most obvious point of departure for my discussion of religion is the observation that the perceived availability and responsiveness of a supernatural attachment figure is a fundamental dynamic underlying Christianity and many other theistic religions. Whether that attachment figure is God, Jesus Christ, the Virgin Mary, or one of various saints, guardian angels, or other supernatural beings, the analogy is striking. The religious person proceeds with faith that God (or another figure) will be available to protect and comfort him or her when danger threatens; at other times, the mere knowledge of God’s presence and accessibility allows him or her to approach the problems and difficulties of daily life with confidence.

Ainsworth (1985) summarized five defining characteristics that distinguish attachment relationships from other types of close relationships.





In this section I argue that God or other deities commonly meet these criteria and thus reflect true attachments.

Seeking and Maintaining Proximity to God

During the first six months of life, infants depend heavily on proximal behaviors to initiate and maintain contact with their mothers, such as crying, upraised arms, clinging, and cuddling. Under normal conditions these proximal behaviors are progressively replaced with more distal behaviors as children mature; eventually older children can be comforted by visual or verbal contact, or even the mere knowledge that the attachment figure is potentially available if needed. It seems only a small step to suggest that a noncorporeal deity can function fully as, and offer the psychological provisions of, an attachment figure.

Of the several supernatural qualities typically attributed to God or gods, one of the most common is that God is *omnipresent*. Yet despite our remarkable abilities for abstract representation and imagination, attachment to a purely abstract being poses a formidable challenge. Thus, virtually all religions provide tangible places such as churches and shrines where worshipers can go to be “nearer to” God. People often visit churches spontaneously at times other than formal services, especially when troubled, to speak with the deity and feel his presence. Moreover, each religious tradition has its own set of images, icons, and other physical representations that serve as concrete reminders of God’s presence. Some infant attachment behaviors display intriguing analogues in religion as well, such as the upraising of the arms in worship, and especially many forms of prayer.

God as a Haven of Safety

Bowlby (1969) identified three classes of stimuli hypothesized to activate the attachment system: (a) frightening or alarming environmental events; (b) illness, injury, or fatigue; and (c) separation or threat of separation from attachment figures. If God functions psychologically as an attachment figure, then we should find that people turn to God, and evince attachment-like behaviors toward God, under these conditions. Indeed, in Western Christian traditions at least, these are precisely the three categories of “trouble and crisis” when people are most likely to seek God’s support and comfort (Hood et al., 1996, pp. 386–387).

The haven provision offered by God is captured neatly by the adage that there are no atheists in foxholes. It is difficult to imagine a situation more deserving of the term “unusually stressful times” than finding oneself on a battlefield. Allport (1950, p. 57) conducted interviews with a large number of World War II combat veterans about the role of their religious beliefs while on the battlefield, and came away with the conclusion that “[t]he individual in distress craves affection and security. Sometimes a human bond will suffice, more often it will not.” Numerous empirical studies point to the role of prayer and God as providing a haven of safety in times of fear and distress, such as when facing serious health-related problems.

God as a Secure Base

Evidence for the idea that religious beliefs, and a personal attachment relationship to God (or Jesus, etc.) in particular, offer this provision comes from many sources. Phenomenologically, believers think of God or Jesus as being by one’s side, holding one’s hand, and so forth. Secure-base themes are in clear evidence throughout much of Christian scripture, particularly in the Psalms.

To the extent that God functions psychologically as an attachment figure and provides a secure base for believers, belief in God should confer certain psychological benefits. In numerous empirical studies, religious commitment has been shown to correlate positively with a variety of indicators of good mental health. At the same time, it is important to note that these correlations are highly differentiated, and suggest that the religion-health links are strongest where they reflect attachment-based processes. For example, intrinsic religious orientation is positively correlated with two conceptualizations of mental health, *freedom from worry and guilt* and *personal competence and control*, but *not* to several other aspects of mental health.

Responses to Separation and Loss

According to Bowlby, the threat of separation causes *anxiety* in the attached person, and loss of the attachment figure causes *grief*. If God functions psychologically as an attachment figure, then separation from or loss of God should engender these same kinds of responses. Determining whether God meets these criteria is a difficult matter, because one does not become separated from, or lose a relationship with, God in the same ways that people typically lose human

relationship partners. On the other hand, beliefs about what happens after death reflect issues of potential separation from God. The potential for true separation from God is usually seen by believers to come only in the hereafter, at which time one spends eternity either with God or separated from God. In most Christian churches, separation from God is the very essence of hell. The most common way of “losing” God is simply ceasing to believe in the existence of God (or at least of a particular image of God). Defectors from cults commonly experience psychological symptoms, including “separation anxiety,” similar to those associated with marital separation and divorce.

Since loss of an attachment figure is an event particularly likely to activate attachment behavior, the attachment model would predict that religious behavior and belief should increase during periods of bereavement. Empirical research shows that bereaved persons feel more religious and engage in more prayer than they did prior to the death, and that their religious belief and commitment is correlated positively with adjustment and coping to loss of a spouse. The frequent loss of attachment figures may contribute to increases in religiousness in the elderly.

Other Attachment Processes in Religion and Beliefs about God

In addition to these arguments suggesting that God meets the criteria for an attachment figure, other observations about religion suggest an important role of attachment processes.

First, to the extent that the attachment system is implicated in at least certain aspects of religious belief, we should expect the emotional as well as the cognitive machinery of attachment to be in evidence as well. In particular, if a person is attached to a deity or other religious figure, the person should feel *love* toward, and the sense of *being loved by*, that figure—just as children love and feel loved by their parents and adults in romantic relationships love each other. The emotion of love is, of course, central to Christianity. In particular, numerous scholars including William James (1902) have likened the process of religious conversion to that of falling in love.

Apart from the question of love per se, the general idea of God as a parent-like figure has a long history in the psychology of religion. Freud (1961/1927) is of course the most (in)famous example, arguing that God was an exalted, protective father figure. Researchers have long debated whether images of God are essentially “masculine”

and “paternal” or “feminine” and “maternal.” The most sensible conclusion from this and other research seems to be that images of God combine stereotypically feminine qualities (loving, nurturing) and stereotypically masculine qualities (strong, protective). Such an individual would function ideally as a secure base and haven of safety, irrespective of gender.

To the extent that God functions psychologically as an attachment figure, we might expect the structure of *individual differences* in God images to resemble that of parental images. Indeed, much factor-analytic research on God images confirms this expectation. In virtually every factor-analytic study published, irrespective of the particular kinds of items used, the first (and large) factor to emerge invariably reflects the idea of God as loving, caring, and benevolent. In addition, many studies point to a second major factor reflecting something like a *Controlling God* dimension. Interestingly, these two dimensions appear to map neatly onto the two primary dimensions of *parenting* that have been widely studied in the developmental psychology literature, labeled alternatively as *warmth* and *control*, *responsiveness* and *demandingness*, or *care* and *overprotection*.

Some Limitations and Extensions

It is tempting to try to explain as much as possible about religion in terms of attachment. However, I think it is important to avoid this trap. As will become clear later, attachment is only one of numerous psychological systems underlying religious belief and behavior, and different aspects of religious belief and behavior are rooted in different systems. With this broader perspective in mind, it is unnecessary (and foolish) to overextend attachment theory beyond its appropriate boundaries.

In polytheistic belief systems, such as the ancient folks religions of Asia and Africa, gods and spirits play any number of different roles. Although one of these roles might be as an attachment figure, in most of these cases I suspect people’s perceived relationships with such deities are *not* attachment relationships. In many cases, the psychological schema for these gods is one of *social exchange*—another psychological system to be discussed later—rather than attachment.

Another possible application of attachment theory in the domain of religion is the role of clergy and other *religious* leaders. There is

nothing necessarily unique about religious leaders in this regard: As Bowlby and many others have argued, virtually anyone perceived as a stronger, wiser other can potentially serve as an attachment figure. However, it is important to keep in mind the distinction made by Ainsworth (1985) and others that an attachment is a bond in relation to a particular *person*, not a *role*. A minister, rabbi, or priest can serve as an attachment figure, but should not be assumed so strictly on the basis of their role. Relationships with religious leaders may often reflect instead processes related to *prestige* and *status* rather than attachment.

Can a person be attached, in a strict Bowlbian sense, to a *group*? Bowlby thought so, but I disagree. Instead, I suggest that most group dynamics reflect psychological processes of *coalitional psychology*, rather than attachment. People may well derive feelings of security from group memberships, but for a different set of reasons following from a different evolutionary history. Coalitional psychology may also underlie perceptions of some religious leaders, particularly those of large religious groups with whom most followers have no personal relationship.

A natural question to pose for an attachment account of religious beliefs concerns the applicability of the model to nontheistic belief systems, particularly Eastern religious traditions. A belief system in which there are no personalized gods is indeed unlikely to provide much fertile ground for attachment theory. On the other hand, it is important to realize that many Eastern religions are considerably less devoid of personalized gods than is commonly thought. This is especially the case with respect to the beliefs of ordinary people which, as in Christianity, often bears little resemblance to those of studious theologians pondering the mysteries of the universe in monasteries and seminaries. The major Eastern religions offer multiple variants, many of which are not at all “godless.” The most popular variants of both Hinduism and Buddhism, for example, involve personal gods with whom people believe they have personal relationships. Moreover, when these religions spread into new areas, they did not displace the preexisting folks religions that were populated with personalized deities, which continued to exist in the minds of the masses. So long as ideas about personalized deities are around, people seem to find them attractive and plausible.

*Individual Differences in Attachment and Religion*

To this point I have focused on the normative aspects of attachment theory and religion, for example by showing that God, as typically conceived in Christianity, displays all of the defining characteristics of an attachment figure. I now switch focus to two sets of hypotheses about individual differences in attachment and religion that follow naturally from the idea that the attachment system is involved in shaping and maintaining many aspects of religious belief. The basic premise is that if this system, including its functional dynamics and internal working models, underlies thought and behavior in the context of both human interpersonal relationships and religious beliefs, then individual differences in the workings of the system should be evident within both domains.

Mental Models and the Correspondence Hypothesis

If God functions psychologically as an attachment figure, in the same manner as children's caregivers and adult romantic partners, then these observations lead to a straightforward set of predictions that I have referred to as the *correspondence hypothesis*: Individual differences with respect to attachment styles should parallel, in important respects, individual differences in beliefs about God and related aspects of religion. For example, people characterized by a *secure* attachment style would be expected to view God, like their human relationship partners, as an available and responsive attachment figure who loves and cares for them, whereas *avoidant* persons should be more likely to see God as remote and inaccessible, as cold and rejecting, or simply as nonexistent.

One form that such correspondence should take is between internal working models (IWMs) of human attachment figures and beliefs about God at any given point in time. Several studies have now been conducted to examine the relationship between adult attachment styles and individual differences in religious belief. For example, people who classify themselves as secure are significantly more likely than those classified as avoidant to view God as more loving, less controlling, and less distant/inaccessible; avoidant persons are less religiously committed than secure persons. Studies employing an alternative measure of adult attachment, in terms of separate dimensions of positive/negative IWMs of *self* and of *others*, show that both are

related to religion measures. Specifically, IWMs of *self* are most strongly related to images of God, whereas positive models of *others* were most strongly associated with belief in a personal (vs. impersonal or nonexistent) God, and belief in having a personal relationship with God (as well as Distant, but not Loving, God images). This differentiated pattern of findings suggests that IWMs of self and others may operate separately in shaping people's religious beliefs. Beliefs about what God is like—that is, whether God is viewed as loving and caring or as controlling and wrathful—appear to correlate with mental models of the self. In a word, people who view themselves as loveable and worthy of being cared for are those most likely to see God as the kind of being who loves and cares for people. However, the belief that God has these characteristics is distinct from the question of whether one has—or could possibly have—a personal relationship with him.

In studies designed to assess the longitudinal relationship between adult religion and (retrospective reports of) childhood attachments with parents, significant statistical *interactions* show that correspondence is observed only when mothers were reported to have been relatively *religious* during the respondent's childhood. Thus direct correspondence was found only among participants reporting secure maternal attachment (with the exception of one particular religion measure to be discussed in a subsequent section).

Granqvist (1998) has thus proposed an alternative explanation for this interaction, according to which it may instead be individual differences in attachment that moderate the effects of parental religion. Secure attachment, he suggests, facilitates the *socialization* of children to parental religion, whereas insecure attachment does not. Thus, those with secure childhood attachments become religious if their parents were religious, but not if they weren't; those with insecure childhood attachments follow the opposite pattern. Granqvist referred to this process as *socialized correspondence*, where "correspondence" now refers to the parallel between one's religious beliefs and one's parents' beliefs—rather than, as in my interpretation, between one's religious beliefs and security of one's own attachment style (or prior attachment experience). Granqvist and colleagues have provided additional empirical support for their interpretation using a measure of *socialization-based religiosity*, to which security of childhood attachment is positively related but avoidance and ambivalence inversely related. Moreover, religious changes described retrospectively by secure participants were



characterized by early rather than late, and gradual rather than sudden, onset, as well as with “themes of correspondence” reflecting adoption of significant others’ beliefs. The general picture painted here is one of secure children growing into the religious beliefs of their parents in a gradual, conventional manner—perhaps the most common pathway to adult religiousness in most contexts. In the end, Granqvist concludes that both kinds of correspondence are required, which he labels the *two-level correspondence* hypothesis.

God as a Substitute Attachment Figure: The Compensation Hypothesis

The compensation hypothesis emerges from a consideration of the conditions under which the attachment system is activated and the role of attachment in the maintenance of felt security. Children who fail to establish secure attachments to parents are likely to seek “surrogates” or substitute attachment figures, including teachers, older siblings, other relatives, or, in general, any stronger, wiser other who reliably proves to be accessible and responsive to attachment needs. The importance of God as an attachment figure, then, might be greatest among those people, in those situations, in which human attachments are perceived to be *unavailable* or *inadequate*.

In the (simulated) longitudinal research described previously the one measure of religion that was predicted statistically *not* by an interaction, but directly by individual differences in attachment, was a measure of whether one had ever experienced a *sudden religious conversion*. In a recent meta-analysis of numerous studies, Granqvist and Kirkpatrick (2004) shows that religious conversions are significantly higher among those reporting *insecure* (aggregated avoidant and anxious categories) attachments to mothers as compared to secure maternal attachments. Similarly results were found with respect to attachments to fathers. These results are consistent with much previous research on religious converts, who typically displayed problematic family histories. Additional evidence for the compensation hypothesis comes from other studies by Granqvist and others in research with a new measure of *emotion-based religiosity*.

The emerging picture is one of two different processes involved in the relationship between childhood attachment and adult religion. As Granqvist has noted, we in many ways seem to have rediscovered William James’ (1902) hundred-year-old distinction between “once-born” versus “twice-born” religionists—also known as religions of the

“healthy-minded” versus the “sick-souled”—as well as the long-standing distinction between *gradual* and *sudden* religious conversions.

With respect to adult attachment styles, the compensation hypothesis suggests that people who are *securely* attached to romantic partners, who have successfully made the transition from parental to peer attachment and are now enjoying satisfying mutual attachment relationships, should have no particular motivation to go off in search of an alternative. People who are *avoidantly* attached are unlikely to be in satisfying romantic relationships, but this is because they prefer it that way: they are not currently seeking an attachment relationship at all. Instead, it is the *anxious* (a.k.a. *preoccupied*) group that seems to best fit the bill. These persons find their romantic attachments to be insufficiently intimate. They describe relationship partners as failing to meet their needs for closeness and intimacy, and are likely to say that their strong desire for closeness may sometimes drive partners or potential partners away. Several studies have now supported this hypothesis. Specifically, the likelihood of people turning to God as a surrogate attachment figure is related to the degree to which they *see themselves as unworthy of love and care* from romantic partners. Negative IWMs of self may, in effect, provide the *motivation* to turn to God as an attachment figure. However, in order for this to really “work,” one also needs to have *positive IWMs of others*. That is, one must believe that attachment figures are indeed loving, trustworthy, and reliable. For someone with negative IWMs of others, “finding God” may prove a disappointing experience: The God one has “found” turns out to be, consistent with one’s IWMs of attachment figures in general, a distant, inaccessible God that effectively provides neither a secure base nor a haven of safety.

Contextual Factors in Conversion

Earlier I reviewed literature showing that people turn to God under precisely the kinds of circumstances thought to activate the attachment system. It stands to reason that when people whose attachment systems are readily activated are faced with circumstances that strongly activate that system, they will be particularly strongly motivated to turn to an attachment figure. Religious conversions occur when this search leads to God.

But why God rather than another person? One reason is that many of these attachment-activating contexts involve the separation or loss of a human attachment figure, as in dissolution of romantic

relationships or marriages or death of a spouse; the primary human attachment figure is therefore unavailable. Second, human attachment figures are sometimes simply inadequate, particularly in situations of extreme distress such as the battlefield or a fight against a deadly disease. Third, conversions may occur during times of transition between attachment figures, particularly adolescence. It is easy to see how God—an “ideal” attachment figure—might be perceived as an attractive substitute attachment figure under such conditions.

Attachment in Context: Introduction to Evolutionary Psychology

Attachment theory cannot possibly explain everything about religious belief and behavior, nor should it be expected to do so. Where, then, shall we look for explanations of other aspects of religion that do not fall under the purview of attachment theory? How might we conceptually carve up the vast and variegated topic of “religion” into separate parts to be explained in terms of different theories? And how can we do so in a manner that will lead to a theoretically coherent and integrated view of the psychology of religion, rather than a cobbled-together, incoherent hodgepodge of unrelated ideas?

Evolutionary psychology in its modern form is a broad metatheoretical perspective or paradigm that aspires to provide just such an organizational framework for psychology and other social sciences. It begins, like Bowlby’s work, by assuming that our species’ evolutionary history is deeply relevant to understanding the our psychological architecture. Like eyes and hands, the brain/mind is an organ that has evolved over millions of years via natural selection. Eyes are well “designed” for vision, hands for grasping and manipulating objects, and so forth. Brain/minds must be “for” something too. Evolutionary theory provides a detailed understanding of how natural selection works, and by what criteria: Traits or features that lead to higher levels of *reproductive success* or *inclusive fitness*, as compared to other available designs, are favored, and less adaptive variants are selected against. Armed with this knowledge we can develop hypotheses about what the evolved functions of the brain/mind are, and thus be in a better position to figure out what it does and how it works—just as the field of medicine emerged from the Dark Ages only after it adopted a functional view of organs and organ systems.

One important implication of this approach is that the brain/mind, like the remainder of the human body, consists of a collection of

adaptations designed to solve recurrent adaptive problems faced by our distant ancestors. Hearts and lungs each have highly specific functions; the body is not a general, all-purpose nutrition-processing device. Similarly, the brain/mind cannot be a general, all-purpose information-processing device, as is widely assumed in psychology and other social sciences. Like other organs, *psychological mechanisms* are assumed to be both highly numerous and *domain-specific*, reflecting the diversity and specificity of adaptive problems to be solved. A mechanism designed to guide food preferences cannot be the same as one designed to guide mate preferences, or we would wind up with some very strange diets and relationships. *Human nature*, then, is the complete package of species-typical psychological mechanisms we have inherited from our ancestors, and that differs in some ways (but is similar in others) to “dog nature,” “ant nature,” and so on. (For an overview see Buss, 1995, Pinker, 1997, and Tooby & Cosmides, 1992).

In this brief essay I cannot possibly summarize and defend this evolutionary approach sufficiently to make a convincing case. Instead, I will try merely to illustrate some important aspects of its perspective by responding to some common misconceptions about it. In their excellent encyclopedic textbook on psychology of religion, Hood et al. (1996, p. 44) begin their second chapter with a subsection title posing the question, “Is Religion in our Genes?”, to which their reply is:

Although the ‘theory of instincts’ that was so popular in the 20th century subsequently lost favor, especially in light of the growing dominance of behaviorism in North American psychology, the idea of a ‘religious instinct’ did not go away. Many behavioral scientists would be skeptical of this notion, just as they would be suspicious of a claim that we humans are ‘naturally’ inclined to like (or dislike) heavy metal music, or that we have a genetic destiny to be political or to be sports fans. Rather, social scientists would, on the basis of much evidence, point out that our love (or hate) of heavy metal music, and our inclinations toward politics and sports, come more from our socialization experience than from the DNA we have inherited from our parents.

So, how would an evolutionary psychologist respond to these comments? First, an evolutionary psychologist would surely agree that humans do not have genes “for” heavy metal music or politics or sports fandom. Restated more precisely, human evolved psychology does not contain psychological mechanisms designed by natural

selection specifically to produce the behavior of attending AC/DC concerts, or running for Congress, or watching basketball on TV. But this does not at all mean that an understanding of the evolved psychological architecture is irrelevant. No one would argue that our genes code for mechanisms specialized for eating or baking cheesecake, yet an evolutionary perspective is indispensable for understanding its popularity. (Cheesecake exquisitely satisfies our evolved preferences for sweets and fats, which in turn owe to dietary needs which, in ancestral environments, would have been met by rare treats of ripe fruit and meat.)

At the same time, one is confronted with some interesting observations that require explanation: Why are music, sports, and politics, at least if broadly defined, observable in all known human cultures? Heavy-metal music is not universal, of course, but music in some form *is* universal. So too are competitive games (and the observation of them by others), as well as the struggle for power and dominance within and between social groups. The particular details vary across time and across cultures, but something about “human nature” evidently causes these phenomena to appear in one form or another in all societies. An evolutionary perspective provides a framework for understanding the cross-cultural universality lying beneath the superficial variability.

For example, “political” suggests such general themes as individuals striving for status, dominance, and power (i.e., negotiating status and dominance hierarchies); the construction and maintenance of coalitions and alliances; and the negotiation of conflictual relations between individuals and groups. The exact form taken by these processes varies widely across cultures and even individuals, but they are evident in some form in all cultures. Indeed, similar themes are clearly evident in chimpanzee societies.

Two other points are raised by the question about heavy-metal music. First, note that the issue raised in the quoted passage is not about universality but rather *individual differences*: Why do some people love it and others hate it? This question presents a fundamentally different kind of problem than questions about the universality of the psychological mechanisms that give rise to them. Second, heavy-metal music (as well as sports) illustrates a complex modern phenomenon for which an evolutionary explanation is likely to involve *multiple* mechanisms corresponding to qualitatively different aspects of the phenomenon. For example, there is a strong *coalitional* component

to most fads: Fans of heavy-metal music (and other popular movements) often dress a certain way, advertise their favorite bands on tee shirts and bumper stickers, and organize social networks around the music and the performers. The musicians themselves, along with other members of their inner circle, often parlay their high status into money and the sexual interest of “groupies”; there is a strong component of *status-striving* and *mating competition* involved. The actual enjoying-the-music part is only one part of the phenomenon, and perhaps a relatively unimportant one with respect to understanding many aspects of the heavy-metal world. My evolutionary-psychological theory of religion will have much in common with this example.

Finally, a proper understanding of these various phenomena in terms of the psychological mechanisms underlying them has considerable promise for developing more detailed hypotheses about what to expect in these behavioral domains. Psychological mechanisms involved in political behavior—for example, those related to status competition, reciprocal altruism, and coalitional psychology—represent sets of inferential rules that individuals use in thinking about and producing such behavior. If we understand the rules by which these mechanisms operate, we will be in a better position to predict such behavior.

In short, behaviors and inclinations that seem clearly to be “socialized” or “learned” at one level of analysis can be seen as founded on an evolved psychological architecture that enables and shapes these phenomena. Evolutionary psychology offers the theoretical framework for addressing these questions, with the potential for constructing a fully integrated model of nature (evolved psychological architecture) and nurture (specific details acquired via instruction, individual learning, and socialization). For these reasons, I believe it has the potential to be a powerful organizing framework for the psychology of religion.

Attachment Theory in Modern Evolutionary Perspective

Despite three decades of research, Bowlby’s basic outline of the operation and function of the attachment system in infancy remains almost entirely intact. The principal patterns of individual differences documented in infants and young children, and the patterns of parental caregiving thought to be partly responsible for them, remain



essentially unchanged. However, evolutionary theory has led some researchers to reconceptualize the *nature* of these individual differences to some extent, with respect to the questions of exactly *why* and *how* the evolved design of the attachment system produces them. Before moving on to discuss other evolved psychological systems, I briefly review some of these developments and speculate about their potential implications for the psychology of religion.

Attachment and Reproductive Strategies

One new perspective brought by evolutionary thinking is the suggestion by several theorists that infant attachment styles are related in important ways to adult *mating* and *reproductive strategies*. For example, Belsky, Draper, and Harpending (1991) proposed a lifespan developmental model designed to tie together the evolved systems of attachment, parental caregiving, and mating. They distinguished two broad life-history strategies in humans: a *quantity* strategy, which in effect amounts to “reproduce early and often,” and a *quality* strategy, which involves delaying reproduction (until more experienced and more able to care for offspring), having fewer offspring, and investing heavily in those offspring (the “all your eggs in one basket” strategy). The latter links together the traditional “normative” story with respect to the three systems: high quality parental *caregiving* (including father-presence vs. father-absence) leads to secure infant/childhood *attachment*, which is associated with long-term *mating* and subsequently high parental investment in one’s own offspring. Conversely, experience of low quality or quantity of caregiving leads to insecure attachment, which in turn leads to short-term mating and low parental investment in one’s own offspring.

The reproductive-strategies approach offers a new perspective on the nature of individual differences in adult romantic attachment styles. From this vantage point, such individual differences may be reflections, at least in part, of different reproductive or mating strategies. I have reviewed elsewhere a variety of research findings consistent with the notion that the secure adult attachment style may largely reflect a long-term mating orientation and the avoidant style(s) a short-term mating orientation (Kirkpatrick, 1998).

This reproductive-strategies (*RS*) hypothesis provides a basis for expanding the correspondence hypothesis in several interesting directions. First, many central beliefs in Christianity can be placed under



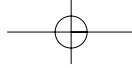
a rubric such as “family values.” To the extent that measured individual differences in romantic attachment styles (in part) reflect variation in reproductive strategies, we would expect to find this entire “syndrome” of family-oriented Christian views to be associated with secure rather than insecure attachment. That is, people with certain kinds of early attachment experience tend as adults both to be oriented toward “quality,” long-term reproductive strategies and to agree with, and be attracted to, moral and religious belief systems supportive of such values. This hypothesis also suggests an explanation for some other findings in the empirical research literature, such as the positive correlation between religiousness and marital satisfaction and some of the widely documented sex differences in religiousness.

Love Revisited

Although there is little doubt about the *adaptive function* of attachment in infancy and childhood, the function of the system in adulthood has been the subject of much debate. Some researchers have suggested that the nature and function of the system remains the provision of security, comfort, and protection, whereas others suggest that the function of attachment in adulthood is qualitatively different from that in childhood. In adulthood, they argue, attachment is the “tie that binds” adult romantic partners together. In other words, it is essentially what we call “love.”

The nature and function of love, both between adult romantic partners and between caregivers and their offspring, pose interesting questions for an evolutionary approach. One particularly useful perspective, I believe, comes from Frank’s (1988) theory of social emotions as *commitment devices*. This is a very general model that is useful for thinking about the respective roles of emotions and rationality from an evolutionary perspective. We tend to think of emotions as interfering with rational problem-solving, but Frank’s view suggests the opposite: In many cases, the cold and calculated solution that seems most attractive in the short run—the one that would be chosen by an entirely rational decision-maker—will not be in one’s best interests in the long run. For this reason, he argues, natural selection has fashioned various emotions to “commit” us to long-term strategies that are adaptive in the long run.

The “commitment problem” to be solved by the emotional bond of love, according to Frank, is like that solved by a lease between



renter and landlord. No matter how long one searches and evaluates the mate (or apartment) market in choosing a partner, there is always the possibility of a more attractive alternative coming along later. What is needed is a mechanism that kicks in and says, “This one is it—stop looking!” Note that love plays a similar role in parental caregiving, which presents the commitment problem of investing in offspring despite—as any parent will tell you—many temptations to quit.

Some aspects of religion may therefore resemble falling (or being) in love, as noted previously, precisely because it *is* falling in love. That is, the biological/psychological mechanism designed to activate love—in the service of cementing pair-bonds in committed mating relationships, for example—may be activated by a perceived relationship to God (or Jesus, etc.). This is consistent with other findings, such as the increased likelihood of conversion in adolescence—a developmental period during which the romantic-love mechanism emerges as an active system (for good evolutionary reasons)—and the fact that the conversion experience is so emotionally compelling. The latter makes sense particularly in the conversions of people with insecure attachment histories, for whom the experience is likely to be that of falling in love *for the first time*. This perspective also opens the door to a variety of ways in which research on romantic love in social and personality psychology might be applied to the study of religious change and conversion: For example, the distinction between falling in love “at first sight” versus love that grows slowly over time may reflect some of the same underlying processes as the long-acknowledged distinction between sudden and gradual religious conversion in the psychology of religion.

Finally, if the conversion process really does involve activation of a love mechanism, which in turn is connected to systems related to reproductive strategies, then sudden religious conversion may involve activation of the entire *suite* of mechanisms related to the “quality” reproductive strategy, including a long-term mating orientation and commitment to parental investment. Individuals whose pre-conversion life was characterized by the “quantity” orientation might then be expected to evince a variety of life changes related to the shift from this quantity to quality orientation. We would expect to see, for example, a renunciation of the previous high-risk lifestyle in favor of a new, conservative one—as described in the preceding section, an adoption of a “family values” orientation. Many such effects are

amply documented among religious converts: Substance abusers give up their habits; criminals “go straight”; the promiscuous settle down.

Religion: Adaptation or Evolutionary Byproduct?

Apart from explaining why the attachment system exists and operates as it does, I have so far said little about the role of an evolutionary approach to religion. I now will finally make explicit the general argument that until now has been largely implicit: There is no unique religious instinct (or, in contemporary terminology, no evolved psychological mechanism or system) designed specifically for the purpose of producing or guiding religious thought or behavior. Rather, I propose that religious beliefs are constructed, shaped, and maintained by a host of psychological mechanisms and systems—including the attachment system—that all evolved much earlier in the (pre)history of our species for more mundane purposes, but that have been “co-opted” in more recent human history in the service of religion.

Is There a Unique Religious Instinct?

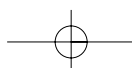
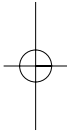
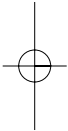
Before turning to the reasons why I think we should not assume the existence of a “religion instinct” or evolved religion-specific mechanism, let’s first ask why we might find the idea persuasive in the first place.

The apparent universality of religion across time and cultures seems to suggest the role of a species-universal instinct or psychological system responsible for producing it. However, the degree to which religion really is “universal” depends largely on how one defines both *religion* (i.e., broadly or narrowly), and *universal* (e.g., always observed in all individuals? usually observed in some individuals?). Second, a crucial distinction is to be made between universality of *expression*—the behaviors, feelings, thoughts, and so forth of religious experience—and the universality of the psychology underlying it. Examining the ethnographic record for observable signs of religion focuses on the products, not the psychological mechanisms, and the mapping isn’t necessarily isomorphic. Cooking is pretty much universal across human societies, but it is doubtful that we have an evolved cooking mechanism. Some behaviors and ideas attain widespread or universal status because people the world over “figure out” similar solutions to the same problems.



Some writers have suggested that the existence of some kind of innate predisposition toward religion is indicated by the fact that religiosity seems to be at least partly *heritable*. This argument is problematic first because such correlations might be caused by some correlated personality trait or other heritable characteristic rather than religiosity itself. Second, and more important, demonstrating that *individual differences* in something are partly explained by genetic factors is quite a different thing from demonstrating that the thing itself is an *adaptation*. Individual differences frequently represent random noise, at least insofar as natural selection is concerned. Natural selection tends over time to reduce variability in traits, as less adaptive variations are weeded out and the more adaptive ones retained. The genetic variation with which we are left is, from an evolutionary perspective, largely the variation that doesn't matter, as in iris color or height within the normal range.

Evidence from neuroscience has accumulated rapidly in recent years, leading numerous researchers to suggest that the brain contains something like a specialized "God module." For example, epileptic seizures in a particular region of the temporal lobes are known to produce intense, spiritual experiences, and many people who experience them subsequently become preoccupied with religious and moral issues. However, the fact that activation in a particular brain area produces a consistent set of effects does not necessarily mean that we have located a mechanism *designed for the function of producing those effects*. For one, the effects could be merely incidental byproducts of the architecture of some other system designed for entirely other functions, as when tapping the right spot on your knee with a hammer reliably causes your lower leg and foot to jerk upwards. Second, it is possible that such effects represent a kind of *malfunction* caused by any number of possible genetic, pharmaceutical, or environmental factors. Getting whacked severely on the head with the aforementioned hammer might cause you to hallucinate stars whirling around one's head, but this would not imply that our brain architecture includes an adaptation designed to produce this particular effect. Temporal lobe epilepsy presumably represents a kind of brain malfunction, not an adaptation. If we do not regard temporal lobe seizures as an adaptation, why should we regard "spiritual experiences" produced by them as such? Averill (1998) suggests that such experiences might be analogous to anxiety attacks, in the sense of reflecting hyper or mis-activation of an evolved system that ordinarily is highly adaptive.



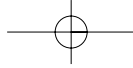
*Problems with the Religion-as-Instinct View*

The first problem in trying to make the case for a religion-specific psychological mechanism is that of identifying what exactly such a mechanism would *do*. What would be its adaptive function? Making such a case well is much more difficult than it sounds, and there are a variety of pitfalls that must be avoided. For example, apparent psychological benefits (e.g., reducing anxiety or fear of death) must translate, directly or indirectly, into reproductive advantage (i.e., inclusive fitness) relative to alternative mechanisms. Second, the benefits cannot be explained simply in terms of benefits to “the group” or “the species,” which reflect obsolete notions of how natural selection works. Third, to make the case for a religion-specific psychological mechanism, one needs to demonstrate how it reliably and predictably produces benefits that, on average, exceed(ed) potential costs. A simple mechanism for mindlessly conforming to group norms, for example, is unlikely to evolve because it would be subject to exploitation by nefarious others in countless ways.

The central distinguishing feature of an adaptation is that it demonstrates evidence of “special design,” that is, has the hallmarks of a well-engineered solution to the adaptive problem it is designed to solve. In particular, adaptations are identified by evidence of such characteristics as complexity, economy, efficiency, reliability, precision, and functionality. A useful approach is to examine a purported adaptation from the perspective of an engineer, and ask whether the mechanism is *well* designed, in light of constraints imposed by other aspects of the organism’s design. Frankly, I find it difficult to imagine how religious belief or experience could be considered an economical, efficient solution to any particular adaptive problem. Moreover, adaptive functions attributed to religion often could be easily solved by much simpler mechanisms or designs. For example, if “feeling better” were universally adaptive, natural selection could simply have fashioned humans to feel better all the time. We know that it has managed to fashion a much more complex set of emotions that cause us to feel better and worse at different times; it would require only a very simple change in design to turn on the feel-good button perpetually.

Religion as an Evolutionary Byproduct

Up to this point our discussion of natural selection and evolutionary psychology has focused on *adaptations*: features or traits designed by



natural selection for a particular adaptive function. However, it should be obvious that not every feature, trait, or behavior observed in people is the direct product of an adaptation designed for that particular purpose. Our evolved psychology does not contain mechanisms designed for computing sequences of prime numbers or playing soccer. Adaptations are only one product of natural selection, but there are many others. Most important for our purposes is the class of *byproducts* of adaptations. For example, *spandrels* refer to features that have no adaptive value in themselves, but happen to emerge inevitably from the construction of adaptive features. One of Stephen J. Gould's favorite examples is the human chin, which appears as a function of the design of the lower jaw in conjunction with other facial features which do reflect adaptations (for biting and chewing, smelling, and so forth). *Exaptations* refer to features that evolved initially as an adaptation to perform a particular function, but later come to take on a distinctly different function. Gould's favorite example here is the "thumb" of the panda, which is a wrist bone that initially evolved as part of the wrist design but with a little additional modification has become a thumb-like organ useful for stripping leaves from bamboo shoots.

The attachment theory approach to religion I have sketched so far has been, implicitly, a religion-as-evolutionary-byproduct explanation, according to which the attachment system is one particular adaptation in humans that has been coopted by many religious belief systems. Many ideas about God activate the cognitive machinery of the attachment system, which processes the ideas in attachment terms. As a consequence, people often perceive their relationships with deities functionally in terms of attachment relationships, monitoring their sense of felt security and acting toward these deities accordingly. They use these deities as a haven of safety in times of fear and distress, and as a secure base in the absence of fear and distress. We do not have an evolved God module or psychological system whose adaptive function is to cause us to think about gods in this way. Instead, we have an evolved module or psychological system whose evolutionary function was is to promote survival of helpless offspring, which is designed to monitor parental caregiving and availability in relation to current circumstances and guide behavior accordingly.

In discussing evolutionary byproducts, Pinker (1997) refers to music as "auditory cheesecake"—the idea being that most of us find cheese-

cake wonderfully delicious because it capitalizes on our evolved preferences for sweets and fats. We do not have an evolved mechanism dedicated to preparing or seeking cheesecake; instead, the invention of cheesecake capitalized on those preexisting mechanisms that evolved for noncheesecake purposes. Cheesecake is exquisitely designed (by humans, of course, not by natural selection) to maximally titillate these evolved taste-preference mechanisms. In short, I think religion is a kind of socio-emotional-cognitive cheesecake.

The power of cheesecake is that it is well designed to titillate at least two distinct taste-preference mechanisms—specifically, preferences for both fats and sweets. The power of religion, I submit, is analogous. Religious beliefs activate attachment processes but also many other psychological processes as well, and it is probably this *combination* that is responsible for its widespread success and staying power. Moreover, this diversity of psychological underpinnings enables religion itself to be shaped in different ways that are maximally well suited for appealing to different cultures or different people at different times. To abuse the analogy further, consider the fact that there are many different kinds of recipes for making cheesecake: some varieties of cheesecake are sweeter than others, some creamier than others. One could even make low-fat cheesecake by making a few crucial substitutions. Some of these varieties are prized especially by people with a sweet tooth; the low-fat varieties are valued by people on diets. It is all cheesecake, but different components can be played up or toned down to suit the particular preferences and values of the consumer.

I think religion works in much the same way: Some religions such as Christianity—and particularly certain variants, such as evangelical and charismatic traditions—emphasize the image of deities as attachment figures; other religions emphasize other themes. Likewise, within any given religious tradition, individual-difference variability in religious beliefs and values owes something in part to the ability of people to pick and choose those aspects of the belief system that strike them as most plausible, valuable, or important in light of their own personal experience. The power of religion is attributable, at least in part, to the fact that there is “something for everybody.” What evolutionary psychology brings to the table is a framework for determining what those particular somethings are and how they work.



Beyond Attachment: Religion and Other Evolved Psychological Mechanisms

The theory of attachment and religion can now be seen as just one example of a psychological system, evolved for non-religion purposes, of which certain forms of religious ideas and behavior emerge as byproducts. Its privileged status in my book derives only from the fact that it is the system on which much of my own research has focused; I make no claim that attachment is more important or central to religion, in any general way, than various other systems to be introduced next.

Power, Status, and Intrasexual Competition

Dominance hierarchies of one form or another are clearly evident in species from crickets and crayfish to chimpanzees (and humans). In the simplest (and perhaps most common) case, status is determined by physical size and strength. Larger and stronger individuals defeat rivals in combat, or actual fighting is avoided when the weaker sizes up the other and defaults by submitting or fleeing. In humans, an alternative path to status is related to *prestige*, which refers to status that is freely conferred by subordinates who hope to learn and benefit from the target's recognized skills, abilities, or knowledge. Consequently, prestigious individuals are honored and revered, rather than feared, by subordinates. Both forms of competition are evident in religion.

The influence of dominance/status mechanisms in God beliefs is consistent with a variety of observations about worship behavior common to many religions, including Christianity. For example, Burkert (1996) observes that behavioral expressions of veneration and submission common in religious worship, such as bending, bowing, kneeling, and touching one's head to the ground, have much in common with human surrender displays (i.e., in warfare), as well as with the submissive displays of lower-ranking individuals toward higher-ranking ones in many other primate species. Beliefs about God as powerful and controlling are consistent with a conceptualization of God as a "big chief" or the ultimate king. In polytheistic belief systems ranging from African traditional religions to the more familiar pantheons of classical Rome and Greece, the gods invariably are perceived as displaying a status hierarchy (or multiple hierarchies) amongst themselves, with one god reigning supreme over the others.

Apart from the gods themselves, religious institutions—like many other human cultural institutions—are at least in part social hierarchies

of status, power, and dominance. The roles of shaman, priest, medicine man, and so forth in preliterate societies are important power positions that command respect and awe from other group members. Burkert (1996, p. 93) refers to these perceptions of religious leaders as the “other side” of submission in religion. Given the diversity and complexity of ancestral environments and social structures, it seems reasonable to assume that humans have evolved mechanisms for identifying experts in their respective domains and treating them as leaders within those domains. And one such domain that represents a recognized area of expertise in most if not all societies is that of religion (and related domains such as magic).

It is worth noting in passing that this is one domain in which an evolutionary approach suggests hypotheses about potential sex differences in religious belief. Parental investment theory predicts that men should on average be more concerned with issues of power, status, and dominance and the negotiation of such hierarchies. This may explain why the power positions of shamans, priests, and so forth have long been held most commonly by men, as well as the fact that more recent liberalizing efforts—such as according the status of priesthood to women—often evoke strong opposition. Several studies show that boys are more likely than girls to view God as a supreme power, forceful planner, and controller.

Kinship

Kin selection is one of two general evolutionary theories widely recognized to explain the evolution of *altruism*—behavior that benefits others at (usually) some cost to the self. Anthropologists have long appreciated the importance of kinship and recognized it as a crucial set of issues in all societies. In psychology, however, the topic of kinship has received surprisingly little research attention. The importance of kinship psychology for understanding religion, however, is evident in a variety of ways.

One way in which kinship psychology is manifest in religious belief is with respect to beliefs about the dead, and particularly one’s ancestors. A belief in the immortality (in some form or another) of the dead occurs in all cultures as does the worship (again, in some form or other) of *ancestors* (Steadman, Palmer, & Tilley, 1996). Deceased ancestors are typically seen to have rather typical kin concerns, such as “continuance of the line” and the expectation that living relatives will seek vengeance on their behalf if they had been wrongly killed.



The idea of God as a parent, discussed previously, is often expressed directly in kinship language, as when God is addressed or referred to as “Our Father.” This is where kinship psychology—in particular, parental investment—and attachment theory converge: For God to serve effectively as an attachment figure, we must assume that God is deeply interested in us and our welfare.

Batson (1983) observed that prosocial behavior is enhanced by the use of kinship imagery for this reason, particularly in the context of religion. Worshipers often refer to one another as “brothers and sisters” as do monks and nuns; religious ethics promote “brotherly love”. The reason these linguistic tricks are effective is presumably that they activate kin mechanisms and motivate mutually altruistic behavior. The worship of ancestors may be another way of accomplishing the same trick as other “kin-talk.” Identification and reverence or worship of ancestors makes salient the group’s shared ancestry, with the implication that group members are all relatives (Steadman et al., 1993). Similarly, the related phenomenon of *totemism*, in which an animal or other natural object is recognized and revered as symbolic of the clan, may function in the same way. Like ancestor worship, totemic beliefs have the effect of making salient the relatedness among group members by virtue of common descent.

Reciprocal Altruism and Social Exchange

The second well-established evolutionary theory of altruism is that of *reciprocal altruism*. In short, it is adaptive to behave in a way that benefits another if, in exchange, the benefit will be returned at a comparable level: “You scratch my back and I’ll scratch yours.” The principal threat to reciprocal altruism is the counterstrategy of *cheating*. This is what prevents pure, indiscriminate altruism from evolving in a way that would otherwise be “good for the group”: An individual (and his or her genes) can be wildly successful by enjoying a free ride, taking the benefits of others’ do-gooding without incurring the costs. Therefore, if mechanisms coding for reciprocal-altruism strategies are to evolve, other mechanisms devoted to the task of identifying cheaters must co-evolve along with them, as well as motivational and behavioral systems for responding to and punishing such wrongdoing. The physiological and affective components of *anger* are clearly universal human responses to perceptions of having been “done wrong” in some way.

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Perhaps the most common theme in people's perceived relationships with gods, from so-called primitive religions to modern-day Christianity, is that of some form of reciprocity. Virtually everywhere, people hope to receive benefits of various sorts from the gods, in exchange for which they assume they must meet certain obligations. A reciprocally altruistic relationship with God, however, poses a unique problem: What could humans possibly offer in exchange that would be of any value to God? (Talk about someone who is difficult to shop for!) People have pushed their creativity to its limits in trying to figure out what the gods want, from gifts, monuments, and sacrifices to submissive behavior to doing good deeds.

Of course, the assumption is that "if we please the gods—with sacrifices, food offerings, or prayer—we expect to be rewarded with military victory, good harvests or a ticket to heaven" (Ridley, 1997, p. 131). If we fail, however, the consequences are invariably expected to be dire. Taking the benefits without meeting those obligations is, in effect, to cheat the gods, who in turn would be expected to become enraged and exact some form of revenge and/or punishment. In many cases such understood agreements take the form of a formal agreement or covenant, as in the Old Testament.

Most religious belief systems include reference to, if not emphasis on, ethical rules and norms. And despite considerable cross-cultural variability, certain moral precepts appear to be universal. Perhaps most evident among these are ethical mores reflecting the principles of reciprocal altruism, fair social exchange, and the detection and punishment of cheaters. Virtually all such codes, from Christianity to Confucianism, include some variation on the Golden-Rule theme "do unto others as you would have them do unto you," which is about as explicit a statement of reciprocity as one could hope to find. Numerous theorists have argued that morality is largely a direct outgrowth of evolved mechanisms designed to promote mutualism or reciprocal altruism. Conversely, moral systems (including religious ones) typically deal with the issue of retribution or retaliation against wrongdoers. The idea of "an eye for an eye" seems to go hand-in-glove with the Golden Rule, and similarly appears a fairly direct reflection of the same reasoning. In this way ethical systems, including religious ones, reflect our evolved patterns of reasoning about social exchange.

*Coalitional Psychology*

Another central feature of our evolved psychology, one shared with many of our primate cousins, concerns coalitional psychology. In short, our evolved psychology appears to contain a suite of mechanisms for distinguishing the good guys from the bad guys, or the ingroup from the outgroup, and then giving preferential treatment to the good guys. In chimpanzees, shifting coalitions and alliances are a crucial factor in determining dominance hierarchies; the alpha male is not necessarily the biggest and strongest, but rather the one most successful in recruiting others to his cause and maintaining loyalty among his collaborators (which include both males and females, incidentally). When allegiances shift, so do leadership and dominance. In humans, these mechanisms operate with remarkable speed and efficiency, as demonstrated in many classic social-psychology studies and more recent work related to *social identity theory*.

Shared religious beliefs and labels define ingroups, and fellow ingroup members receive preferential treatment vis-à-vis outgroups. Shared beliefs and interests help to cement the ties within smaller, homogeneous tribes and villages, or within subpopulations within larger, heterogeneous societies as in the modern West. The psychology of religion provides numerous examples of ways in which religious groups may serve this function, with religious fellowships providing a sense of community and belonging among parishioners. Recruitment methods of religious cults illustrate the theme by targeting the lonely and disaffiliated and the use of “love bombing” and other techniques to quickly make recruits feel valued as group members.

The darker side of coalitional psychology, of course, is that favoritism toward ingroup members necessarily entails the opposite treatment for outgroup members; they are two sides of the same coin. There can be little doubt that although religious group affiliations can have positive effects on self-esteem and intragroup cooperation, it also has a long history of fostering hatred and conflict. I won't insult the reader's intelligence by providing a lengthy list of bloody conflicts promoted and/or perpetuated by religion.

Perhaps the oldest and most vexing question in psychology of religion is how religious traditions that preach brotherly love can simultaneously be a source of such hatred and warfare. In one sense there really is no paradox, because the prescription to “love thy



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neighbor” typically applies only to real neighbors—that is, other members of one’s ingroup. Similarly, the much-studied relationship between religion and various forms of prejudice can be understood from the perspective of coalitional psychology. Indeed, well before his introduction of the intrinsic-extrinsic distinction, Allport (1954, p. 449) concluded that “bigotry enters only when religion becomes the apologist for in-group superiority and overextends itself by disparaging out-groups for reasons that extend beyond deviation in creed.”

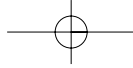
The Cognitive Origins of Religious Belief

I have discussed how a diverse collection of psychological mechanisms or systems, evolved for guiding social behavior in various ways, lies beneath religious thinking. However, we eventually need to confront a more basic issue, which is how such beliefs can get started in the first place. Attachment theory explains nicely why beliefs about personalized deities tend to take certain forms, for example, but cannot explain why people find the idea of God or other supernatural phenomena plausible to begin with. Moreover, a comprehensive framework for understanding religion must be capable of explaining religious belief systems not characterized by personal gods, and should be able to explain the origins and (cultural) evolution of religious beliefs over human history, beginning with historically ancient religious or proto-religious beliefs. To this end I now review some recent evolutionary perspectives on the cognitive origins of religious beliefs that may shed light on how this might have occurred, and that provide the psychological foundation for the more specific forms of beliefs discussed previously.

Evolved Mechanisms for Thinking about the Natural World

Humans (like only some other organisms) evolved in a highly social environment in which, due to a species-universal evolved psychology, the behavior of other people was at least somewhat predictable and stable. It makes good sense then that humans have evolved a suite of psychological mechanisms that reflect recurrent and predictable properties of their physical and social worlds, as they related to adaptive problems of survival and reproduction.

Much research now demonstrates convincingly that children are aware of a variety of basic principles of physics at a much younger



age than can reasonably be attributed to direct experience and logical inference. Even infants appear to be able to distinguish animate from inanimate objects, presumably based on cues about motion and behavior. For example, objects that display self-propulsion, or whose trajectories of motion defy expectations about inanimate objects, appear to be classified differently by infants as young as three months of age. Humans appear to come equipped with innate knowledge and inferential reasoning mechanisms that have been referred to alternatively as *naive* (or *folk*) *physics*.

A second body of research on cognitive development amply demonstrates that very young children understand the ontological difference between living and nonliving objects and reason in fundamentally different ways about them. Further, they readily understand that various “living kinds” differ among themselves in fundamental ways, and distinguish between deep and superficial differences among types. At the heart of reasoning about living kinds appears to be the implicit assumption that each species or group is characterized by a sort of Platonic ideal, a phenomenon referred to as *psychological essentialism*. One can bleach a tiger and sew on a mane, but even second-graders understand it remains a tiger and does not thereby become a lion; its essential “tigerness” has not been altered. There is some kind of essence of tigerness and lionness that makes tigers and lions fundamentally different at a deep level. Humans seem to come equipped with certain “innate” knowledge in the realm of *naive biology*.

A third well-established category of innate reasoning mechanisms concerns *naive psychology* or *theories of mind*, by which they interpret other people’s behavior in terms of beliefs, desires, and other (unobservable) mental states. As summarized by Boyer (1994, p. 110), such “belief-desire psychology” is “a set of tacit principles and expectations which govern our understanding of mental phenomena and observable behavior . . . do not constitute a full-blown psychology . . . but form the basis on which subjects construct all ordinary causal attributions.” Of course, such theories of mind, once in place, guide our thinking about other people throughout the remainder of our lives; we are all amateur psychologists.

Interestingly, it does not take much to activate a theory of mind inappropriately in regard to mindless things. In a classic experiment, adults as well as children readily described animated movies of geometric figures in terms of beliefs and desires of these objects—for example, that one was chasing or trying to escape from another.

Guthrie (1993) reviews a variety of studies of this type as well, demonstrating the general principle that people readily interpret the behavior of non-human objects as if they had human feelings, emotions, and goals. If you have doubts, just think about the last time you cursed at your computer.

The Psychology of Complex Thinking: How the Mind Works

The Swiss-army-knife model of the human mind, as a collection of numerous domain-specific mechanisms each designed to solve mundane problems of survival and reproduction in ancestral environments, may seem intuitively not to square with everyday experience and observation. How does one get the human hallmarks of creativity and flexible intelligence out of highly domain-specific psychological mechanisms? In his extraordinary book, from which I borrowed the title of this section, Pinker (1997) provides the most comprehensive explanation to date of “how the mind works.” Combining the latest work from the recent explosions of both cognitive neuroscience and evolutionary psychology, Pinker discusses many ways in which complex reasoning and behavior are created by cobbling together and exchanging information between simple mechanisms designed to solve simple problems, and/or applying mechanisms designed for reasoning about one kind of problem to a new kind of problem. “Higher” forms of complex thinking and reasoning are constructed from innate psychological mechanisms for reasoning about the physical, biological, and psychological world, along with processes of language understanding and acquired knowledge about the world.

Pinker identifies the principal trick of complex thinking as the use of *analogy* and *metaphor*—that is, the application of inferential modules to tasks outside the particular content domains for which they were intended. Mithen (1996) has similarly focused on analogical reasoning as a basis for an account of how evolution might have created modern minds. In both views, natural selection designed a highly modularized brain/mind comprising domain-specific mechanisms, each adaptive for (and thus activated by) particular problem contexts: one tool for each task. More complex thinking is the product of applying a particular psychological mechanism—or, more likely, a combination of mechanisms—to perform a novel task for which it was not specifically designed. A screwdriver is designed specifically



for tightening loose screws, but a little creative thought reveals that it can be used to pry apart two surfaces, dig a hole, scrape paint off a board, or, serve as a doorstep. Psychological mechanisms similarly can be drafted into service for purposes other than those for which they were primarily designed.

The Cognitive Building Blocks of Religious Belief

This idea that complex reasoning involves the application of evolved psychological mechanisms beyond the stimuli for which they were “designed” by natural selection can be applied to the fundamental building blocks of religious belief.

Most animate objects in ancestral environments were animals of various kinds, and most inanimate objects were not. However, situations abound in which brains misinterpret inanimate objects as animate. “All humans and many animals display animism: mechanics see tools as rebellious, runners see distant fire hydrants as dogs, horses see blowing papers as threats, and cats see fluttering leaves as prey” (Guthrie, 1993, p. 6). Chimpanzees have been observed engaging in angry threat displays in response to the onset of heavy rains, sudden strong winds, waterfalls, and rapid streams. However, they do not respond in this way to other forms of movement; for example, they do not seem to “interpret” a falling leaf or branch as if it were alive. Likewise, human gods are, to my knowledge, not typically invoked to explain why a thrown object eventually falls to the ground.

Animism—in the sense of belief in spirit beings—has long been regarded by anthropologists as characteristic of some of the earliest or most “primitive” forms of religious belief. Guthrie (1993) suggests an animistic bias is essentially built into our perceptual system. When confronted with ambiguous stimuli, it is generally safer to assume a higher level of complexity than a lower one. A hiker in the woods doesn’t have time to ponder whether the object just ahead is a bear or a boulder, or whether the object at his feet is a poisonous snake or a harmless stick. With respect to religion, then, it should come as no surprise that gods and spirits of the earliest known religions frequently are associated with environmental objects that appear to display self-propulsion or other characteristics that distinguish animate from inanimate objects, such as the sun, moon, and stars, and weather phenomena such as storms, rain, and wind. Although Guthrie never spelled out his safe-bet argument explicitly in evolutionary

terms, Atran (2002) has since done so. Atran argues that the evolved human *agency-detector* mechanism is designed to operate on a hair trigger, leading to frequent errors in attributing agency to inanimate objects or unseen forces influencing them.

The natural intuitions about inherent differences among living kinds and psychological essentialism permeate a variety of common themes in religious thinking. For example, a central defining aspect of religion, in the view of at least some researchers, concerns the imbuing of “sacred” or “holy” status to objects, thoughts, or people. The crucial psychological factor seems to be perception that something holy or sacred has a distinct *essence* that defines it as a different “natural kind,” and that is unaffected by superficial transformations. The belief among many preliterate peoples in “a hidden or secret force which operates silently and invisibly in things and persons that in some way especially powerful, impressive, or socially important” and that “resides in the tribal chieftain, in animals, plants, and rocks of a significant kind”—*mana*, as labeled by anthropologists (Smart, 1976, p. 29)—seems little more than a matter of making such implicit thoughts explicit. The widespread if not universal belief in life after death may also have its roots in psychological essentialism. Although the details of such beliefs vary greatly, from reincarnation to eternal heaven or hell, they always revolve around the core idea that some kind of internal essence (e.g., “soul”) of a person transcends physical form and continues to exist after death.

Perhaps the single most important domain among these “folk theories” for understanding religious belief is *theory of mind*, and the process of psychological *anthropomorphism* by which theories of mind are (mis)applied to nonhuman objects or creatures. Once a target is identified by the mind as human-like, and theories of mind whirl into action, people assign the target desires, beliefs, motivational states, and emotions, on the basis of which they draw further inferences in regard to how they themselves should behave in interaction with these beings.

Indeed, to Guthrie (1993) religion *is* anthropomorphism. His explanation for the readiness to anthropomorphize is analogous to his explanation for animism: Given ambiguity as to whether an animate object is human or nonhuman, it is a “safer bet” to assume the higher level of complexity; it is usually better (i.e., less costly) to mistake an animal for a person than the other way around. In other words, anthropomorphism represents a kind of inevitable error resulting



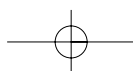
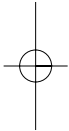
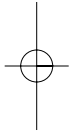
commonly from the design of our evolved psychology (cf. again Atran, 2002). Evidence for the anthropomorphizing inherent in people's reasoning about God has been demonstrated in the laboratory.

Why Religious Beliefs Succeed

The idea that religious beliefs represent analogical extensions of our evolved psychology seems straightforward, but raises some intriguing questions about how and why this happens. Of all the possible mechanisms that could be "misapplied" to new domains, for example, why are certain analogical forms of reasoning common and others rare?

The first kind of explanation involves calibration or bias in the design of evolved mechanisms. Although it may seem intuitive that natural selection would have designed psychological mechanisms to be as accurate as possible, this is not necessarily true. The important fact to keep in mind is that the criterion by which evolution determines what stays and what goes is not *accuracy*, but *adaptiveness*. Rabbits are designed to make a lot of Type I errors in determining when to run for cover; it is much more costly for a rabbit to mistake a predator for a benign rustling of leaves than the other way around. Ancestral rabbits with unbiased predator-detection systems did not become rabbit ancestors. The same is no doubt true for many other psychological mechanisms of both rabbits and people. The animistic and anthropomorphic biases discussed above illustrate this reasoning.

A second reason why religious beliefs stems from a characteristics of such beliefs themselves: According to Boyer (1994, 2001), religious beliefs are different from other kinds of beliefs in that they are (or involve the) *extraordinary*. Central to a religious belief are one or more strongly *counterintuitive* ("nonschematic") aspects, in the sense of violating the kinds of innate knowledge and reasoning structures described earlier. Constrained by these culturally specific counterintuitive beliefs, people then fill in the gaps and draw further inferences based on other principles of intuitive physics, biology, and psychology. The most powerful ideas are those that achieve what Boyer refers to as a *cognitive optimum*: a combination of intuitive and counterintuitive beliefs that involves enough of the former to be plausible, but enough of the latter to be intriguing, exciting, and memorable. Numerous empirical studies by Boyer, Atran, and others have demonstrated that optimal balances of intuitive and counterintuitive beliefs are particularly attention-grabbing and memorable.



Beyond Religion: Other Forms of Thought and Belief

One problem in attempting to define religion is that however one chooses to do it, there are always grey areas around the edges: “Religion” shades into various other forms of thinking, belief, and experience that some definitions include and others exclude from consideration. A comprehensive theory of religion should be able to deal with such cases, as well as the fact that these pseudo-religious beliefs then shade into forms of everyday thinking.

One domain of phenomena that seem clearly related to religious beliefs in some ways is that of parapsychology and other supernatural beliefs. Consider, for example, claims about clairvoyance, ESP, and telepathy. First, one might note that psychological *essentialism* and beliefs about *natural kinds* (i.e., *naive biology*) are immediately evident: the person with such abilities is believed to have some kind of special powers, abilities, or essence that makes him or her importantly different from the rest of us—as with beliefs about shamans, clergy, and other religious leaders noted earlier. Second, such beliefs typically reflect *combinations* of intuitive and counterintuitive ideas as discussed by Boyer with respect to religious beliefs. The ability to “see” the future (clairvoyance), or to move objects using “psychic energy” (telekinesis) involve violations of naive (and real) laws of physics; bringing people back from the dead (e.g., seances) involves violations of naive (and real) biology; reading others’ thoughts directly (ESP) involves violations of naive (and real) psychology. Apart from these nonintuitive claims, however, paranormal activities look entirely mundane: telekineticists simply bend spoons or “push” objects an inch or two along a table; they don’t transform spoons into pigeons.

Just as modern beliefs about a variety of paranormal phenomena shade into “religion” through a wide grey swath, these beliefs in turn shade into other, more mundane forms of everyday thought and commonsense reasoning. Research on everyday reasoning in social psychology has long focused predominantly on the problem of identifying and explaining errors in human information processing and “judgments under uncertainty.” Much of this research, like religion and other supernatural beliefs, is understandable from the perspective developed here. That is, because the brain/mind has evolved via natural selection in ways that, in ancestral environments, were *adaptive*—not necessarily accurate or correct—what is remarkable is not that people sometimes err on statistical or logic problems, but



rather that they can do them correctly at all. We have seen several reasons why systematic errors in reasoning are foreseeable, such as inherent biases in cognitive systems (e.g., paranoid rabbits) and mismatches between evolved mechanisms and modern environments (e.g., attempting to solve artificial problems designed by devious experimenters in the laboratory).

By the same reasoning, we might continue slipping down the slope and ask about forms of thought that are intended to be “unbiased” and “objective.” In particular, we might ask about science itself, which is the “form of thought” I have adopted in this book. Scientists, as people, are subject to the same kinds of cognitive biases as anyone else. The secret to science’s ability to succeed in better approximating objective truths about the world than other forms of knowledge lies in its methodology: The principles of experimental control, double-blind studies, statistical procedures for controlling extraneous variables, and so forth are designed to defeat the effects of the scientists’ own psychological shortcomings and biases.

Beyond Genes: Learning, Rationality, and Culture

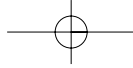
Up to this point, my religion-as-evolutionary-byproduct view has generally cast human thinking and behavior—and especially religion—as simply spilling out of our evolved psychology, like water running down a hillside. The peaks and valleys of the landscape represent, in this metaphor, our evolved psychology; religion is the water following the natural contours of the land, flowing down from the peaks and winding through the valleys (Atran, 2002).

In stark contrast, however, is an alternative perspective with a long intellectual history that views religion in precisely the opposite manner: as a cultural construction that has emerged *in spite of*, and whose function is that of *opposing* or *constraining*, our evolved psychology. Freud (1961/1927) was probably the most (in)famous proponent of this alternative view, arguing that civilization in general, including religion in particular, was fundamentally about taming our base animal instincts. A more contemporary (and evolutionarily more sophisticated) version of the idea was espoused by Donald Campbell (1975). In Campbell’s view, religious traditions reflect the experience and knowledge of many generations, accumulated via a lengthy process of trial-and-error learning, that function to keep our biology under control.

Most of what I have written here reflects the downhill metaphor, but I have mixed in a few examples more consistent with the dam metaphor without (I now confess) acknowledging having done so. “Kin-talk,” for example, was discussed as a gambit designed to induce altruism toward people who otherwise would be treated differently. The ethical systems inherent in most organized religions, as illustrated by the Ten Commandments and proscriptions against the Seven Deadly Sins, read like lists of base desires upon which, we fear, we will all be tempted to act unless prevented from doing so. Such examples pose an obvious problem for evolutionary explanations. Adaptationist hypotheses are clearly useful for explaining adaptive behavior, more or less by definition, but explaining *maladaptive*—that is, from a strict inclusive-fitness perspective—behavior requires additional work.

The short answer is that there is, of course, far more to explaining religion than evolution and genetic fitness. The causal path from genes to religion is a long and circuitous one, with many levels of analysis interposed in between. Although natural selection (and its criterion of reproductive success) is a *distal* or *ultimate* cause in the production of any behavior, many other *proximal* levels of analysis mediate the causal path from genes to behavior. Moreover, each of these levels operates according to different principles—that is, principles other than inclusive fitness—which produce behavioral choices according to criteria other than success in gene propagation. For example, individual learning and rational thinking lead people to behave in ways that they perceive to be beneficial to themselves as *individuals*, not their genes.

Numerous theoretical models have been developed, mainly by biologists and anthropologists, that attempt to combine and integrate the processes of biological (genetic) evolution with those of *cultural* evolution. Such models go by names such as *gene-culture coevolution*, *multi-level selection*, and *dual inheritance*. Although differing in many ways, such models are all in agreement that social learning and cultural transmission give rise to Darwinian-like processes in the selection of ideas and behaviors at the cultural level, in ways that sometimes parallel and sometimes diverge from processes of biological evolution at the level of genes. Evolution has given us a taste for cheesecake, but we can choose not to eat it if wish.

*Summary and Conclusions*

In this essay and the book it summarizes, I have tried to paint a large-scale “big picture” for the psychology of religion in broad strokes, and fill in the details for one (perhaps small) part of it regarding the attachment system. To close, I summarize what I see as some of the principal strengths of this approach and its potential value for organizing and guiding the psychology of religion in the future.

First, this approach to psychology of religion is unambiguously “psychology” first, and “of religion” second. Religion is a topic of investigation in the same manner as any other domain of cognition, affect, or behavior, and can be understood in terms of the same psychological and social processes that underlie other phenomena of interest to psychologists. Thus the approach promises to integrate the psychology of religion back into the mainstream of psychological science, from which it has largely been estranged in recent decades.

Second, as a broad paradigm, evolutionary psychology promises to provide an integrated approach to psychology, one that ties together its various subdisciplines (social, personality, etc.) in a coherent theoretical way. Because the topic of religion transcends these traditional boundaries, the psychology of religion must be based on a psychological framework that organizes and binds these various subdisciplines.

Third, the evolutionary paradigm promises to not only integrate psychological perspectives, but to integrate psychological approaches to religion with those from anthropology, sociology, political science, and other social sciences. Although each of these fields represents a level of analysis of religion different from psychology, each must be founded upon a clear understanding of human psychology. The ideal “scientific study of religion” must be truly interdisciplinary, not merely multidisciplinary, and a shared evolutionary perspective promises to provide a common conceptual framework and language to facilitate cross-disciplinary communication and collaboration.

Fourth, the perspective for which I have argued offers a coherent way to combine questions about normative processes in religion—for example, questions such as “Why are people religious?”—with questions about individual differences in religiosity. At least within psychology, researchers seem to have largely given up in recent years on the big questions about the fundamental (psychological) nature and origins of religious belief, choosing instead to focus on individual

differences on various religious dimensions and their correlates. Moreover, the evolutionary perspectives provide a strong foundation for conceptualizing, predicting, and studying empirically sex differences (or lack thereof) across different domains of religious belief and behavior.

Fifth, the evolutionary approach to religion, in contrast to most extant approaches that are mainly descriptive in nature, is at heart a *functional* approach. This is particularly important with respect to questions about *motivation*. Psychologists of religion have long been interested in questions of motivation, and have been quick to nominate candidate motivations for explaining religion: People are religious because it enhances their self-esteem, or creates meaning, or assuages their fear of death, and so forth. However, in the absence of a larger evolutionary framework, there is no basis for digging more deeply to ask why people would be so motivated. An evolutionary psychology of religion begins with a strong theoretical foundation for thinking about function, and then applies this functional perspective to religious phenomena of interest.

Sixth, given the complex and multifaceted nature of religion, religion researchers—like scientists studying any other complex phenomenon—have long sought a framework for analyzing the subject into smaller components to be examined separately. In the absence of any clear theoretical structure, such divisions tend to be fairly arbitrary, based mainly on salient observable features, superficial similarities and differences, and intuitive judgments. An evolutionary perspective provides a clear theoretical basis for “carving nature at its joints” in constructing an organizational scheme for the psychology of religion (or anything else). Rather than arbitrarily dividing religion into descriptive categories such as images of God, prayer, or causal attributions, it provides a means for dividing up the terrain in functional ways that are more likely to lead to theoretical progress.

Seventh, this approach serves to bring back into focus the *content* of religious belief. The so-called “measurement paradigm” in the psychology of religion has produced, to a large extent, a conceptualization of religious variability in terms of highly abstract dimensions, such as intrinsic-extrinsic orientation or spiritual development. Lost in these abstractions has been the details of what people actually *believe*. The specific content of beliefs dictates the psychological systems likely to be activated to process them and the kinds of



inferences likely to be drawn from them. An evolutionary psychology of religion would shift the focus away from abstract intellectualizations back to what religion is really *about*.

Eighth, evolutionary psychology offers the only coherent framework for conceptualizing the ancient nature-nurture debate which has crippled psychology (including the psychology of religion) from its inception. All human behavior is the product of both environmental input and specialized, evolved psychological mechanisms designed to process it. Religious belief and behavior are neither “in our genes” nor merely “in the environment,” but rather result from a combination of our particular psychological architecture interacting with specific environments. The evolutionary approach provides a framework for identifying both the psychological mechanisms and the environmental factors that interact with them to produce various forms of religious belief and behavior.

Finally, the approach outlined here avoids several pitfalls that have long proven to be stumbling blocks for the psychology of religion. For example, much psychology of religion has fallen into a deep *definitional trap*. In the absence of a strong theoretical (and particularly functional) foundation from which to start, researchers have tended to begin with observations and work backwards toward a theory to explain it. Such an approach would seem to necessitate that one clearly define the target of explanation before proceeding any further. However, the quest for an acceptable definition of the term *religion* itself has proved utterly intractable, leaving the field stymied. This problem need not arise if one begins from the perspective of theory: Armed with a host of hypotheses about the particular kinds of psychological mechanisms and systems that comprise the human mind, as well as clearly articulated theories about what these systems were “designed” to do, a researcher can begin applying these ideas to any particular topic of interest irrespective of whether it fits one or another definition of religion.

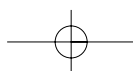
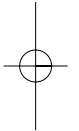
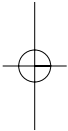
Attempts to escape this definitional trap have tended to lead researchers into another, *measurement trap*. A common solution to the complexity and diversity of religion (and hence its resistance to a simple definition) has been to dimensionalize it based on (mainly) factor-analytic work. The hope is that analysis of descriptive data on religion will produce a multi-dimensional framework that both defines religion empirically and provides a basis for construction of scales



to measure these various aspects. Whether dimensions so constructed actually relate empirically to psychological variables of interest is another question, the answer to which is often likely to be no. A strong theoretically based orientation, however, provides a basis for constructing measures designed specifically to tap the particular aspects of religious belief or behavior relevant to the psychological domain of interest.

The psychology of religion has been plagued from the beginning by extra-scientific evaluative assumptions: the *evaluative trap*. A central question of interest to many researchers concerns whether religion (or some particular aspect of it) is “good” or “bad” for people with respect to individual psychology, group functioning, or some other criterion. If I am correct about religion as a byproduct rather than an adaptation, then there is no a priori reason to expect it to be generally “good” or “bad” for people.

Related to the evaluative trap is the *veridicality trap*: The common but patently false assumption that if a belief can be understood scientifically—e.g., in terms of psychological processes—then the beliefs are themselves false. There generally is no reason why any scientific approach to understanding religion need assume that the beliefs under study are either ontologically true or false. The origins (psychological or otherwise) of a belief are logically orthogonal to the veridicality of belief; to infer otherwise is to commit the *genetic fallacy*. This holds true for any scientific approach to religion, whether evolutionarily grounded or not. However, I believe the evolutionary psychological approach outlined here offers an additional insight that may help us avoid the veridicality trap. Recall the argument that the human brain/mind was “designed” to be *adaptive*. It is decidedly *not* designed to be “accurate” or “correct” as judged by logical or other empirical standards, except insofar as accuracy is adaptive in a given domain. Once this is acknowledged, there is no a priori reason to believe that any particular kind of belief, whether religious or not, should be expected to be correct or incorrect. The mind is designed in such a way that, depending on any number of factors, it sometimes draws correct inferences and sometimes incorrect ones. An evolutionary psychology of religion addresses the question of why and how people come to hold (as well as reject, communicate, etc.) particular beliefs in which we are interested, irrespective of the question of whether they are true or false.



It is for these reasons that I believe evolutionary psychology provides a powerful metatheoretical paradigm for organizing all social-scientific research on religion. There is, however, one hitch in the plan: The field of psychology in general has yet to adopt the evolutionary paradigm as its own. Evolutionary psychology is certainly gaining in popularity, and it seems to me inevitable that it will eventually rise to become a leading, if not the predominant, paradigm for the field. Nevertheless, it is not at all clear how long this will take.

In the meantime, psychologists of religion can either wait for “the revolution,” hopping on the bandwagon when it finally comes around, or they can go ahead and start moving in that direction and beat the bandwagon to the pass. The question is not whether evolutionary psychology will prove to be an important tool for the psychology of religion, but when. I say we might as well get started.

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