1. OUT OF AFRICA:
LESSONS FROM A BY-PRODUCT OF EVOLUTION

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Dr Faust: *Habe nun, ach! Philosophie,*
Juristerei und Medizin,
Und leider auch Theologie
Durchaus studiert, mit heißem Bem.ühn.
Da steh ich nun. ich armer Tor!

Faust. I. 1

What happens in religion can be explained in terms of human propensities that would be there, religion or not. The study of religion is like that of politics, poetry, gardening or mass murder. Such a study simultaneously *deflates* and *reduces* those cultural phenomena. It shows that they are only particular illustrations of more general processes of human behavior and also shows that they are explained by these processes. Indeed, one great merit of cognitive approaches is to show how the human notions and norms and behaviors we usually call "religion" can be explained in terms of mental processes and social dynamics that are potentially present in all human beings and present in a variety of other cultural domains. This is also why the dull business of demarcating what is "religion" from what is not is better left to lexicographers; it should not unduly trouble scholars. Whether accounts of religion are of interest depends, not on where they place its boundaries but on how they account for the observed behavior they purport to explain. Cognitive studies of religion, inaugurated by such works as *Rethinking Religion,* offer such causal accounts. My aim here is to recapitulate some of the achievements of this novel enterprise and to point to some possibly important, though as yet unexplored consequences.

Organized and Traditional

We commonly call "religions" two rather disparate sets of objects. There is a set of so-called "world religions" or doctrines of great diffusion, such as Judaism, Buddhism or Islam. There is also what anthropologists, when they are in the mood for categorization, call "traditional" religions: systems of beliefs and practices that are firmly rooted in some local social relations, with little explicit theology' and no corporation or guild of religious officers. For many understandable reasons, scholars of religion have generally established their base-camp in a thorough knowledge of "world religions." From this starting point they then tried to climb all the way up to a general understanding of religion in human kind. This however was not always very successful, despite the many new and fascinating vistas opened to scholarly exploration. This was probably unavoidable. Studying doctrinal religions is all too likely to lead one onto a false trail, as far as religion in general is concerned. This is because doctrinal, so-called "world" religions are a secondary, derivative development of a much more general and deeply human tendency to imagine important supernatural agents and to entertain precise descriptions of their powers. Without an understanding of this general mental disposition one does not understand much of the special case of "religions" armed with an official personnel, some theologians, an important economic role and an affinity for political power. So bongo drums (as a metonym for religion in general; are very likely to explain a lot that we need to know about crucifixes (standing for corporate, doctrinal religion) rather than the other way around.

The focus on what we are familiar with—those highly doctrinal phenomena people call "world religions"—is the source of many a confused \iew about religion. For instance, it is in my experience exceedingly difficult to convince most people of straight facts that are familiar to any anthropologist: that most religion is not about the creation of the world, that it is rarely about God, that it is very seldom about the salvation of the soul. More important and even more difficult to impress upon most people: most religion has no doctrine, no set catalogue of beliefs that most members should adhere to, no overall and integrated statements about supernatural agents. Most religion is piecemeal, mostly implicit, often less than perfectly consistent and, most importantly, *focused on concrete circumstances.* People

use their religious concepts to account for their uncle's death or their child's illness or their neighbor's good fortune, not to explain the persistence of evil or the existence of the universe. So most religion in the world has nothing to do with what our common explanations of religion would assume.

Another error is just as common and even more damaging. It consists in thinking that some societies or groups happen to have "world" or "organized religion" and others have what would be generally called "traditional religion," in the same way as some people are nomadic and others sedentary. In this view, the Kwaio people in the Solomon Islands for instance have a religion that happens to be of the "traditional" type (no set doctrine, no interest in cosmic conundrums, no explicit discourse about transcendence), while that of Christian Americans is of the "organized" type. This way of seeing the contrast between those two genres of religious activity may seem plausible enough. It seems to be accepted, if tacitly, in most general presentations of the subject, student textbooks and scholarly reflections. It is in fact terribly misguided and the origin of many confusions in the study of religious thought.

The contrast is misguided because so-called "organized" religion, with explicit doctrine and specialized personnel, never *displaces* the other kind; it *supplements* it. It is an add-on. an extra layer, an additional growth. What anthropologists usually describe as "traditional" religion is based on ways of thinking—about supernatural agents, about their interest in moral action, about their responsibility in human misfortune, etc.—that we find in all human groups. True, in some societies (including the ones most readers of this book belong to; there is *also* a totally different, integrated, explicitly argued version of religion, produced and fostered by specialists gathered in corporate associations. But this, the evidence suggests, does not really change most people's intuitive adherence to the more common ways of thinking. Many Christians probably think that, as far as religion is concerned, their minds are filled with Christian doctrine, or at least with notions and norms derived from Christian teachings. Most professionals of religion, as it were, priests and ministers and theologians, maintain a similar belief. Many students of religion also believe that. But nothing could be further from the truth. Doctrinal religion is a veneer that certainly covers, often conceals non-doctrinal concepts but which would not hold without the underlying material.

Indeed, people's adherence to the doctrine actually requires intuitive, generally unconscious ways of thinking that stray far from the doctrine and in some cases contradict it.

Out of Africa: Religious Thinking in Generic Human Beings

To understand why this is so, it may be of help to recapitulate the key conclusions of cognitive studies of religious thought and behavior. Though the research program is still developing, it already provides us with a broad sketch of general features of religious concepts and ritual, as well as detailed studies of few—too few- empirical cases. Here are the essential points in my view:

- The way we acquire, store, organize religious concepts is to a large extent inaccessible to conscious inspection.

This is not so surprising, since the mechanics of concept acquisition and maintenance *in general,* just like other cognitive mechanics, are outside conscious access. We do not know or experience how our visual cortices translate retinal images into the illusions of 3-D scenes. We do not know or experience how other cortical networks produce grammatical sentences. In the same way. we do not know or experience the processes whereby we attribute agency to unobserved agents, or moral judgments to those same imagined agents. The way to reveal how this takes place is not, or not just, to ask people what their "beliefs" are—for people do not believe what they believe they believe. The only way is to run experiments, test models of cognitive structure, measure how well these models account for observed religious behavior.

- Most religious concepts are parasitic upon mental systems that would be there, religion or not.

Cognitive studies reach a similar conclusion in several distinct domains of religious thought. It turns out that having religious concepts does not require specific mechanisms in the mind, dedicated to religion. Compare with vision for instance, or language comprehension, or the understanding of other people's emotions, which all require specific functional structures. Religion seems to be *parasitic* in the sense that all the systems involved in its acquisition and its mental effects would be there, religion or not. Naturally, there is nothing especially derogatory in saving that religion is parasitic in this precise sense, since aesthetic pleasure for instance is parasitic in that way too. Let me recall some of the domains in which this parasitic nature of religion is best illustrated:

- Religious ritual is parasitic upon action representations.

The pattern for cognitive explanations of religious behavior was set by *Rethinking Religion.* That volume demonstrated that the processes whereby human beings represent actions *in general* (any action from the humble to the sublime, from the quotidian to the heroic; are sufficient to account for the structure of religious ritual. But *Religion Explained* also pointed to two features that were found in many other-domains. First, what explained the apparently specific features of the religious domain was a minor modification or "tweaking"" of the more common processes. Second, these common processes are spontaneously activated in people, they do not require cultural transmission; only the specific features that "tweak" them are socially transmitted. Beyond ritual action, one can observe similar features in other domains of religion:

- Religious agency (gods, spirits, ancestors, etc.) belongs to a larger repertoire of supernatural agents defined as violations of intuitions about agents.

This is the clearest example of the tweaking process. The material of religion does not in this respect differ from that of folklore. There is a small repertoire of possible types of supernatural characters, most of whom are found in folktales and other minor cultural domains, though some of them are the important gods or spirits or ancestors of "religion."" Most of these agents are explicitly defined as having counter-intuitive properties that violate general expectations about agents. They are sometimes undetectable, or prescient, or eternal. The way people represent such agents activates the enormous but inaccessible machinery of "theory of mind" and other mental systems that provide us with a representation of agents, their intentions and their beliefs. All this is inaccessible to conscious inspection and requires no social transmission. On the other hand, what is socially transmitted are the counter-intuitive features: this one is omniscient, that one can go through walls, another one was born of a virgin, etc.

- Interaction with religious agents is parasitic upon cognitive systems for social interaction.

Social interaction requires the operation of complex mental systems: to represent not just other people's beliefs and their intentions, but also the extent to which they can be trusted, the extent to which they find us trustworthy, how social exchange works, how to detect cheaters, how to build alliances, and so on. Again, these mental systems are largely inaccessible, only their output is consciously represented. Now interaction with supernatural agents, through sacrifice, ritual, prayer, etc., is framed by those systems. Although the agents are said to be very special, the way people think about interaction with them is directly mapped from their interaction with other people.

- Religious morality is parasitic upon non-religious moral intuitions.

Developmental research shows the early appearance and systematic organization of moral intuitions: a set of precise feelings evoked by the consideration of actual and possible courses of action. Although people often state that their moral rules are a consequence of the existence or of the decrees of supernatural agents, it is quite clear that such intuitions are present, independent of religious concepts. Moral intuitions appear long before children represent the powers of supernatural agents, they appear in the same way in cultures where no one is much interested in supernatural agents, and in similar ways regardless of what kind of supernatural agents are locally important. Indeed, it is difficult to find evidence that religious teachings have any effect on people's moral intuitions.[1] Religious concepts do not change people's moral intuitions but frame these intuitions in terms that make them easier to think about. For instance, in most human groups supernatural agents are thought to be interested parties in people's interactions. Given this assumption, having the intuition that an action is wrong becomes having the expectation that a personalized agent disapproves of it. The social consequences of the latter way of representing the situation are much clearer to the agent, as they are handled by specialized mental systems for social interaction. This notion of gods and spirits as interested parties is

[1] Most students of religion take fur granted that religiously coded morality *must* have an effect on people's moral intuitions. I have yet to come across any actual *evidence* for this effect. True, people's explicit discourse, whereby they justify the intuitions, is certainly affected by local religious concepts. But that kind of discourse is *a posteriori.* We haw no evidence that it modifies the intuitions themselves. On the contrary, cross-cultural evidence shows a great convergence in moral intuitions despite great differences both in explicit moral codes and in supernatural beliefs.

far more salient in people's moral inferences than the notion of these agents as moral legislators or moral exemplars.

- Notions of ritual specialists are based on non-religious notions of causal essence.

In most human groups some people are thought to be in a privileged position to interact with supernatural agents. A clan's patriarch is evidently the best interlocutor for the ancestors, a local shaman has what it takes to negotiate with wayward spirits. People think of such ritual specialists as having some internal, vaguely defined quality that sets them apart from the common folk. Learning to perform the rites, or acquiring the secret anti-witchcraft recipes, are secondary; what matters most is possession of that internal capacity, construed in quasi-biological terms. This is where, once again, what may have seemed a specifically religious phenomenon is derived from common cognition. The notion of a hidden causal essence that cannot be observed yet explains outward form and behavior, is a crucial feature of our spontaneous, intuitive way of thinking about living species. Here it is transferred upon a pseudo-natural kind, as it were: a subkind of human agents with different essential characteristics.

Note that, so far, we have considered the most important domains of religious thought and behavior—supernatural agency, ritual action, morality, misfortune, ritual specialists -without mentioning what would be to some people the *sine qua non* of religion. There has been no mention of transcendence, of infinite power, of cosmology, of how-souls get saved or why evil exists. This is because such questions arc blithely ignored by most people in most places in the world, and have been so for most of human history, as far as evidence can tell. Religion does not exist because of the need to answer such questions, far from it. Such questions are a special, local development that arose in societies where religion had become the affair of a guild of specialists. If by religion we understand the thoughts and actions of actual people in actual human groups, these doctrinal questions seem to be a late, minor, derivative phenomenon.[2]

[2] That religious guilds and their doctrines then have enormous political and social effects should nut make us forget that essential point. Too often in the study of religion, what is said to count is an abstract model of the doctrine itself, rather than the thoughts or actions of the people who embrace it. But if we want to explain actual historical development, the latter is what matters.

Most religious thought has no doctrine for any of these questions, because it has no doctrine at all. If we understand by doctrine a minimally integrated set of coherent assumptions about supernatural agents, their powers, the justification for rituals, the reasons why some people interact with the gods rather than others, etc., it is quite clear that in most groups in the world one can find no such thing. This has in some quarters fuelled a long-lasting misunderstanding between scholars of religion and anthropologists. The former assumed that people outside organized religion must have some doctrine, only a rather esoteric one, or a mytho-poetic one, or an enacted one; anthropologists tried hard to show that in most human groups coherent religious behavior is combined with vague, fragmentary, idiosyncratic and often less than perfectly coherent accounts of supernatural agents.

Indeed, one must remember that, as far as anthropological and cognitive evidence can guide us, the situation is quite similar in groups where there is some official religious doctrine. Again, this is one of those anthropological findings that some students of religion do not seem to register, or whose import they fail to see. In places where a doctrine is available (indeed where people are taught that doctrine), and believe themselves to hold the beliefs typical of the doctrine, there is large and converging evidence that their actual thoughts and intuitions are similar to what I described so far, rather than to the doctrine itself. People may well be taught and repeat that religious agents are transcendent, vet they see their gods as very-close interlocutors; they are taught and repeat that gods are omniscient and in fact assume that the gods have cognitive limitations, for instance, cannot attend to many things at the same time, like any human being. They arc taught and repeat that a statue is just a symbol of the god, yet assume that the actual artifact is endowed with special powers.

To sum up, most religious thinking seems to proceed in a way that requires no special doctrine: only an explicit mention of the few "tweaks" to add to ordinary cognition. Indeed, religious systems of most societies throughout history have worked in that way. This is going on even when there *is* a doctrine, and more surprisingly even when people themselves believe they believe in the doctrine.

Out of the Fertile Crescent: Religious Thinking by Professionals

As I said above, doctrinal religion does not displace the general, intuitive kind, but it adds to it an extra layer of explicit concepts and norms. This new layer is characterized by explicit and coherent links between the various concepts, a definition of a domain of "religion" as specific, *sui generis* (something that is missing in most human groups), the presence of an organized group of religious scholars or specialists.

Why and how does that happen? Why is it the case that some human societies have that extra accretion of concepts and social relations centered on supernatural concepts? Why is there organized religion at all? The way this process is described by religious groups themselves is in terms of a myth of origin or an epic. The narrative says that a new doctrine appeared, that it gradually convinced more and more people, that the doctrine stemmed from a set of important texts or from a revelation, that proper transmission and maintenance of the doctrine and rites required an organized group of scholars or priests. So the tenets of doctrine were there first and their social effects were among the many consequences of people's adherence to those articles of faith.

Obviously, such a narrative belongs to the register of fairly tales rather than serious scholarship. What the historical evidence says is both more complex and more plausible. Complex polities originated in a few regions of the world, a few millennia ago and became states, small kingdoms empires or city-states. Their complex economies and embryonic markets meant that many activities became the province of specialized groups, craftsmen in particular. These groups or guilds worked as cartels, often maintaining an exclusive grip on the delivery of particular goods or services. They organized training, often kept a *minimis clausus* of new practitioners, sometimes arranged uniform prices and generally guaranteed a certain quality of service. This happened in most trades and crafts, for the intensification of agriculture meant that most people were far too busy to practice these activities and that enough surplus was generated to feed specialists.

The provision of religious services is no exception to this trend. Together with guilds of merchants or blacksmiths or butchers there appear groups of ritual officers and other specialists of the supernatural. They generally operate a monopoly, with an exclusive right to perform particular rites. They form centralized organizations that

maintain a strict a strict control over new candidates. They try to bind as closely as possible with sources of political power. They, naturally, work on the assumption that they do provide something and that what they provide could not be obtained elsewhere.

However, the special nature of the commodity they provide means that religious guilds cannot operate entirely in the same way as craftsmen's associations. First, there is of course no objective way to determine whether any religion is better than any other, whereas people can always observe that the trained and experienced cobbler makes better shoes than they themselves would. So, however strongly the guild may claim that its rites are the only way of obtaining particular results, people are fickle and may at any moment decide that some cheaper, home-made recipe is just as good. Second, precisely because of that elusive quality of supernatural services, *there is always some competition.* In most complex polities, there is an organized guild of religious practitioners *as well as* a whole variety of informal providers, local shamans, wizards, healers, inspired idiots and ominous dreamers. Some of these competitors are the shamans and other local specialists found in most human groups. Their claim to efficacy is based on local reputation, on apprenticeship with a famed specialist, on supposed connections to local supernatural agents, in general on their own individual characteristics.

In most cases, the guild uses whatever political clout it can garner to dissolve this competition, demote it. relegate it to unimportant or local rituals, hinder its operation or the transmission of its recipes. This is bound to fail in the long run, for the strength of informal practice is precisely that it is informal and can therefore be started anew at very low cost. As all religious specialists know, the war against what they tend to call superstition is never-ending

Religious guilds, being cartels of specialists, tend to unify the provision of services: that is, they try to promote the notion that, to some extent, the same service will be provided by any member of the guild. They also try to promote the complementary notion, that no one outside the guild could provide this service. This has consequences for the presentation of religious specialists. Local specialists like shamans and diviners are authoritative only in a particular place; the guild potentially covers any territory. Local specialists are supposed to be different by internal nature from other people; the guild describes its members as specially trained. A religious guild promises to deliver a stable, uniform kind of service that only it can provide, but also a service that any member of the guild will provide in the same way. Proper service depends not on the personal qualities of the specialists but on their being similar to any other member of the guild. Naturally, a group like that will claim connection, not to local spirits and ancestors but to larger-scale supernatural agents with whom the guild proposes to interact with in the same way, regardless of the particular place and customers.

The differences also extend to the concepts put forward in the guilds. It is quite natural for a shaman to construe his locally recognized powers as a link to *local* supernatural agents. By contrast, specialists who endeavor to operate on a large market, indeed on any market that is available, naturally think of themselves as interacting with highly abstract, delocalized, cosmic gods. A local shaman tends to interact with social groups: a family, a lineage. His interventions are said to protect the bones of the lineage or restore a family's defiled honor. By contrast, guilds generally tend to garner help from central political power and consequently address not local groups but the individual. Hence their insistence on such notions as the individual soul, one's personal merit, one's salvation.

It is quite natural for a local specialist to use flexible, highly variable ritual recipes, using his personal knowledge of situations and customers. A guild by contrast, trying to make most of its members' interchangeability, is bound to insist on highly codified, inflexible ritual recipes. Because of all these trends, members of religious guilds generally use literate codes and other texts to maintain uniform provision of religious services. Given that such guilds only appeared in complex politics and that these very often had some writing system, it is not surprising that the guilds also used writing. A great advantage of writing is that it facilitates the uniformity of service and practice that is the main selling point of such professional groups. So religious guilds that set great store by literate sources, written transmission and the kind of systematic argument made easier by writing, are more likely to subsist than groups that ignored the technology of writing. Conversely, given that uniformity and substitutabilitv are important assets of the guild, any appeal to personal charismatic features or shamanistic revelation are actively discouraged.[3]

[3] Incidentally, to say that guilds act against the competition, exert some coherent political influence, or maintain their predominance through the use of particular concepts does not mean that these social groups are *agents.* All it means is that most members of such groups tend to adopt a strategy of coalitional solidarity with the guild; social and political effects stem from these aggregated strategies.

These common social factors—the constitution of a cartel of religious specialists, its requirements in terms of uniformity- and stability—explain the convergent features of many such religious groups: their insistence on cosmic questions rather than particular misfortune as the foundation of religious behavior, their notions of personal salvation as opposed to collective security, and more generally, the idea that religion requires a doctrine, that it is based on a doctrine, that its outward manifestations are consequences of the doctrine: all statements that make sense as the self-serving discourse of professionals, but should not bamboozle students of religion, whose job it is to explain religious thought and behavior as they occur, not as the guild wishes.

A Darwinian By-Product

All these historical facts show how quite a few theories of religion have got things diametrically wrong. If you assume that the source of religion lies in metaphysical questions for which human kind needs answers—like the destiny of the soul or the creation of the universe or the origin of evil—you mistake a recent and regional development, itself limited to professional associations, for a general feature of human minds. Religion certainly is old, but it is not about that at all. It is about daily occurrences and interaction with imagined agents of a counter-intuitive nature.

That religion in this sense is '"old" is not disputed, although what is old by historical standards is quite recent in the archaeological record. It is very likely that by the time modern humans came out of Africa, they had the kind of supernatural imagination that founds religious concepts. It is quite certain that this imagination was active by the time of what is generally called the "cultural revolution." the sudden explosion of cultural artifacts that show both great innovations and the beginnings of cultural style. It is also clear that dead bodies were the object of much special preparation by that time, being left adorned, accompanied with various artifacts or laid down to rest in special positions. We do not know whether those people also associated dead bodies with concepts of supernatural agents, a frequent feature of modern religion. To sum up. the kind of concepts and practices that we find the world over seem to appear right at the same time as all the mental capacities that are typical of the modern human mind.

However, the appearance of religion is not an important evolutionary event, because it is only a fairly predictable by-product of mental capacities that would have appeared, religion or not. As I said above, most features of religion seem to be fairly simple "tweakings" of ordinary conceptual and inferential capacities that we find in all human minds. Now *those* capacities are an outcome of evolution and their appearance was a major event. For instance, the capacity to represent non-actual states of affairs and to draw consequences for such representations grounds people's perception of their past as well as their deliberation about future action. Developing such a capacity is a major evolutionary event; as a minor consequence, it also allows one to imagine supernatural agents. In a similar way. the extraordinary complexity of human "theory of mind" one's intuitive explanation of others and own behavior in terms of intentions and beliefs[1] was a major development that resulted in uniquely complex social interaction; it also allowed people to entertain complex thoughts about interaction with imagined agents. Modern humans also have an instinctive fear of invisible contaminants (like the pathogens of rotting bodies, blood, feces, etc.) and an intuitive notion of invisible contagion; such a cognitive adaptation is of great value. It also allows, as a by-product, the development of notions of invisible power "the sacred." "taboo." "pollution," etc.) that we find in religious imagination.

Obviously. the fact that people entertain religious thoughts at all can have important consequences, that we sometimes mistake for the explanation of religion. Once people find their imagined agents plausible, they can use them at times to allay anxiety like more pliable versions of real agents; once the versions of imagined agents differ from one culture to another, they can be used as convenient ethnic markers; once rituals are organized, a willingness to undergo gruesome ordeals can work a signal of commitment to the group. All this is familiar to all students of religion. It would be a mistake, however, to mistake any of these social or personal effects of religion for a plausible evolutionary scenario. People did not create religion to allay their fears, first because it does not and second because people cannot create just any convenient fantasy and find it plausible. People did not create religion to foster good morality and group solidarity, because such a strategy would be vulnerable to defectors and quickly unravel.

We are left with a conclusion that many evolutionary biologists would find unsurprising—and most students of religion unpalatable: that religion is like dancing, music, ethnocentrism or body-ornaments:

something that most humans are very good at learning and almost incapable of resisting, may sometimes have important consequences, yet has no other explanation than the quirks of the way evolution made our brains. What may make all this unpleasant or unacceptable to some people is the belief that important phenomena should have important causes, or at least their own, special causes. But cognitive models suggest that religion is not really special and requires no special mental process, no exceptional evolutionary event.

No Reason for Religion

Cognitive accounts of religion even suggest that there is no good *reason* for the existence of religious thoughts and behaviors. There is not even a single *cause* for them. Rather, the most plausible scenario we have makes it a by-product of a whole variety of cognitive adaptations, of mental systems that we have for a good reason. This causal account clashes with most people's expectations, particularly with those of religious adherents. We generally tend to think that people for instance perform a particular ritual for some reason: indeed, the first thing we always do is ask them what the reason is. But cognitive models seem to suggest that this is not the most profitable strategy, that the explanation for religious notions lies in processes that people cannot be aware of, so that the explicit reasons ("we sacrifice to the ancestors because they protect us") is at best a rationalization of thoughts and behaviors that would occur anyway.

This is an unavoidable consequence of scientific reduction, but it is important to understand what it really means. At this point, it may be of help to return to Lawson and McCauley's model of ritual action in *Rethinking Religion.* Some commentators have complained—and many a student will have concurred—that the core theory of ritual, the system of rules and principles that generate well-formed descriptions of ritual actions, was "too formal." It explains what is often a matter of great emotion and interest, goats beheaded and chickens disemboweled, commandments recited and sacred texts committed to memory, in terms of a list of abstract formulae and terms such as "agent-slot" or "'object-filter." In my view, if there was a small defect in the model, and any scope for improvement, it was that the model was not formal enough, perhaps included too many common-

sense intuitions about supernatural agents and their role. For instance, the model assumed that supernatural agents were thought to have "super-permanent" effects. That is to say. if people for instance assume that the ancestors really were present during the ritual and turned the neophyte into a proper member of the group, then this effect cannot be undone, unless another ritual with the appropriate structural reversal is performed. Now it would seem to most anthropologists that the attribution of such "super-permanent" effects to imagined agents is generally not an assumption, but rather a conjecture that is strengthened by ritual performance. It is therefore important to elucidate why rituals have such consequences: why they make people think that supernatural agents were really involved. (This crucial point is addressed in *Bringing Ritual to Mind,* where contrasted ways of enhancing transmission—thought sensory pageantry or doctrinal elaboration—also strengthen people's intuitions about the imagined agents' real participation;.

This complaint (that the Action Representation model was overly formal) points to a very general characteristic of cognitive models, in this as in any other domain. They explain the occurrence of thoughts in terms that demote the usually central role of reasons. That is, what explains why we have this or that concept is *not* what we would ourselves come tip with if asked to explain it. So far. people are used to this kind of explanation, for instance from popular Freudian accounts of emotion and behavior. Freudian and other fantasies of that kind tell people that, beneath what they think are the reasons for their behavior, lies an entirely inaccessible domain of other reasons. In contrast to this, scientific studies of mental phenomena say something far more disturbing: that beneath our reasons for having particular thoughts there is an inaccessible domain of processes that do not consist in reasons at all. That is. each of our thoughts is caused by processes that do not consist in "thoughts" in the sense of explicit combinations of the concepts we can name. We think we see an elephant for a good reason, namely that there is one in front of us: but the study of visual perception tells us that all this is achieved in the cortex by extremely complex neural processes, none of which resembles the '"elephant" concept. To take an example from higher processes, the reasons why we remember particular stories and forget others are not really "reasons." We may well think we recall a story because it makes a lot of sense or answers a lot of questions we had. But these are only consequences of the fact

that we recall it in the first place, and this is caused by memory-processes that do not consist in "reasons."

So religious concepts function in that way too. A believer may well think she has such concepts because they explain a lot, or because they are awesome and beautiful stories, or because life would make no sense if they were false, or because it makes her happy, or because most other people seem to accept them. All these are real consequences of having the concepts, but non-starters as explanations for why one acquired them in the first place and why they appeared in human cultures at all. The poorest such explanation, incidentally, is that people spontaneously and intuitively adhere to religious concepts because religious concepts are *true.* (One comes across this argument surprisingly often in debates about religion. Besides solving the delicate problem of deciding *which* religious concepts are true, between all the incompatible, mutually refuting versions available, proponents of this simple explanation also have to ignore two major facts of human history: there is no limit to the range of false concepts people can sincerely and intuitively find plausible; conversely, there is a vast domain of true concepts that our minds find it exceedingly difficult to acquire, as science shows everyday. Given the colossal evidence for both tendencies, the fact that most humans find a particular representation is certainly no guarantee of validity, far from it.

Whither the Study of Religion?

Like fish, innovative scholars form schools. *Rethinking Religion* spawned a whole series of related works, showing that the cognitive study of religion was a coherent and valuable research program. Indeed, the various features summarized in the previous pages were taken for the work from at least five different scholars, which I suppose counts as a school if not quite a swarm. The program is bound to expand, as more scholars find inspiration in the early models, detect their many flaws and provide us with better accounts of varieties of religious thought and behavior. Inasmuch as it is successful, this research program will certainly' escape the narrow confines of the study of religion. It is one of the inevitable, indeed desirable consequences of cognitive models that '"religion" is shown to be no more special than other cultural domains.

Another predictable development is that our accounts of particular features of religion will be grounded in much more precise accounts of mental functioning, in particular in finer-grained accounts of brain function. There is no need to postulate any religious organ in the brain, no more than there is a literature organ or a social life center in cortical structures. But uncovering the underpinnings of ordinary concept-acquisition and inference, in terms of neural circuitry, is bound to tell us a lot about the processes whereby the most baroque imaginings acquire inherent plausibility. Obviously, all this goes in the direction of further reduction and deflation, which may shock many people who joined the study of religion to find precisely the opposite, an antidote to a perceived excess of reduction. But such a move towards explanation in terms of fine-grained brain processes is both possible and inevitable. Sensitive souls who find reduction shocking, indeed faint at the merest whiff of a causal explanation, should not just steer clear of the cognitive study of religion: they should avoid study altogether.

It is both a privilege and an achievement to show science that a particular domain of reality can indeed be reduced, that is explained, where people thought it was either impossible or undesirable. The study of religious ritual in terms of action representation and of the latter as a cognitive process was one of those inaugural events. Whatever the difficulties and uncertainties of a first model, it made it possible to think of many other domains of religious behavior, indeed of many other domains of culture, as similarly constrained by the operation of human cognitive machinery.