Also by Pascal Boyer
The Naturalness of Religious Ideas
Tradition as Truth and Communication

RELIGION EXPLAINED

THE EVOLUTIONARY ORIGINS OF RELIGIOUS THOUGHT

PASCAL BOYER

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I

WHAT IS THE ORIGIN?

A neighbor in the village tells me that I should protect myself against witches. Otherwise they could hit me with invisible darts that will get inside my veins and poison my blood.

A shaman burns tobacco leaves in front of a row of statuettes and starts talking to them. He says he must send them on a journey to distant villages in the sky. The point of all this is to cure someone whose mind is held hostage by invisible spirits.

A group of believers goes around, warning everyone that the end is nigh. Judgement Day is scheduled for October 2. This day passes and nothing happens. The group carries on, telling everyone the end is nigh (the date has been changed).

Villagers organize a ceremony to tell a goddess she is not wanted in their village anymore. She failed to protect them from epidemics, so they decided to "drop" her and find a more efficient replacement.

An assembly of priests finds offensive what some people say about what happened several centuries ago in a distant place, where a virgin is said to have given birth to a child. So these people must be massacred.

Members of a cult on an island decide to slaughter all their livestock and burn their crops. All these will be useless now, they say, because a ship full of goods and money will reach their shores very shortly in recognition of their good deeds.

My friends are told to go to church or some other quiet place and talk to an invisible person who is everywhere in the world. That invisible listener already knows what they will say, because He knows everything.

I am told that if I want to please powerful dead people—who could help me in times of need—I should pour the blood of a live white goat

on the right hand side of a particular rock. But if I use a goat of a different color or another rock, it will not work at all.

You may be tempted to dismiss these vignettes as just so many examples of the rich tapestry of human folly. Or perhaps you think that these illustrations, however succinct (one could fill volumes with such accounts), bear witness to an admirable human capacity to comprehend life and the universe. Both reactions leave questions unanswered. Why do people have such thoughts? What prompts them to do such things? Why do they have such different beliefs? Why are [2] they so strongly committed to them? These questions used to be *mysteries* (we did not even know how to proceed) and are now becoming *problems* (we have some idea of a possible solution), to use Noam Chomsky's distinction. Indeed, we actually have the first elements of that solution. In case this sounds hubristic or self-aggrandizing, let me add immediately that this "we" really refers to a community of people. It is not an insidious way of suggesting that *I* have a new theory and find it of universal significance. In the rest of this book I mention a number of findings and models in cognitive psychology, anthropology, linguistics and evolutionary biology. All of these were discovered by other people, most of whom did not work on religion and had no idea that their findings could help explain religion. This is why, although bookshelves may be overflowing with treatises on religion, histories of religion, religious people's accounts of their ideas, and so on, it makes sense to add to this and show how the intractable mystery that was religion is now just another set of difficult but manageable problems.

Giving airy nothing a local habitation

The explanation for religious beliefs and behaviors is to be found in the way all human minds work. I really mean all human minds, not just the minds of religious people or of some of them. I am talking about human minds, because what matters here are properties of minds that are found in all members of our species with normal brains. The discoveries I will mention here are about the ways minds in general (men's or women's, British or Brazilian, young or old) function.

This may seem a rather strange point of departure if we want to explain something as diverse as religion. Beliefs are different in different people; some are religious and some are not. Also, obviously, beliefs are different in different places. Japanese Buddhists do not seem to share much, in terms of religious notions, with Amazonian shamans or American Southern Baptists. How could we explain a phenomenon (religion) that is so *variable* in terms of something (the brain) that is *the same* everywhere? This is what I describe in this book. The diversity of religion, far from being an obstacle to general explanations, in fact gives us some keys. But to understand why this is so, we need a precise description of how brains receive and organize information.

For a long time, people used to think that the brain was a rather [3] simple organ. Apart from the bits that control the body machinery, there seemed to be a vast empty space in the young child's mind destined to be filled with whatever education, culture and personal experience provided. This view of the mind was never too plausible, since after all the liver and the gut are much more complex than that. But we did not know much about the way minds develop, so there were no facts to get in the way of this fantasy of a "blank slate" where experience could leave its imprint. The mind was like those vast expanses of unexplored Africa that old maps used to fill with palm trees and crocodiles. Now we know more about minds. We do not know everything, but one fact is clear: the more we discover about how minds work, the less we believe in this notion of a blank slate. Every further discovery in cognitive science makes it less plausible as an explanation.

In particular, it is clear that our minds are not really prepared to acquire just about any kind of notion that is "in the culture." We do not *just* "learn what is in the environment," as people sometimes say. That is not the case, because no mind in the world—this is true all the way from the cockroach to the giraffe to you or me—could ever learn anything without having very sophisticated mental equipment that is *prepared* to identify relevant information in the environment and to treat that information in a special way. Our minds are prepared because natural selection gave us particular mental predispositions. Being prepared for some concepts, human minds are also prepared for certain variations of these concepts. As I will show, this means, among other things, that all human beings can easily acquire a certain *range* of religious notions and communicate them to others.

Does this mean religion is "innate" and "in the genes"? I—and most people interested in the evolution of the human mind—think that the question is in fact meaningless and that it is important to

understand why. Consider other examples of human capacities. All human beings can catch colds and remember different melodies. We can catch colds because we have respiratory organs and these provide a hospitable site for all sorts of pathogens, including those of the common cold. We can remember tunes because a part of our brain can easily store a series of sounds with their relative pitch and duration. There are no common colds in our genes and no melodies either. What is in the genes is a tremendously complex set of chemical recipes for the building of normal organisms with respiratory organs and a complex set of connections between brain areas. Normal genes in a [4] normal milieu will give you a pair of lungs and an organized auditory cortex, and with these the dispositions to acquire both colds and tunes. Obviously, if we were all brought up in a sterile and nonmusical environment, we would catch neither. We would still have the disposition to catch them but no opportunity to do so.

Having a normal human brain does not imply that you have religion. All it implies is that you can acquire it, which is very different. The reason why psychologists and anthropologists are so concerned with *acquisition* and *transmission* is that evolution by natural selection gave us a particular kind of mind so that only particular kinds of religious notions can be acquired. Not all possible concepts are equally good. The ones we acquire easily are the ones we find widespread the world over; indeed, that is *why* we find them widespread the world over. It has been said of poetry that it gives to airy nothing a local habitation and a name. This description is even more aptly applied to the supernatural imagination. But, as we will see, not all kinds of "airy nothing" will find a local habitation in the minds of people.

Origin scenarios

What is the origin of religious ideas? Why is it that we can find them wherever we go and, it would seem, as far back in the past as we can see? The best place to start is with our spontaneous, commonsense answers to the question of origins. Everybody seems to have some intuition about the origins of religion. Indeed, psychologists and anthropologists who like me study how mental processes create religion face the minor occupational hazard of constantly running into people who think that they already have a perfectly adequate solution to the problem. They are often quite willing to impart their wisdom

and sometimes imply that further work on this question is, if not altogether futile, at least certainly undemanding. If you say "I use genetic algorithms to produce computationally efficient cellular automata," people see quite clearly that doing that kind of thing probably requires some effort. But if you tell them that you are in the business of "explaining religion," they often do not see what is so complicated or difficult about it. Most people have some idea of why there is religion, what religion gives people, why they are sometimes so strongly attached to their religious beliefs, and so on. These common intuitions offer a real challenge. Obviously, if they are sufficient, there is no point in having a complex theory of religion. If, as I am afraid is [5] more likely, they are less than perfect, then our new account should be at least as good as the intuitions it is supposed to replace.

Most accounts of the origins of religion emphasize one of the following suggestions: human minds demand explanations, human hearts seek comfort, human society requires order, human intellect is illusion-prone. To express this in more detail, here are some possible scenarios:

Religion provides explanations:

- People created religion to explain puzzling natural phenomena.
- Religion explains puzzling experiences: dreams, prescience, etc.
- Religion explains the origins of things.
- Religion explains why there is evil and suffering.

Religion provides comfort:

- Religious explanations make mortality less unbearable.
- Religion allays anxiety and makes for a comfortable world.

Religion provides social order:

- Religion holds society together.
- Religion perpetuates a particular social order.
- Religion supports morality.

Religion is a cognitive illusion:

- People are superstitious; they will believe anything.
- Religious concepts are irrefutable.
- Refutation is more difficult than belief.

Though this list probably is not exhaustive, it is fairly representative. Discussing each of these common intuitions in more detail, we will see that they all fail to tell us why we have religion and why it is

the way it is. So why bother with them? It is not my intent here to ridicule other people's ideas or show that anthropologists and cognitive scientists are more clever than common folk. I discuss these spontaneous explanations because they are widespread, because they are often rediscovered by people when they reflect on religion, and more importantly because they are *not that bad.* Each of these "scenarios" for the origin of religion points to a real and important phenomenon that any theory worth its salt should explain. Also, taking these scenarios seriously opens up new perspectives on how religious notions and beliefs appear in human minds.

Unfamiliar diversity

Let it not be said that anthropology is not useful. Religion is found the world over, but it is found in very different forms. It is an unfortunate and all too frequent mistake to explain all religion by one of its characteristics that is in fact special to the religion we are familiar with. Anthropologists are professionally interested in cultural differences, and they generally study a milieu other than their own to avoid this mistake. In the past century or so, they have documented extremely diverse religious notions, beliefs and practices. To illustrate why this knowledge is useful, consider the inadequate information found in many atlases. At the same time as they tell you that the Arctic is all ice and the Sahara mostly sand and rock, they often provide information about religious affiliation. You will read, for instance, that Ulster has a *Protestant* majority and a *Catholic* minority, that Italy is overwhelmingly *Catholic* and Saudi Arabia *Muslim.* So far, so good. But other countries are more difficult to describe in these terms. Take India or Indonesia, for example. Most of the population belongs to one of the familiar "great religions" (Hinduism, Islam); but in both countries there are large, so-called tribal groups that will have no truck with these established denominations. Such groups are often described as having *animistic* or *tribal* religion—two terms that (anthropologists will tell you) mean virtually nothing. They just stand for "stuff we cannot put in any other category"; we might as well call these people's religions "miscellaneous." Also, what about Congo and Angola? The atlas says that most people in these places are *Christian,* and this is true in the sense that many are baptized and go to church. However, people in Congo and Angola constantly talk about ancestors and witches and perform rituals to placate the former and restrain the latter. This does not happen in *Christian* Northern Ireland. If the atlas says anything about religion, it is using a very confusing notion of religion.

The diversity of religion is not just the fact that some people are called or call themselves Buddhist and others Baptist. It goes deeper, in how people conceive of supernatural agents and what they think these agents are like or what they can do, in the morality that is derived from religious beliefs, in the rituals performed and in many other ways. Consider the following findings of anthropology.:

Supernatural agents can be very different. Religion is about the existence and causal powers of nonobservable entities and agencies. These may be one unique God or many different gods or spirits or ancestors, or a combination of these different kinds. Some people have one "supreme" god, but this does not always mean that he or she is terribly important. In many places in Africa there are two supreme gods. One is a very abstract supreme deity and the other is more down-to-earth, as it were, since he created all things cultural: tools and domesticated animals, villages and society. But neither of them is really involved in people's everyday affairs, where ancestors, spirits and witches are much more important.

Some gods die. It may seem obvious that gods are always thought to be eternal. We might even think that this must be part of the definition of "god." However, many Buddhists think that gods, just like humans, are caught in a never-ending cycle of births and reincarnations. So gods will die like all other creatures. This, however, takes a long time and that is why humans since times immemorial pray to the same gods. If anything, gods are disadvantaged in comparison with humans. Unlike gods, we could, at least in principle, escape from the cycle of life and suffering. Gods must first be reincarnated as humans to do that.

Many spirits are really stupid. To a Christian it seems quite obvious that you cannot fool God, but in many places, fooling superhuman agents is possible and in fact even necessary. In Siberia, for instance, people are careful to use metaphorical language when talking about important matters. This is because nasty spirits often eavesdrop on humans and try to foil their plans. Now spirits, despite their superhuman pow-

ers, just cannot understand metaphors. They are powerful but stupid. In many places in Africa it is quite polite when visiting friends or relatives to express one's sympathy with them for having such "ugly" or "unpleasant" children. The idea is that witches, always on the lookout for nice children to "eat," will be fooled by this naive stratagem. It is also common in such places to give children names that suggest disgrace or misfortune, for the same reason. In Haiti one of the worries of people who have just lost a relative is that the corpse might be stolen by a witch. To avoid this, people sometimes buried [8] their dead with a length of thread and an eyeless needle. The idea was that witches would find the needle and try to thread it, which would keep them busy for centuries so that they would forget all about the corpse. People can think that supernatural agents have extraordinary powers and yet are rather easily fooled.

Salvation is not always a central preoccupation. To people familiar with Christianity or Islam or Buddhism, it seems clear that the main point of religion is the salvation or deliverance of the soul. Different religions are thought to offer different perspectives on why souls need to be saved and different routes to salvation. Now, in many parts of the world, religion does not really promise that the soul will be saved or liberated and in fact does not have much to say about its destiny. In such places, people just do not assume that moral reckoning determines the fate of the soul. Dead people become ghosts or ancestors. This is general and does not involve a special moral judgement.

Official religion is not the whole of religion. Wherever we go, we will find that religious concepts are much more numerous and diverse than "official" religion would admit. In many places in Europe people suspect that there are witches around trying to attack them. In official Islam there is no God but God; but many Muslims are terrified of *jinn* and *afreet*—spirits, ghosts and witches. In the United States religion is officially a matter of denomination: Christians of various shades, Jews, Hindus, etc. But many people are seriously engaged in interaction with aliens or ghosts. This is also among the religious concepts to consider and explain.

You can have religion without having "a" religion. For Christians, Jews or Muslims it is quite clear that one belongs to *a* religion and that there is a choice, as it were, between alternative views on the creation of the universe, the destiny of the soul and the kind of morality one should adhere to. This results from a very special kind of situation, where people live in large states with competing Churches and doctrines. Many people throughout history and many people these days live in rather different circumstances, where their religious activity is the only one that is conceivable. Also, many religious notions [9] are tied to specific places and persons. People for instance pray to their ancestors and offer sacrifices to the forest to catch lots of game. It would not make sense to them to pray to other people's ancestors or to be grateful for food that you will not receive. The idea of a universal religion that anyone could adopt—or that everyone should adopt—is not a universal idea.

You can also have religion without having "religion." We have a word for religion. This is a convenient label that we use to put together all the ideas, actions, rules and objects that have to do with the existence and properties of superhuman agents such as God. Not everyone has this explicit concept or the idea that religious stuff is different from the profane or everyday domain. In general, you will find that people begin to have an explicit concept of "religion" when they live in places with several "religions"; but that is a special kind of place, as I said above. That people do not have a special term for religion does not mean they actually have no religion. In many places people have no word for "syntax" but their language has a syntax all the same. You do not need the special term in order to have the thing.

You can have religion without "faith." Many people in the world would find it strange if you told them that they "believe in" witches and ghosts or that they have "faith" in their ancestors. Indeed, it would be very difficult in most languages to translate these sentences. It takes us Westerners some effort to realize that this notion of "believing in something" is peculiar. Imagine a Martian telling you how interesting it is that you "believe" in mountains and rivers and cars and telephones. You would think the alien has got it wrong. We don't "believe in"

these things, we just notice and accept that they are around. Many people in the world would say the same about witches and ghosts. They are around like trees and animals—though they are far more difficult to understand and control—so it does not require a particular commitment or faith to notice their existence and act accordingly. In the course of my anthropological fieldwork in Africa, I lived and worked with Fang people, who say that nasty spirits roam the bush and the villages, attack people, make them fall ill and ruin their crops. My Fang acquaintances also knew that I was not too worried about this and that most Europeans were remarkably indifferent to the powers of spirits and witches. This, for me, could be expressed as the difference between believing in spirits and not believing. But that was not the way people saw it over there. For them, the spirits were indeed around but white people were immune to their influence, perhaps because God cast them from a different mold or because Western people could avail themselves of efficient anti-witchcraft medicine. So what we often call faith others may well call knowledge.[1]

The conclusion from all this is straightforward. If people tell you "Religion is faith in a doctrine that teaches us how to save our souls by obeying a wise and eternal Creator of the universe," these people probably have not traveled or read widely enough. In many cultures people think that the dead come back to haunt the living, but this is not universal. In some places people think that some special individuals can communicate with gods or dead people, but that idea is not found everywhere. In some places people assume that people have a soul that survives after death, but that assumption also is not universal. When we put forward general explanations of religion, we had better make sure that they apply outside our parish.

Intellectual scenarios: The mind demands an explanation

Explanations of religion are scenarios. They describe a sequence of events in people's minds or in human societies, possibly over an immense span of historical time, that led to religion as we know it. But narratives are also misleading. In a good story one thing leads to another with such obvious logic that we may forget to check that each episode really occurred as described. So a good scenario may put us on the right track but also leave us stuck in a rut, oblivious to an easier or more interesting path that was just a few steps aside. This, as we will see, is precisely what happens with each general explanation of religion—which is why I will first describe their valuable points and then suggest that we step back a little and take a different path.

The most familiar scenario assumes that humans in general have certain general intellectual concerns. People want to understand events and processes—that is, to explain, predict and perhaps control them. These very general, indeed universal intellectual needs gave rise to religious concepts at some point during human cultural evolution. This was not necessarily a single event, a sudden invention that took place once and for all. It might be a constant re-creation as the need to explain phenomena periodically suggests concepts that could work as good explanations. Here are some variations on this theme:

- *People created religion to explain puzzling natural phenomena.* People are surrounded with all sorts of phenomena that seem to challenge their everyday concepts. That a window pane breaks if you throw a brick at it poses no problem. But what about the causes of storms, thunder, massive drought, floods? What pushes the sun across the sky and moves the stars and planets? Gods and spirits fulfil this explanatory function. In many places the planets *are* gods, and in Roman mythology the thunder was the sound of Vulcan's hammer striking the anvil. More generally, gods and spirits make rains fall and fields yield good crops. They explain what is beyond the ken of ordinary notions.
- *Religion was created to explain puzzling mental phenomena.* Dreams, precognition, and the feeling that dead persons are still around in some form (and frequently "appear" to the living) are all phenomena that receive no satisfactory explanation in our everyday concepts. The notion of a spirit seems to correspond to such phenomena. Spirits are disembodied persons, and their characteristics make them very similar to persons seen in dreams or hallucinations. Gods and a unique God are further versions of this projection of mental phenomena.
- *Religion explains the origins of things.* We all know that plants come from seeds, that animals and humans reproduce, and so on. But where did the whole lot come from? That is, we all have

commonsense explanations for the origin of each particular aspect of our environment, but all these explanations do is "pass the buck" to some other process or agent. However, people feel that the buck has to stop somewhere . . . and uncreated creators like God or the first ancestors or some cultural heroes fulfil this function.

- *Religion explains evil and suffering.* It is a common human characteristic that misfortune cries out for explanation. Why is there misfortune or evil in general? This is where the concepts of Fate, God, devils and ancestors are handy. They tell you why and how evil originated in the world (and sometimes provide recipes for a better world).

[12]

What is wrong with these accounts? There are several problems with them. We say that the origin of religious concepts is the urge to provide certain general aspects of human experience with a satisfactory explanation. Now anthropologists have shown that (i) explaining such general facts is not equally pressing in all cultures and that (ii) the explanations provided by religion are not at all like ordinary explanations.

Consider the idea that everybody wants to identify the general cause of evil and misfortune. This is not as straightforward as we may think. The world over, people are concerned with the causes of *particular* evils and calamities. These are considered in great detail but the existence of evil *in general* is not the object of much reflection. Let me use an example that is familiar to all anthropologists from their Introductory courses. British anthropologist E. E. Evans-Pritchard is famous for his classic account of the religious notions and beliefs of the Zande people of Sudan. His book became a model for all anthropologists because it did not stop at cataloguing strange beliefs. It showed you, with the help of innumerable details, how *sensible* these beliefs were, once you understood the particular standpoint of the people who expressed them and the particular questions those beliefs were supposed to answer. For instance, one day the roof of a mud house collapses in the village where Evans-Pritchard is working. People promptly explain the incident in terms of witchcraft. The people who were under that roof at the time must have powerful enemies. With typical English good sense, Evans-Pritchard points out to his interlocutors that termites had undermined the mud house and that there was nothing particularly mysterious in its collapse. But people are not interested in this aspect of the situation. As they point out to the anthropologist, they know perfectly well that termites gnaw through the pillars of mud houses and that decrepit structures are bound to cave in at some point. What they want to find out is why the roof collapsed *at the precise time* when so-and-so was sitting underneath it rather than before or after that. This is where witchcraft provides a good explanation. But what explains the existence of witchcraft? No one seems to find *that* a pertinent or interesting question. This is in fact a common situation in places where people have beliefs about spirits or witches. These agents' behavior is an explanation of particular cases, but no one bothers to explain the existence of misfortune in general.

The origin of things *in general* is not always the obvious source of puzzlement that we may imagine. As anthropologist Roger Keesing points out in describing myths of the Kwaio people in the Solomon Islands: "Ultimate human origins are not viewed as problematic. [The myths] assume a world where humans gave feasts, raised pigs, grew taro, and fought blood feuds." What matters to people are *particular* cases in which these activities are disrupted, often by the ancestors or by witchcraft.[2]

[13]

But how does religion account for these particular occurrences? The explanations one finds in religion are often more puzzling than illuminating. Consider the explanation of thunderstorms as the booming voice of ancestors venting their anger at some human misdemeanor. To explain a limited aspect of the natural world (loud, rolling, thumping sounds during storms), we have to assume a whole imaginary world with superhuman agents (Where did they come from? Where are they?) that cannot be seen (Why not?), in a distant place that cannot be reached (How does the noise come through all the way?), whose voices produce thunder (How is that possible? Do they have a special mouth? Are they gigantic?). Obviously, if you live in a place where this kind of belief is widespread, people may have an answer to all these questions. But each answer requires a specific narrative, which more often than not presents us with yet more superhuman agents or extraordinary occurrences—that is, with more questions to answer.

As another illustration, here is a short account of shamanistic ritual among the Cuna of Panama by anthropologist Carlo Severi:

> The [shaman's] song is chanted in front of two rows of statuettes facing each other, beside the hammock where the patient is lying. These auxiliary spirits drink up the smoke whose intoxicating effect opens their minds to the invisible aspect of reality and gives them the power to

heal. In this way [the statuettes] are believed to become themselves diviners.[3]

The patient in this ritual has been identified by the community as mentally disturbed, which is explained in religious terms. The soul of the person was taken away by evil spirits and it is now held hostage. A shaman is a specialist who can enlist auxiliary spirits to help him deliver the imprisoned soul and thereby restore the patient's health. Note that this goes well beyond a straightforward explanation for aberrant behavior. True, there is direct evidence of the patient's con-
[14] dition; but the evil spirits, the auxiliary spirits, the shaman's ability to journey through the spirits' world, the efficacy of the shaman's songs in his negotiation with the evil spirits—all this has to be postulated. To add to these baroque complications, the auxiliary spirits are in fact wood statuettes; these objects not only hear and understand the shaman, but they actually become diviners for the time of the ritual, perceiving what ordinary people cannot see.

An "explanation" like that does not work in the same way as our ordinary accounts of events in our environment. We routinely produce explanations that (i) use the information available and (ii) rearrange it in a way that yields a more satisfactory view of what happened. Explaining something does not consist in producing one thought after another in a freewheeling sort of way. The point of an explanation is to provide a context that makes a phenomenon less surprising than before and more in agreement with the general order of things. Religious explanations often seem to work the other way around, producing more complication instead of less. As anthropologist Dan Sperber points out, religion creates "relevant mysteries" rather than simple accounts of events.

This leads to a paradox familiar to all anthropologists. If we say that people use religious notions to *explain* the world, this seems to suggest that they do not know what a proper explanation is. But that is absurd. We have ample evidence that they do know. People use the ordinary "getting most of the relevant facts under a simpler heading" strategy all the time. So what people do with their religious concepts is not so much explain the universe as . . . well, this is where we need to step back and consider in more general terms what makes mysteries relevant.[4]

The mind as a bundle of explanation machines

Is it really true that human ideas are spurred by a general urge to understand the universe? Philosopher Immanuel Kant opened his *Critique of Pure Reason*—an examination of what we can know beyond experience—with the statement that human reason is forever troubled by questions it can neither solve nor disregard. Later, the theme of religion-as-an-explanation was developed by a school of anthropology called *intellectualism*, which was initiated by 19th-century scholars such as Edward Burnett Tylor and James Frazer and remains quite
influential to this day. A central assumption of intellectualism is this: [15]
if a phenomenon is common in human experience and people do not have the conceptual means to understand it, then they will try and find some speculative explanation.[5]

Now, expressed in this blunt and general manner, the statement is plainly false. Many phenomena are both familiar to all of us from the youngest age and difficult to comprehend using our everyday concepts, yet nobody tries to find an explanation for them. For instance, we all know that our bodily movements are not caused by external forces that push or pull us but by our *thoughts*. That is, if I extend my arm and open my hand to shake hands with you, it's precisely because I want to do that. Also, we all assume that thoughts have no weight or size or other such material qualities (the idea of an apple is not the size of the apple, the idea of water does not flow, the idea of a rock is no more solid than the idea of butter). If I have the intention to lift my arm, to take a classic example, this intention itself has no weight or solidity. Yet it manages to move parts of my body. . . . How can this occur? How could things without substance have effects in the material world? Or, to put it in less metaphysical terms, how on earth do these mental words and images pull my muscles? This is a difficult problem for philosophers and cognitive scientists . . . but surprisingly enough, it is a problem for nobody else in the entire world. Wherever you go, you will find that people are satisfied with the idea that thoughts and desires have effects on bodies and that's that. (Having raised such questions in English pubs and Fang villages in Cameroon I have good evidence that in both places people see nothing mysterious in the way their minds control their bodies. Why should they? It requires very long training in a special tradition to find the question interesting or puzzling.)

The mistake of intellectualism was to assume that a human mind is driven by a *general* urge to explain. That assumption is no more plausible than the idea that animals, as opposed to plants, feel a general "urge to move around." Animals never move about for the sake of changing places. They are in search of food or safety or sex; their movements in these different situations are caused by different processes. The same goes for explanations. From a distance, as it were, you may think that the general point of having a mind is to explain and understand. But if you look closer, you see that what happens in a mind is far more complex; this is crucial to understanding religion.

[16] Our minds are not general explanation machines. Rather, minds consist of many different, specialized explanatory engines. Consider this: It is almost impossible to see a scene without seeing it in three dimensions, because our brains cannot help *explaining* the flat images projected onto the retina as the effect of real volumes out there. If you are brought up among English speakers you just cannot help understanding what people say in that language, that is, *explaining* complex patterns of sound frequencies as strings of words. People spontaneously *explain* the properties of animals in terms of some inner properties that are common to their species; if tigers are aggressive predators and yaks quiet grazers, this must be because of their essential nature. We spontaneously assume that the shape of particular tools is *explained* by their designers' intentions rather than as an accidental combination of parts; the hammer has a sturdy handle and a heavy head because that is the best way to drive nails into hard materials. We find that it is impossible to see a tennis ball flying about without spontaneously *explaining* its trajectory as a result of a force originally imposed on it. If we see someone's facial expression suddenly change we immediately speculate on what may have upset or surprised them, which would be the *explanation* of the change we observed. When we see an animal suddenly freeze and leap up we assume it must have detected a predator, which would *explain* why it stopped and ran away. If our houseplants wither away and die we suspect the neighbors did not water them as promised—that is the *explanation*. It seems that our minds constantly produce such spontaneous explanations.

Note that all these explanation-producing processes are "choosy" (for want of a better term). The mind does not go around trying to explain everything and it does not use just any information available to explain something. We don't try to decipher emotional states on the tennis ball's surface. We do not spontaneously assume that the plants

died because they were distressed. We don't think that the animal leaped up because it was pushed by a gust of wind. We reserve our physical causes for mechanical events, biological causes for growth and decay and psychological causes for emotions and behavior.

So the mind does not work like one general "let's-review-the-facts-and-get-an-explanation" device. Rather, it comprises lots of specialized explanatory devices, more properly called *inference systems*, each of which is adapted to particular kinds of events and automatically suggests explanations for these events. Whenever we produce an explanation of any event ("the window broke because the tennis ball hit it"; "Mrs. Jones is angry that the kids broke her window"; etc.), we make [17] use of these special inference systems, although they run so smoothly in the mind that we are not aware of their operation. Indeed, spelling out how they contribute to our everyday explanations would be tedious (e.g., "Mrs. Jones is angry *and* anger is caused by unpleasant events caused by other people *and* anger is directed at those people *and* Mrs. Jones knows the children were playing next to her house *and* she suspects the children knew that tennis balls could break a window *and* . . . "). This is tedious because our minds run all these chains of inferences automatically, and only their results are spelled out for conscious inspection.

By discussing and taking seriously the "religion-as-explanation" scenario, we open up a new perspective on how religious notions work in human minds. Religious concepts may seem out of the ordinary, but they too make use of the inference systems I just described. Indeed, everything I just said about Mrs. Jones and the tennis ball would apply to the ancestors or witches. Returning to Evans-Pritchard's anecdote of the collapsed roof, note how some aspects of the situation were so obvious that no one—neither the anthropologist nor his interlocutors—bothered to make them explicit: for instance, that the witches, if they were involved, probably had a reason to make the roof collapse, that they expected some revenge or profit from it, that they were angry with the persons sitting underneath, that they directed the attack to hurt *those* people, not others, that the witches could see their victims sitting there, that they will attack again if their reasons for striking in the first place are still relevant or if their attack failed, and so on. No one need say all this—no one even *thinks* about it in a conscious, deliberate manner—because it is all self-evident.

Which leads me to two major themes I will expand on in the following chapters. The way our banal inference systems work explains a

great deal about human thinking, including religious thoughts. But—this is the most important point—the workings of inference systems are not something we can observe by introspection. Philosopher Daniel Dennett uses the phrase "Cartesian theater" to describe the inevitable illusion that all that happens in our minds consists of conscious, deliberate thoughts and reasoning about these thoughts. But a lot happens beneath that Cartesian stage, in a mental basement that we can describe only with the tools of cognitive science. This point is obvious when we think about processes such as motor control: the fact that my arm indeed goes up when I consciously try to lift it shows that a complicated system in the brain monitors what various muscles are doing. It is far more difficult to realize that similarly complicated systems are doing a lot of underground work to produce such deceptively simple thoughts as "Mrs. Jones is angry because the kids broke her window" or "The ancestors will punish you if you defile their shrine." But the systems are there. Their undetected work explains a lot about religion. It explains why *some* concepts, like that of invisible persons

PROGRESS BOX 1: RELIGION AS EXPLANATION

- The urge to explain the universe is not the origin of religion.
- The need to explain particular occurrences seems to lead to strangely baroque constructions.
- You cannot explain religious concepts if you do not describe how they are used by individual minds.
- A different angle: Religious concepts are probably influenced by the way the brain's inference systems produce explanations without our being aware of it.

with a great interest in our behavior, are widespread the world over, and other possible religious concepts are very rare. It also explains why the concepts are so persuasive, as we will see presently.[6]

EMOTIVE SCENARIOS: RELIGION PROVIDES COMFORT

Many people think there is a simple explanation for religion: we need it for emotional reasons. The human psyche is thus built that it longs for the reassurance or comfort that supernatural ideas seem to provide. Here are two versions of this widespread account:

- *Religious explanations make mortality less unbearable.* Humans are all aware that they are all destined to die. Like most animals they have developed various ways of reacting to life-threatening situations: fleeing, freezing, fighting. However, they may be unique in being able to reflect on the fact that come what may, they will die. This is one concern for which most religious systems propose some palliative, however feeble. People's notions of gods and ancestors and ghosts stem from this need to explain mortality and make it more palatable.
- *Religion allays anxiety and makes for a comfortable world.* It is in the nature of things that life is for most people nasty, brutish and short. It certainly was so in those Dark Ages when religious concepts were first created by human beings. Religious concepts allay anxiety by providing a context in which these conditions are either explained or offset by the promise of a better life or of salvation.

Like the intellectualist scenarios, these suggestions may well seem plausible enough as they stand, but we must go a bit further. Do they do the intended job? That is, do they explain why we have religious concepts and why we have the ones we have?

There are several serious problems with accounts based on emotions. First, as anthropologists have pointed out for some time, some facts of life are mysterious or awe-inspiring only in places where a local theory provides a solution to the mystery or a cure for the angst. For instance, there are places in Melanesia where people perform an extraordinary number of rituals to protect themselves from witchcraft. Indeed, people think they live under a permanent threat from these

invisible enemies. So we might think that in such societies magical rituals, prescriptions and precautions are essentially comforting devices, giving people some imaginary control over these processes. However, in other places people have no such rituals and feel no such threats to their existence. From the anthropologist's viewpoint it seems plausible that the rituals create the need they are supposed to fulfil, and probable that each reinforces the other.

Also, religious concepts, if they are solutions to particular emotional needs, are not doing a very good job. A religious world is often every bit as terrifying as a world without supernatural presence, and [20] many religions create not so much reassurance as a thick pall of gloom. The Christian philosopher Kierkegaard wrote books with titles like *The Concept of Anguish* and *Fear and Trembling*, which for him described the true psychological tenor of the Christian revelation. Also, consider the widespread beliefs about witches, ghouls, ghosts and evil spirits allegedly responsible for illness and misfortune. For the Fang people with whom I worked in Cameroon the world is full of witches, that is, nasty individuals whose mysterious powers allow them to "eat" other people, which in most cases means depriving them of health or good fortune. Fang people also have concepts of anti-witchcraft powers. Some are said to be good at detecting and counteracting the witches' ploys, and one can take protective measures against witches; all such efforts, however, are pitiful in the face of the witches' powers. Most Fang admit that the balance of powers is tipped the wrong way. Indeed, they see evidence of this all the time, in crops that fail, cars that crash and people who die unexpectedly. If religion allays anxiety, it cures only a small part of the disease it creates.

Reassuring religion, insofar as it exists, is not found in places where life is significantly dangerous or unpleasant; quite the opposite. One of the few religious systems obviously designed to provide a comforting worldview is New Age mysticism. It says that people, *all* people, have enormous "power," that all sorts of intellectual and physical feats are within their reach. It claims that we are all connected to mysterious but basically benevolent forces in the universe. Good health can be secured by inner spiritual strength. Human nature is fundamentally good. Most of us lived very interesting lives before this one. Note that these reassuring, ego-boosting notions appeared and spread in one of the most secure and affluent societies in history. People who hold these beliefs are not faced with war, famine, infant mortality, incurable

endemic diseases and arbitrary oppression to the same extent as Middle Age Europeans or present-day Third World peasants.

So much for religion as comfort. But what about mortality? Religion the world over has something to say about what happens after death, and what it says is crucial to belief and behavior. To understand this, however, we must first discard the parochial notion that religion everywhere promises salvation, for that is clearly not the case. Second, we must also remember that in most places people are not really motivated by a metaphysical urge to explain or mitigate the *general* fact of mortality. That mortality is unbearable or makes human existence intrinsically pointless is a culture-specific speculation and by no means [21] provides universal motivation. But the prospect of one's own death and the thoughts triggered are certainly more to the point. How do they participate in building people's religious thoughts, how do they make such thoughts plausible and intensely emotional?

The common shoot-from-the-hip explanation—people fear death, and religion makes them believe that it is not the end—is certainly insufficient because the human mind does not produce adequate comforting delusions against all situations of stress or fear. Indeed, any organism that was prone to such delusions would not survive long. Also, inasmuch as some religious thoughts do allay anxiety, our problem is to explain how they become plausible enough that they can play this role. To entertain a comforting fantasy seems simple enough, but to act on it requires that it be taken as more than a fantasy. The experience of comfort alone could not create the necessary level of plausibility.

Before we accept emotion-oriented scenarios of religion's origins, we should probe their assumptions. Human minds may well have death-related anxiety, but what is it about? The question may seem as strange as the prospect of death seems simple and clear enough to focus the mind, as Dr. Johnson pointed out. But human emotions are not that simple. They happen because the mind is a bundle of complicated systems working in the mental basement and solving very complex problems. Consider a simple emotion like the fear induced by the lurking presence of a predator. In many animals, including humans, this results in dramatic somatic events—most noticeably, a quickened heartbeat and increased perspiration. But other systems also are doing complex work. For instance, we have to choose among several behaviors in such situations—freeze or flee or fight—a choice that is made by *computation*, that is, by mentally going through a variety of aspects of the situation and evaluating the least

dangerous option. So fear is not just what we experience about it; it is also a *program*, in some ways comparable to a computer program. It governs the resources of the brain in a special way, quite different from what happens in other circumstances. Fear increases the sensitivity of some perceptual mechanisms and leads reasoning through complicated sets of possible outcomes. So Dr. Johnson was right after all.[7]

PROGRESS BOX 2:
EMOTION IN RELIGION

- Religious concepts do not always provide reassurance or comfort.
- Deliverance from mortality is not quite the universal longing we often assume.
- Religious concepts are indeed connected to human emotional systems, which are connected to life-threatening circumstances.
- A different angle: Our emotional programs are an aspect of our evolutionary heritage, which may explain how they affect religious concepts.

This leads to other important questions: Why do we have such programs, and why do they work in this way? In the case of fear triggered by predators, it seems quite clear that natural selection designed our brains in such a way that they comprise this specific program. We would not be around if we did not have fairly efficient predator-avoidance mechanisms. But this also suggests that the mental programs are sensitive to the relevant context. You do not survive long if your brain fails to start this program when wolves surround you, or if you activate it every time you run into a sheep. Mortality anxiety may not be as simple as we thought. It is probably true that religious concepts gain their great salience and emotional load in the human psyche because they are connected to thoughts about various life-threatening circumstances. So we will not understand religion if we do not understand the various emotional programs in the mind, which are more complex than a diffuse angst.

Social scenarios: Religion as a good thing for society

Scenarios that focus on *social* needs all start from a commonsense (true) observation. Religion is not just something that is added to social life, it very often organizes social life. People's behavior toward each other, in most places, is strongly influenced by their notions about the existence and powers of ancestors, gods or spirits. So there must be some connection between living in society and having religious concepts. Here are some examples of the connections we may think of:

- *Religion holds society together.* In Voltaire's cynical formulation, "If God did not exist, he would have to be invented." That is, society would not hold together if people did not have some central set of beliefs that bind them together and make social groups work as organic wholes rather than aggregates of self-interested individuals.
- *Religion was invented to perpetuate a particular social order.* Churches and other such religious institutions are notorious for their active participation in and support of political authority. This is particularly the case in oppressive regimes, which often seek support in religious justifications. Religious beliefs are there to convince oppressed people that they can do nothing to better their lot except wait for promised retribution in another world.
- *Religion supports morality.* No society could work without moral prescriptions that bind people together and thwart crime, theft, treachery, etc. Now moral rules cannot be enforced merely by fear of immediate punishment, which all know to be uncertain. The fear of God is a better incentive to moral behavior since it assumes that the monitoring is constant and the sanctions eternal. In most societies some religious agency (spirits, ancestors) is there to guarantee that people behave.

Again, these scenarios point to real issues, and a good account of religion should have something to say about them. For instance, whatever we want to say about religious concepts, we must take into account that they are deeply associated with moral beliefs. Indeed, we cannot ignore the point, because that is precisely what many schools of religion insist on. The connection between religious concepts and political systems is likewise impossible to ignore because it is loudly proclaimed by many religious believers and religious doctrines.

However, here too we find some difficult problems. Consider this: In no human society is it considered all right, morally defensible to kill [24] your siblings in order to have exclusive access to your parents' attention and resources. In no society is it all right to see other members of the group in great danger without offering some help. Yet the societies in question may have vastly different religious concepts. So there is some suspicion that perhaps the link between religion and morality is what psychologists and anthropologists call a rationalization, an ad hoc explanation of moral imperatives that we would have regardless of religion. The same goes for connections between social order and religion. All societies have some prescriptive rules that underpin social organization; but their religious concepts are very diverse. So the connection may not be quite as obvious as it seems. We could brush these doubts aside and say that what matters is that social groups have *some* religion in order to have morality and social order. What matters then is a set of common premises that we find in most religious notions and that support social life and morality. But then, what are those common premises?

The connection between religion and oppression may be more familiar to Europeans than to other people because the history of Europe is also the history of long and intense struggles between Churches and civil societies. But we must be wary of ethnocentric bias. It is simply not the case that every place on earth has an oppressive social order sanctioned by an official Church. (Indeed, even in Europe at some points people have found no other resort than the Church against some oppressive regimes.) More generally, the connection between religious concepts, Church, and State cannot account for concepts that are found in strikingly similar forms in places where there are neither States nor Churches. Such concepts have a long antiquity, dating from periods when such institutions were simply not there. So, again, we have important suggestions that we must integrate into a proper account of religion. But we do not have the easy solution we may have anticipated.

Religion and the social mind

Social accounts are examples of what anthropologists call *functionalism*. A functionalist explanation starts with the idea that certain beliefs or practices or concepts make it possible for certain social relations to operate. Imagine for instance a group of hunters who have to plan and coordinate their next expedition. This depends on all sorts of [25] variables; different people have different views on where to go and when, leading to intractable disputes. In some groups people perform a divination ritual to decide where to go. They kill a chicken; the hunters are to follow in the direction of the headless body running away. The functionalist would say that since such beliefs and norms and practices contribute to the solution of a problem, this is probably why they were invented or why people reinvent and accept them. More generally: social institutions are around and people comply with them because they serve some *function*. Concepts too have functions and that is why we have them. If you can identify the function, you have the explanation. Societies have religion because social cohesion requires something like religion. Social groups would fall apart if ritual did not periodically reestablish that all members are part of a greater whole.

Functionalism of this kind fell out of favor with anthropologists sometime in the 1960s. One criticism was that functionalism seemed to ignore many counterexamples of social institutions with no clear function at all. It is all very well to say that having central authority is a good way of managing conflict resolution, but what about the many places where chiefs are warmongers who constantly provoke new conflicts? Naturally, functionalist anthropologists thought of clever explanations for that too but then were vulnerable to a different attack. Functionalism was accused of peddling ad hoc stories. Anyone with enough ingenuity could find some sort of social function for any cultural institution. A third criticism was that functionalism tended to depict societies as harmonious organic wholes where every part plays some useful function. But we know that most human societies are rife with factions, feuds, diverging interests and so on.[8]

As a student, I always found these criticisms less than perfectly convincing. True, extant functionalist explanations were not very good, but that was not sufficient reason to reject the general logic. Functionalism is a tried and tested method of explanation in evolutionary biology. Consider this: When faced with a newly discovered organ or behavior, the first questions biologists will ask are, What does it do for the organism? How does the organ or behavior confer an advantage in terms of spreading whatever genes are responsible for its appearance? How did it gradually evolve from other organs and behaviors? This strategy is now commonly called "reverse engineering." Imagine you are given a complicated contraption you have never seen before. The only way to make sense of what the parts are and how they are assembled is to try and guess what they are for, what function they are supposed to fulfil. Obviously, this may sometimes lead you down a garden path. The little statue on the bonnet of some luxury cars serves no function as far as locomotion is concerned. The point is not that reverse engineering is always *sufficient* to deliver the right solution but that it is always *necessary*. So there may be some benefit in a functionalist strategy at least as a starting point in the explanation of religion. If people the world over hold religious concepts and perform religious rituals, if so many social groups are organized around common beliefs, it makes sense to ask, How does the belief contribute to the group's functioning? How does it create or change or disrupt social relations?

These questions highlight the great weakness of classical functionalism and the real reason it did not survive in anthropology. It assumed that institutions were around so that society could function but it did not explain how or why individuals would participate in making society function. For instance, imagine that performing communal religious rituals really provided a glue that kept the social group together. Why would that lead people to perform rituals? They may have better things to do. Naturally, one is tempted to think that other members of the group would coerce the reluctant ones into participating. But this only pushes the problem one step further. Why would these others be inclined to enforce conformity? Accepting that conformity is advantageous to the group, they too might guess that free riding—accepting the benefits without doing anything in return—would be even more advantageous to themselves. Classical functionalist accounts had no way of explaining how or why people would adopt representations that were good for social cohesion.

There were no solutions to these puzzles until anthropologists started taking more seriously the fact that humans are *by nature* a social species. What this means is that we are not just individuals thrown together in social groups, trying to cope with the problems this creates. We have sophisticated mental equipment, in the form of special emotions and special ways of thinking, that is designed for social life. And not just for social life in general but for the particular kind of social interaction that humans create. Many animal species have complex social arrangements, but each species has specific dispositions that make its particular arrangements possible. You will not make gregarious chimpanzees out of naturally solitary orangutans, or turn philandering chimpanzees into monogamous gibbons. Obviously, the social life of humans is more complex than the apes', but that is because human social dispositions are more complex too. A human brain is so designed that it includes what evolutionary biologists call a particular form of "social intelligence" or a "social mind."

PROGRESS BOX 3:
RELIGION, MORALITY AND SOCIETY

- Religion cannot be explained by the need to keep society together or to preserve morality, because these needs do not create institutions.
- Social interaction and morality are indeed crucial to how we acquire religion and how it influences people's behavior.
- A different angle: The study of the social mind can show us why people have particular expectations about social life and morality and how these expectations are connected to their supernatural concepts.

The study of the social mind by anthropologists, evolutionary biologists and psychologists gives us a new perspective on the connections between religion and social life. Consider morality. In some places people say that the gods laid down the rules people live by. In other places the gods or ancestors simply watch people and sanction their misdemeanors. In both cases people make a connection between moral understandings (intuitions, feelings and reasoning about what is ethical and what is not) and supernatural agents (gods, ancestors, spirits). It now seems clear that Voltaire's account—a god is convenient: people will fear him and behave—got things diametrically wrong. [28] Having concepts of gods and spirits does not really make moral rules more *compelling* but it sometimes makes them more *intelligible*. So we do not have gods because that makes society function. We have gods in part because we have the mental equipment that makes society possible but we cannot always understand how society functions.

The sleep of reason: Religion as an illusion

Turning to the last kind of scenario: There is a long and respectable tradition of explaining religion as the consequence of a flaw in mental functioning. Because people do not think much or do not think very well, the argument goes, they let all sorts of unwarranted beliefs clutter their mental furniture. In other words, religion is around because people *fail* to take prophylactic measures against beliefs.

- *People are superstitious; they will believe anything.* People are naturally prepared to believe all sorts of accounts of strange or counterintuitive phenomena. Witness their enthusiasm for UFOs as opposed to scientific cosmology, for alchemy instead of chemistry, for urban legends instead of hard news. Religious concepts are both cheap and sensational; they are easy to understand and rather exciting to entertain.
- *Religious concepts are irrefutable.* Most incorrect or incoherent claims are easily refuted by experience or logic but religious concepts are different. They invariably describe processes and agents whose existence could never be verified, and consequently they are never refuted. As there is no evidence against most religious claims, people have no obvious reason to stop believing them.

- *Refutation is more difficult than belief.* It takes greater effort to challenge and rethink established notions than just to accept them. Besides, in most domains of culture we just absorb other people's notions. Religion is no exception. If everyone around you says that there are invisible dead people around, and everyone acts accordingly, it would take a much greater effort to try and verify such claims than it takes to accept them, if only provisionally.

I find all these arguments unsatisfactory. Not that they are false. Religious claims are indeed beyond verification; people do like sensational supernatural tales better than banal stories and generally spend [29] little time rethinking every bit of cultural information they acquire. But this cannot be a sufficient explanation of why people have the concepts they have, the beliefs they have, the emotions they have. The idea that we are often gullible or superstitious is certainly true . . . but we are not gullible in every possible way. People do not generally manage to believe six impossible things before breakfast, as does the White Queen in Lewis Carroll's *Through the Looking Glass*. Religious claims are irrefutable, but so are all sorts of other baroque notions that we do not find in religion. Take for instance the claim that my right hand is made of green cheese except when people examine it, that God ceases to exist every Wednesday afternoon, that cars feel thirsty when their tanks run low or that cats think in German. We can make up hundreds of such interesting and irrefutable beliefs. There is no clear limit to imagination in this domain. The credulity arguments would explain not just actual religious beliefs but also a whole variety of beliefs that no one ever had.

Religion is *not* a domain where anything goes, where any strange belief could appear and get transmitted from generation to generation. On the contrary, there is only a limited catalogue of possible supernatural beliefs, which I present in Chapter 2. Even without knowing the details of religious systems in other cultures, we all know that some notions are far more widespread than others. The idea that there are invisible souls of dead people lurking around is a very common one; the notion that people's organs change position during the night is very rare. But both are equally irrefutable. . . . So the problem, surely, is not just to explain how people can accept supernatural claims for which there is no strong evidence but also why they tend to represent and accept *these* supernatural claims rather than other possible ones. We should explain also why they are so *selective* in the claims they adhere to.

Indeed, we should go even further and abandon the credulity scenario altogether. Here is why. In this scenario, people relax ordinary standards of evidence for some reason. If you are against religion, you will say that this is because they are naturally credulous, or respectful of received authority, or too lazy to think for themselves, etc. If you are more sympathetic to religious beliefs, you will say that they open up their minds to wondrous truths beyond the reach of reason. But the point is that if you accept this account, you assume that people *first* open up their minds, as it were, and *then* let their minds be filled by whatever religious beliefs are held by the people who influence them at that particular time. This is often the way we think of religious adhesion. There is a gatekeeper in the mind that either allows or rejects visitors—that is, other people's concepts and beliefs. When the gatekeeper allows them in, these concepts and beliefs find a home in the mind and become the person's own beliefs and concepts.

[30]

Our present knowledge of mental processes suggests that this scenario is highly misleading. People receive all sorts of information from all sorts of sources. *All* this information has some effect on the mind. Whatever you hear and whatever you see is perceived, interpreted, explained, recorded by the various inference systems I described above. Every bit of information is fodder for the mental machinery. But then some pieces of information produce the effects that we identify as "belief." That is, the person starts to recall them and use them to explain or interpret particular events; they may trigger specific emotions; they may strongly influence the person's behavior. Note that I said *some* pieces of information, not all. This is where the selection occurs. In ways that a good psychology of religion should describe, it so happens that only some pieces of information trigger these effects, and not others; it also happens that the same piece of information will have these effects in some people but not others. So people do not have beliefs because they somehow made their minds receptive to belief and then acquired the material for belief. They have some beliefs because, among all the material they acquired, some of it triggered these particular effects.

This is important because it changes the whole perspective on explaining religion. As long as you think that people first open up the gates and then let visitors in, as it were, you cannot understand why religion invariably returns to the same recurrent themes. If the process of transmission only consists of *acceptance*, why do we find only a handful of recurrent themes? But if you see things the other way around,

you can start describing the effects of concepts in the mind and understand why some of them may well become persuasive enough that people "believe" them. I do not think that people have religion because they relax their usually strict criteria for evidence and accept extraordinary claims; I think they are led to relax these criteria because some extraordinary claims have become quite plausible to them.

[31]

PROGRESS BOX 4: RELIGION AND REASONING

- The sleep of reason is no explanation for religion as it is. There are many possible unsupported claims and only a few religious themes.
- Belief is not just passive acceptance of what others say. People relax their standards because some thoughts become plausible, not the other way around.
- A different angle: We should understand what makes human minds so selective in what supernatural claims they find plausible.

Turning the question upside down

At this point we should perhaps close this survey. We could in principle carry on for quite some time, as philosophers, historians and psychologists have come up with many more suggestions. However, there is a diminishing return for this kind of discussion, as most origin scenarios suffer from similar flaws. If religion is reassuring, why does it create much of the anxiety it cures? If it explains the world, why does it do it with such baroque complication? Why does it have these common, recurrent themes rather than a great variety of irrefutable ideas? Why is it so closely connected to morality, whereas

it cannot really create morality? As I said several times, we cannot hope to explain religion if we just fantasize about the way human minds work. We cannot just decide that religion fulfils some particular intellectual or emotional needs, when there is no real evidence for these needs. We cannot just decide that religion is around because it promises this or that, when there are many human groups where religion makes no such promise. We cannot just ignore the anthropological evidence about different religions and the psychological evidence about mental processes. (Or rather, we *should* not; we actually do it quite often.) So the prospect may seem rather dim for a general explanation of religion. However, this survey of possible scenarios also suggests that there is another way to proceed, as I have suggested in reviewing each scenario.

The main problem with our spontaneous explanations of religion lies in the very assumption that we can explain the origin of religion by selecting one particular problem or idea or feeling and deriving the variety of things we now call religion from that unique point. Our spontaneous explanations are meant to lead us from the *One* (religion's origin) to the *Many* (the current diversity of religious ideas). This may seem natural in that this is the usual way we think of origins. The origin of geometry lies in land-tenure and surveying problems. The origin of arithmetic and number theory is in accounting problems encountered by centralized agricultural states. So it seems sensible to assume that a "one thing led to many things" scenario is apposite for cultural phenomena.

But we can approach the question from another angle. Indeed, we can and should turn the whole "origin" explanation upside down, as it were, and realize that the many forms of religion we know are not the outcome of a historical *diversification* but of a constant *reduction*. The religious concepts we observe are relatively successful ones selected among many other variants. Anthropologists explain the origins of many cultural phenomena, including religion, not by going from the *One* to the *Many* but by going from the *Very Many* to the *Many Fewer*, the many variants that our minds constantly produce and the many fewer variants that can be actually transmitted to other people and become stable in a human group. To explain religion we must explain how human minds, constantly faced with lots of potential "religious stuff," constantly reduce it to much less stuff.

Concepts in the mind are constructed as a result of being exposed to other people's behavior and utterances. But this acquisition process

is not a simple process of "downloading" notions from one brain to another. People's minds are constantly busy reconstructing, distorting, changing and developing the information communicated by others. This process naturally creates all sorts of variants of religious concepts, as it creates variants of all other concepts. But then not all of these variants have the same fate. Most of them are not entertained by the mind for more than an instant. A small number have more staying power but are not easily formulated or communicated to others. An even smaller number of variants remain in memory, are communicated to other people, but then these people do not recall them very well. An extremely small number remain in memory, are communicated to other people, are recalled by these people and communicated to others in a way that more or less preserves the original concepts. These are the ones we can observe in human cultures.

So we should abandon the search for a *historical* origin of religion in the sense of a point in time (however long ago) when people created religion where there was none. All scenarios that describe people sitting around and inventing religion are dubious. Even the ones that see religion as slowly emerging out of confused thoughts have this problem. In the following chapters I will show how religion emerges (has its origins, if you want) in the selection of concepts and the selection of memories. Does this mean that at some point in history people had lots of possible versions of religion and that somehow one of them proved more successful? Not at all. What it means is that, *at all times and all the time*, indefinitely many variants of religious notions were and are created inside individual minds. Not all these variants are equally successful in cultural transmission. What we call a cultural phenomenon is the result of a selection that is taking place all the time and everywhere.

This may seem a bit counterintuitive. After all, if you are a Protestant you went to Sunday school and that was your main source of formal religious education. Similarly, the teachings of the *madrasa* for Muslims and the Talmud-Torah for Jews seem to provide people with *one* version of religion. It does not seem to us that we are shopping in a religious supermarket where the shelves are bursting with alternative religious concepts. But the selection I am talking about happens mostly inside each individual mind. In the following chapters I describe how variants of religious concepts are created and constantly eliminated. This process goes on, completely unnoticed, in parts of our mind that conscious introspection will not reach. This cannot be observed or explained without the experimental resources of cognitive science.

Culture as memes

The notion that what we find in cultures is a residue or a precipitate of many episodes of individual transmission is not new. But it became very powerful with the development of formal mathematical tools to describe cultural transmission. This happened because anthropologists were faced with a difficult problem. They often described human cultures in terms of "big" objects, like "American fundamentalism," "Jewish religion," "Chinese morality," and so on. Anthropology and history could make all sorts of meaningful state-
[34] ments about these big objects (e.g., "In the 18th century, the progress of science and technology in Europe challenged Christian religion as a source of authority.") However, this is a very remote description of what happens on the ground, in the actual lives of individuals. After all, people do not interact with such abstract objects as scientific progress or Christian authority. They only interact with individual people and material objects. The difficulty was to connect these two levels and to describe how what happened at the bottom, as it were, produced stability and change at the level of populations.

A number of anthropologists and biologists (including C. Lumsden and E.O. Wilson, R. Boyd and P. Richerson, L.L. Cavalli-Sforza and M. Feldman, W. Durham) more or less at the same time proposed that cultural transmission could be to some extent described in the same way as genetic inheritance. Evolutionary biology has put together an impressive set of mathematical tools to describe the way a certain gene can spread in a population, under what conditions it is likely to be "crowded out" by other versions, to what extent genes that are detrimental to one organism can still be transmitted in a population, and so forth. The idea was to adapt these tools to the transmission of cultural notions or behaviors.[9]

Tool kit 1: Culture as memes

The equations of population genetics are abstract tools that can be applied to genes but also to any other domain where you have (i) a set of units, (ii) changes that produce different variants of those units, (iii) a mechanism of transmission that chooses between variants. In cultural transmission we find a certain set of notions and values (these would be the analogue of the genes). They come in different versions. These variants are communicated to people who grow up in a particular group (this is the analogue of reproduction). These internal states have external effects because people act on the basis of their notions and values (in the same way as genes produce phenotypic effects). Over many cycles of communication, certain trends can appear because of accumulated distortions—people do not transmit exactly what they received—and biased transmission—people may acquire or store some material better than the rest. [35]

Biologist Richard Dawkins summarized all this by describing culture as a population of *memes*, which are just "copy-me" programs, like genes. Genes produce organisms that behave in such a way that the genes are replicated—otherwise the genes in question would not be around. Memes are units of culture: notions, values, stories, etc. that get people to speak or act in certain ways that make other people store a replicated version of these mental units. A joke and a popular tune are simple illustrations of such copy-me programs. You hear them once, they get stored in memory, they lead to behaviors (telling the joke, humming the tune) that will implant copies of the joke or tune in other people's memories, and so on. Now describing most cultural phenomena in terms of memes and meme-transmission may seem rather straightforward and innocuous. But it has important consequences that I must mention here because they go against some deeply entrenched ideas about culture.

First, meme-models undermine the idea of culture as some abstract object, independent from individual concepts and norms, that we somehow "share." A comparison with genes shows why this is misguided. I have blue eyes, like other people. Now I do not have their genes and they do not have mine. Our genes are all safely packed inside our individual cells. It would be a misleading metaphor to say that we "share" anything. All we can say is that the genes I inherited are similar to theirs from the point of view of their effects on eye color. In the same way, *culture is the name of a similarity*. What we mean when we say that something is "cultural" is that it is roughly similar to what we find in other members of the particular group we are considering, and unlike what we would find in members of a contrast group. This is why it is confusing to say that people share a culture, as if cul-

ture were common property. We may have strictly identical amounts of money in our respective wallets without sharing any of it!

Second, since culture is a similarity between people's ideas, it is very confusing to say things like "American culture places great emphasis on individual achievement" or "Chinese culture is more concerned with harmony within a group." Saying this, we conclude that, for instance, "Many Americans would like to relax but their culture tells them to be competitive" or "Many Chinese people would enjoy competition but their culture incites them to be more group-oriented." So we describe culture as some kind of external force that [36] pushes people one way or another. But this is rather mysterious. How could a similarity *cause* anything? There is no external force here. If people feel a conflict between their inclinations and a norm that is followed by everybody else, it is a conflict *within their heads.* If an American child has a hard time coping with the requirement that "an American child should be competitive," it is because the requirement has been implanted in the child's mind, maybe to his chagrin. But all this is happening inside a mind.

Third, knowing that culture is a similarity between people is helpful because it forces you to remember that two objects are similar only *from a certain point of view.* My blue eyes may make me similar to some other people, but then my shortsightedness makes me similar to others. Apply this to culture. We routinely talk about whole cultures as distinct units, as in "Chinese culture," "Yoruba culture," "British culture" and so forth. What is wrong here? The term *cultural* labels a certain similarity between the representations we find in members of a group. So, it would seem, we can do anthropological fieldwork and surveys among different human groups, say the Americans and the Yoruba, and then describe representations that we find in only one of them as being the American and Yoruba cultures respectively. But why do we assume that "the Americans" or "the Yoruba" constitute a group? Compare this with natural species. We feel justified, to some extent, in comparing the eggplant with the zucchini or the donkey with the zebra. These labels correspond to natural groupings of plants and animals. Now the problem is that *there are no natural groupings for human beings.* We may think that it makes sense to compare the Americans and the Yoruba because there is a Yoruba polity and an American (U.S.) nation. But note that these are historical, purposeful constructions. They are not the effect of some natural similarity. Indeed, if we look at people's actual behavior and representations in either group,

we will find that quite a lot of what they do and think can be observed outside these groups. Many norms and ideas of American farmers are more common to farmers than to Americans; many norms and ideas of Yoruba businessmen are more common among businesspeople than among the Yoruba. This confirmed what anthropologists had long suspected, that the choice of human groupings for cultural comparisons is not a natural or scientific choice, but a *political* one.

Finally, quantitative models of cultural transmission replaced mythical notions like "absorbing what's in the air" with a concrete, measurable process of transmission. People communicate with other people, they meet individuals with similar or different notions or values, they change or maintain or discard their ways of thinking because of these encounters, and so forth. What we call their "culture" is the outcome of all these particular encounters. If you find that a particular concept is very stable in a human group (you can come back later and find it more or less unchanged) it is because it has a particular *advantage* inside individual minds. If you want to explain cultural trends, this is far more important than tracing the actual historical origin of this or that particular notion. A few pages back, I described the way a Cuna shaman talks to statuettes. This seems a stable concept among the Cuna. If we want to explain that, we have to explain how this concept is represented in individual minds, in such a way that they can recall it and transmit it better than other concepts. If we want to explain why the Cuna maintain this notion of intelligent statuettes, it does not matter if what happened was that one creative Cuna thought of that a century ago, or that someone had a dream about that, or that someone told a story with intelligent statuettes. What matters is what happened afterward in the many cycles of acquisition, memory and communication.[10] [37]

In this account, familiar religious concepts and associated beliefs, norms, emotions, are just better-replicating memes than others, in the sense that their copy-me instructions work better. This would be why so many people in different cultures think that invisible spirits lurk around and so few imagine that their internal organs change location during the night, why the notion of moralistic ancestors watching your behavior is more frequent than that of immoral ghosts who want you to steal from your neighbors. Human minds exposed to these concepts end up replicating them and passing them on to other people. On the whole, this may seem the right way to understand diffusion and transmission. However. . .

Distortion is of the essence

The notion of human culture as a huge set of copy-me programs is very seductive and it is certainly on the right track, but it is only a starting point. Why are some memes better than others? Why is singing *Land of Hope and Glory* after hearing it once much easier than humming a tune from Schoenberg's *Pierrot lunaire?* What exactly makes moralistic ancestors better for transmission than immoral ghosts? This is not the only problem. A much more difficult one is that if we look a bit more closely at cultural transmission between
[38] human beings, what we see does not look at all like replication of identical memes. On the contrary, the process of transmission seems guaranteed to create an extraordinary profusion of baroque variations. This is where the analogy with genes is more hindrance than help. Consider this. You (and I) carry genes that come from a unique source (a meiotic combination of our parents' genes) and we will transmit them unchanged (though combined with a partner's set) to our offspring. In the meantime, nothing happens; however much you may work out at the gym, you will not have more muscular children. But in mental representations the opposite is true. The denizens of our minds have many parents (in those thousands of renditions of *Land of Hope and Glory*, which one is being replicated when I whistle the tune?) and we constantly modify them.[11]

As we all know, some memes may be faithfully transmitted while others are hugely distorted in the process. Consider for instance the contrasting fortunes of two cultural memes created by Richard Dawkins, one of which replicated very well while the other one underwent a bizarre mutation. The idea of "meme" itself is an example of a meme that replicated rather well. A few years after Dawkins had introduced the notion, virtually everybody in the social sciences and in evolutionary biology or psychology knew about it and for the most part had an essentially correct notion of the original meaning. Now compare this with another of Dawkins's ideas, that of "selfish genes." What Dawkins meant was that genes are DNA strings whose sole achievement is to replicate. The explanation for this is simply that the ones that do not have this functionality (the ones that build organisms that cannot pass on the genes) just disappear from the gene pool. So far, so simple. However, once the phrase *selfish gene* diffused out into the wide world its meaning changed beyond recognition, to become in many people's usage "a gene that makes us selfish." An editorial in the British *Spectator* once urged the Conservative Party to acquire more of that selfish gene that Professor Dawkins talked about. . . . But one does not "acquire" a gene, it makes little sense to say that someone has "more" of a gene than someone else, there is probably no such thing as a gene that makes people selfish, and Dawkins never meant that anyway. This distortion is not too surprising. It confirms the popular perception that biology is all about the struggle for survival, Nature red in tooth and claw, the Hobbesian fight of all against all, etc. (that this is in fact largely false is neither here nor there). So the distortion happened, in this case, because people had a prior notion that the phrase "selfish gene" seemed to match. The original [39] explanation (the original meme) was completely ignored, the better to fit that prior conception.

Cultural memes undergo mutation, recombination and selection *inside* the individual mind every bit as much and as often as (in fact probably more so and more often than) during transmission between minds. We do not just transmit the information we received. We process it and use it to create new information, some of which we do communicate to other people. To some anthropologists this seemed to spell the doom of meme-explanations of culture. What we call culture is the similarity between some people's mental representations in some domains. But how come there *is* similarity at all, if representations come from so many sources and undergo so many changes?

It is tempting to think that there is an obvious solution: some memes are so infectious and hardy that our minds just swallow them whole, as it were, and then regurgitate them in pristine form for others to acquire. They would be transmitted between minds in the same way as an E-mail message is routed via a network of different computers. Each machine stores it for a while and passes it on to another machine via reliable channels. For instance, the idea of a moralistic ancestor, communicated by your elders, might be so "good" that you just store it in your memory and then deliver it intact to your children. But that is not the solution, for the following reason: When an idea gets distorted beyond recognition—as happened to the "selfish gene"—it seems obvious that this occurs because the minds that received the original information added to it, in other words *worked* on it. So far, so good. But this leads us to think that when an idea gets transmitted in a roughly faithful way, this occurs because the receiving minds did *not* rework it, as it were. Now that is a great mistake. The main difference between minds that communicate and computers that

route E-mail is this: minds *never* swallow raw information to serve it to others in the same raw state. Minds invariably do a lot of work on available information, *especially so* when transmission is faithful. For instance, I can sing *Land of Hope and Glory* in (roughly) the same way as others before me. This is because hugely complex mental processes shaped my memories of the different versions I heard. In human communication, *good transmission requires as much work as does distortion.*

This is why the notion of "memes," although a good starting point, is only that. The idea of "replication" is very misleading. People's ideas are sometimes roughly similar to those of other people around [40] them, not because ideas can be downloaded from mind to mind but because they are reconstructed in a similar way. Some ideas are good enough that you will entertain them even though your elders did not give you much material to work with, and so good again that your cultural offspring will probably hone in on them even though you too are an incompetent transmitter! Against our intuitions, there is nothing miraculous in the fact that many machines have similar text in memory although the connections between them are terrible, when the machines in question are human minds and the channel is human communication.

How to catch concepts with templates

People have religious notions and beliefs because they acquired them from other people. Naturally, nothing in principle prevents an ingenious Sicilian Catholic from reinventing the Hindu pantheon or imaginative Chinese from re-creating Amazonian mythology. On the whole, however, people get their religion from other members of their social group. But how does that occur? Our spontaneous explanation of transmission is quite simple. People behave in certain ways around a child and the child assimilates what is around until it becomes second nature. In this picture, acquiring culture is a passive process. The developing mind is gradually filled with information provided by cultural elders and peers. This is why Hindus have many gods and Jews only one; this is why the Japanese like raw fish and the Americans toast marshmallows. Now this picture of transmission has a great advantage—it is simple—and a major flaw—it is clearly false. It is mistaken on two counts. First, children do not assimilate the information around them; they actively filter it and use it to go well beyond what is provided. Second, they do not acquire all information in the same way.

To get a feel for the complexity of transmission, compare the ways in which you acquired different bits of your cultural equipment. How did you learn the syntax of your native tongue? It is a very complex system, as any foreigner struggling with the rules will tell you. But the learning process all happened unconsciously, or so it seems, and certainly without any effort, just by virtue of being around native speakers. Compare with etiquette and politeness. These are different from one culture to another and they have to be learned at some point. [41] Again, this seems to be rather easily done, but there is a difference. In this case you learned by being told what to do and not do and by observing examples of people interacting. You were aware, to a certain extent, that you were acquiring ways of behaving in order to have certain effects on other people. Now consider mathematics. In this case you were certainly aware that you were learning something. You had to put some effort into it. Understanding the truth of $(a+b)^2 = a^2+2ab+b^2$ does not come very easily. Most people never acquire this kind of knowledge unless they are guided step by step by competent adults. I could multiply the examples but the point is really simple. There is no single way of acquiring the stuff that makes you a competent member of a culture.

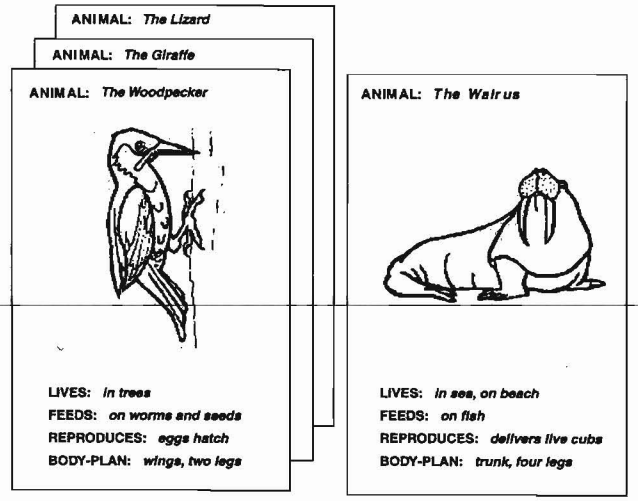
There are different ways of acquiring cultural information because a human brain has dispositions for learning and they are not the same in all domains. For instance, acquiring the right syntax and pronunciation for a natural language is trivially easy for all normal brains at the right age, between about one and six. The dispositions for social interaction develop at a different rhythm. But in all these domains learning is possible because there is a disposition to learn, which means, a disposition to go *beyond* the information that is available. This is quite clear in language. Children gradually build their syntax on the basis of what they hear because their brains have definite biases about how language works. But it is true also in many conceptual domains. Consider our everyday knowledge of animals. Children learn that different animal species reproduce in different ways. Cats deliver live kittens and hens lay eggs. A child can learn that by observing actual animals or by being given explicit information. But there are things you do not have to tell children because they know them already. For example, it is not necessary to tell them that if one hen lays eggs, then it is proba-

bly true that hens *in general* lay eggs. In the same way, a five-year-old will guess that if one walrus gives birth to live cubs then all other walruses probably reproduce in that way too. This illustrates another simple point: Minds that acquire knowledge are not empty containers into which experience and teaching pour predigested information. A mind needs and generally has some way of organizing information to make sense of what is observed and learned. This allows the mind to go beyond the information given, or in the jargon, to produce *inferences* on the basis of information given.

[42] Complex inferences allow children and adults to build concepts out of fragmentary information, but inferences are not random. They are governed by special principles in the mind, so that their result is in fact predictable. Even though cultural material is constantly distorted and reshuffled inside the head, the mind is not a free-for-all of random associations. One major reason is the presence of mental dispositions for arranging conceptual material in certain ways rather than others. Crucial to this explanation is the distinction between *concepts* and *templates*.

To illustrate this: A child is shown a new animal, say a walrus, and told the name for the species. What the child does—unconsciously of course—is add a new entry to her mental "encyclopedia," an entry marked "walrus" that probably includes a description of a shape. Over the years this entry may become richer as new facts and experiences provide more information about walruses. As I said above, we also know that the child spontaneously adds some information to that entry, whether we tell her or not. For instance, if she sees a walrus give birth to live cubs, she will conclude that this is the way all walruses have babies. You do not need to tell her that "all walruses reproduce that way." Why is that so? The child has created a "walrus" *concept* by using the ANIMAL *template*.

Think of the ANIMAL template as one of those official forms that provide boxes to fill out. You can fill out the same form in different ways. What stays the same are the boxes and the rules on what should be put in them. The child has identified that the thing you called "walrus" was an animal, not a heap of minerals or a machine or a person. To put it metaphorically, all she had to do then was to take a new sheet of the form called ANIMAL and fill out the relevant boxes. These include a box for the name of the new kind of animal, a box for its appearance (shape, size, color, etc.), a box for where it lives, a box for how it gets a progeny, and so on. In the figure below I give a *very simplified* illustration of this idea of filling out templates for new animals.



[ANIMAL TEMPLATES]

[43]

Now the information in each of these boxes has to be filled out according to certain principles. You are not allowed to specify that an animal has sometimes four legs and sometimes two wings and two legs. You have to decide which is true or leave the box empty. In the same way, the box for "reproduces" will be filled out with either one answer or none. This is why I compared templates to official forms. These ask you to give your one given name, not a choice of nicknames your friends call you. This is very important because it means that some generalizations are produced automatically when you learn a new concept. The move from "this one has live cubs" (a particular fact) to "they all have live cubs" (a generalization) is made automatically because the animal template does not allow several different values in the "reproduces" box. So the child does not have to learn how an animal reproduces more than once for each animal kind.

The child is told: "This is a walrus. See how big her belly is! She'll probably give birth to cubs very soon." A few days later this child may well tell a friend that walruses do not lay eggs; they get pregnant and deliver live babies. This is not a *replication* of information she received

but an *inference* from that information. Even very young children can produce such inferences because they connect the information received about a particular animal to an abstract template ANIMAL. This template works like a recipe and could be called "recipe for producing new animal-concepts."

There are, obviously, *fewer* templates than concepts. Templates are more abstract than concepts and organize them. You need only one ANIMAL template for the many, many different animal concepts you will acquire. You need one TOOL template although you may have concepts for many different tools. Concepts depend on your experience, your environment, but templates are much more stable. For instance, people from Greenland and Congo share very few animal concepts, simply because very few species are encountered in both places. Also, a fishmonger certainly has a richer repertoire of fish concepts than an insurance salesman. But the ANIMAL template does not vary much with differences in culture or expertise. For instance, everyone from Congo to Greenland and from fishmongers to insurance salesmen expects all members of a species to reproduce in the same way. Everyone expects that an animal belongs to a species and only one. Everyone expects that if an animal of a particular species breathes in a particular way this is true of all other members of the species.

The distinction between templates and concepts applies to many other domains. Here is a familiar example: In every place in the world there are very precise notions about which substances are disgusting and which are not. But the concepts are really different. To many in the West the idea of eating cockroaches is rather off-putting, but they would not find anything especially disgusting in having dinner with a blacksmith. The opposite would be true in other places. So we might conclude that there is nothing in common between human cultures in this domain. However, there is a general template of POLLUTING SUBSTANCE that seems to work in the same way in most places. For example, whenever people think that a particular substance is disgusting, they also think that it remains so however much you dilute it: Who (in the West) would want to drink a glass of water if they are told it contains only a tiny drop of cow urine? In the same way, some people in West Africa would think that the mere presence of a blacksmith in their home is enough to spoil the food. Take another example, from the domain of politeness. We know etiquette really differs from place to place. In the West it would be rude to sit in your host's lap; in Cameroon, where I did fieldwork, it shows great respect on some occasions. Concepts are different, but there is a general template of FACE and actions that can make people lose it. You have to learn the local rules, but note how easy it is to produce inferences once you are given the rules. For instance, once told that sitting in a person's lap is a mark of respect, you can infer that it cannot be done all the time, that it is probably absurd to do it with small children, that you will offend people if you fail to do it when it is expected, and so forth. Such inferences are easy because you already have a template for such concepts.

EPIDEMICS OF CULTURE

Templates are one of the devices that allow minds to reach similar representations without having a perfect channel to "download" information from one mind to another. The child now thinks that walruses deliver live cubs. I happen to think so too, and you probably have the same idea, and so does, say, Mrs. Jones. But it is very unlikely that we all received precisely the same information about walruses in the same way. What is far more likely is that we extracted this similar information by inference from very different situations and from different statements made by people in different ways. We nonetheless converged on similar inferences because the animal template is the same in the child, you, me and Mrs. Jones (I will show in another chapter how we know this to be the case). In fact we might all converge on this same notion even if the information the child, you, I and Mrs. Jones had received was totally different.

As I said above, the fact that individual minds constantly recombine and modify information would suggest that people's concepts are in constant flux. But then why do we find similar representations among members of a particular social group? The mystery is not so difficult to solve once we realize not just that *all* mental representations are the products of complex inferences—so there is indeed a vast flux and myriad modifications—but also that *some* changes and inferences tend to go in particular directions, no matter where you start from. Inferences in the mind are in many cases a centrifugal force, as it were, that makes different people's representations diverge in unpredictable ways. If I spend a whole day with my friends, going through the same experiences for hours on end, our memories of that day will probably diverge in a million subtle ways. But in some domains inferences do

the opposite. Acting as a centripetal force, inferences and memories lead to roughly similar constructions even though the input may be quite different. This is why we can observe similarities between concepts both within a group—my notions about animals are quite similar to those of my relatives—and also between groups—there are important similarities in animal concepts from Congo to Greenland, because of a similar template.

At about the same time as meme-accounts were devised to describe cultural transmission, Dan Sperber and some colleagues put together an *epidemiological* framework to describe the mechanisms of
[46] cultural transmission. The substance of this framework is what I just explained in terms of information and inference. An epidemic occurs when a group of individuals display similar symptoms—when for instance people in a whole region of Africa get high fevers. This is explained as an epidemic of malaria, caused by the presence of mosquitoes carrying the *Plasmodium* pathogen. But note that what we call the epidemic is the occurrence of fevers and assorted symptoms, not the presence of mosquitoes or even *Plasmodium*. That is, to explain what happened you must understand the particular ways in which the human body reacts to the presence of this particular agent. If you do not know any physiology, you will have a hard time explaining why only some animals catch malaria, why fewer people with adequate preventive treatment catch it than do others, or indeed how the disease spreads at all. We may well study the structure of *Plasmodium* forever; this will tell us nothing about its effects unless we also learn a lot about human physiology. Mental representations are the effects of external vectors, mostly of communications with other people. But then the structure of the messages exchanged does not by itself tell us how the mind will react to them. To understand that, we must know a lot about human psychology, about the way minds produce inferences that modify and complete the information exchanged.[12]

Tool kit 2: Cultural epidemics

Human minds are inhabited by a large population of mental representations. Most representations are found only in one individual but some are present in roughly similar forms in various members of a group. To account for this is to explain the statistical fact that a similar condition affects a number of organisms, as in epidemics. Different people have inferred similar representations from publicly accessible representations: other people's behavior, gestures, utterances, man-made objects, etc. The diffusion of particular representations in a group, as well as similarities across groups, can be predicted if we have a good description of what mental resources people bring to understanding what others offer as cultural material—in particular, what inferential processes they apply to that material.

[47]

To explain religion is to explain a particular kind of mental epidemic whereby people develop (on the basis of variable information) rather similar forms of religious concepts and norms. I used the example of animal concepts to show how our minds build inferences in such a way that concepts within a group can be very similar and the concepts of different groups, despite differences, can be shaped by the same templates. This applies to religious notions too. There are templates for religious concepts. That is, there are some "recipes" contained in my mind, and yours, and that of any other normal human being, that build religious concepts by producing inferences on the basis of some information provided by other people and by experience. In the same way as for animal concepts, religious concepts may converge (be roughly similar) even though the particular information from which they were built is in fact very different from one individual to another.

Religion is cultural. People get it from other people, as they get food preferences, musical tastes, politeness and a dress sense. We often tend to think that if something is cultural then it is hugely variable. But then it turns out that food preferences and other such cultural things are not so variable after all. Food preferences revolve around certain recurrent flavors, musical tastes in various cultures vary within strict constraints, and so do politeness codes and standards of elegance.

For anthropologists, the fact that something is cultural is the very *reason* it does not vary that much. Not everything is equally likely to be transmitted, because the templates in the mind filter information from other people and build predictable structures out of that information.

A PUZZLEMENT OF QUESTIONS

When I started studying anthropology, theories of religion were thoroughly confusing. People in my discipline used to think that the very question, Why is religion the way it is? was naive, ill-formulated or perhaps just intractable. Most people thought this kind of speculation was better left to theologians or retired scientists. What we lacked at the time was a good description of those aspects of human nature that lead people to adopt certain ideas or beliefs rather than others. Convergent developments in evolutionary biology and cognitive psychology have since helped us understand why human cultures display similarities and differences too.

When I say that we now have a better account of religion, I of course mean a better one compared to previous *scientific* accounts. In this kind of theory, we describe phenomena that can be observed and even measured. We explain them in terms of other phenomena that are also detectable. When we say that *a* implies *b*, our account is vulnerable to counterexamples where *a* occurs without *b*. I do not know if this is enough to define scientific explanations but I am sure it excludes quite a few theories of religion. Some people say that the origin of religion is a long-forgotten visit from wise extraterrestrial aliens who were compassionate enough to leave us with fragments of their knowledge. These people will not be interested in the kind of discoveries I discuss here. In a less flamboyant vein, people who think that we have religion because religion is *true* (or their version of it is, or perhaps another, still-to-be-discovered version is) will find little here to support their views and in fact no discussion of these views.

But we can do much better. We can now address as *problems* rather than *mysteries* a collection of questions that used to be intractable, such as:

- Why do people have religion, more or less everywhere?
- Why does it come in different forms? Are there any common features?
- Why does religion matter so much to people's lives?
- Why are there several religions rather than just one?

- Why does religion prescribe rituals? Why are rituals the way they are?
- Why do most religions have religious specialists?
- Why does religion seem to provide "truth"?
- Why are there Churches and religious institutions?
- Why does religion trigger strong emotions? Why do people kill for religion?

- Why does religion persist in the face of apparently more efficient ways of thinking about the world?
- Why does it lead to so much intolerance and so many atrocities? Or, if you prefer, Why is it sometimes conducive to heroism and self-sacrifice?

There remains one big question that most people would think is the crucial one: *Why do some people believe?* The question is often the *first* one people ask when they consider scientific accounts of religion, yet it will be treated in the *last* chapter of this book. This is not for the sake of creating a spurious suspense. It turns out that you cannot deal with this question unless you have a very precise description of *what* it is that people actually believe. And that is far from obvious.

This may seem a strange thing to say, as religious people are in general all too eager to let us know what they believe. They tell us that an unseen presence is watching our every step, or that the souls of dead people are still around, or that we will reincarnate in some form commensurate with our moral achievements. So all we have to do, or so it seems, is consider these diverse notions and ask ourselves, again: Why do people believe in all this?

But this does not really work. What makes anthropology difficult—and fascinating—is that religious representations are not all *transparent* to the mind. When people have thoughts about gods or spirits or ancestors, a whole machinery of complex mental devices is engaged, most of which is completely outside conscious access. This, obviously, is not special to religion. Speaking a natural language or playing tennis

or understanding a joke also engage this complex machinery (though in different ways). If you want to explain how human minds acquire religious concepts, why these concepts become plausible and why they trigger such strong emotions, you will have to describe all the invisible processes that create such thoughts, make it possible to communicate them, and trigger all sorts of associated mental effects such as emotion and commitment.

Explaining airy nothing: Magic bullets vs. aggregate relevance

All scenarios for the origin of religion assume that there must be a single factor that will explain why there is religion in all human groups and why it triggers such important social, cognitive, emotional effects. This belief in a "magic bullet" is, unfortunately, exceedingly stubborn. It has hampered our understanding of the phenomenon for a long time. Progress in anthropology and psychology tells us why the belief was naive. Some concepts happen to connect with inference systems in the brain in a way that makes recall and communication very easy. Some concepts happen to trigger our emotional programs in particular ways. Some concepts happen to connect to our social mind. Some of them are represented in such a way that they soon become plausible and direct behavior. The ones that do *all* this are the religious ones we actually observe in human societies. They are most successful because they combine features relevant to a variety of mental systems.

This is precisely why religion cannot be explained by a single magic bullet. Since cultural concepts are the objects of constant selection in minds, through acquisition and communication, the ones that we find widespread in many different cultures and at different times probably have some transmission advantage, relative to *several* different mental dispositions. They are relevant to different systems in the mind. This is why it takes several chapters to approach a question that many people, in my experience, can solve to their entire satisfaction in a few seconds of dinner-table conversation.

2

WHAT SUPERNATURAL CONCEPTS ~~ARE LIKE~~

Are there any common features in religious concepts? A good way to start thinking about this question is with a little mock-experiment, listing all sorts of concepts and judging whether they could or could not possibly be part of a religious system. This is not the most scientific or rigorous way to proceed, but it is a first step. Consider the following list of sentences. Each describes a particular supernatural notion, in the form of some exotic article of faith, the main theme of some new or unknown religion. It is very likely that you have never heard of places where these propositions are central tenets of religious belief. That is unimportant. This is not a quiz but a question of *intuition*. The experiment consists in guessing whether it is likely that some people have built a religion around these propositions:

(1) Some people get old and then one day they stop breathing and die and that's that.
(2) If you drop this special ritual object it will fall downward until it hits the ground.
(3) The souls of dead people cannot go through walls because walls are solid.
(4) Dead men do not talk (or walk).
(5) There is only one God! He is omniscient but powerless. He cannot do anything or have any effect on what goes on in the world.
(6) The gods are watching us and they notice everything we do! But they forget everything instantaneously.
(7) Some people can see the future but they then forget it immediately.