

**An Edge Discussion of BEYOND BELIEF: Science,
Religion, Reason and Survival Salk Institute, La Jolla
November 5-7, 2006 (S. Atran, N. Humphrey, S. Harris,
D. Dennett, C. Porco, N. Chomsky)**

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Edge

THE REALITY CLUB

BEYOND BELIEF

SCIENCE, RELIGION, REASON AND SURVIVAL

**An *Edge* Discussion of BEYOND BELIEF:
Science, Religion, Reason and Survival**

Salk Institute, La Jolla November 5-7, 2006

[most recent first]

Noam Chomsky: On the ordinary problems of human life, science tells us very little, and scientists as people are surely no guide. In fact they are often the worst guide, because they often tend to focus, laser-like, on their professional interests and know very little about the world. [[more...](#)]

Carolyn Porco: Imagine my shock to see my tongue-in-cheek call for a 'Church of Science' taken with utter seriousness by Atran, and publications such as *The Boston Herald*, i.e., as a call for an organization as dogmatic and as unaccepting of criticism as most formal religions are today....I meant nothing of the kind. [[more...](#)]

Scott Atran: And while I'm on the subject of religious beliefs and their contents, and how they are transmitted, let me address the view, first proposed by Dawkins and popularized by Dennett, that religions are composed of memes. [[more...](#)]

Daniel C. Dennett: Scientists who are atheists — surely a much larger proportion than the general public realizes — have a difficult unsolved problem of how to balance their allegiance to the truth against their appreciation of the social impact of some truths and hence the need for diplomacy and reticence. Not surprisingly, most scientists "solve" this problem with silence, but silence can be just as culpable as lying. [[more...](#)]

Sam Harris: Atran makes insupportable claims about religion as though they were self-evident: like "religious beliefs are not false in the usual sense of failing to meet truth conditions"; they are, rather, like "poetic metaphors" which are "literally senseless." How many devout Christians or Muslims would recognize their own faith in this neutered creed? [[more...](#)]

Nicholas Humphrey: Scott Atran's warning against scientific triumphalism is interesting and persuasive — and a wonderful piece to have on *Edge*. [[more...](#)]

Scott Atran: I find it fascinating that brilliant scientists and philosophers

have no clue how to deal with the basic irrationality of human life and society other than to insist against all reason and evidence that things ought to be rational and evidence based. [[more...](#)]

Noam Chomsky [12.9.06]

Institute Professor at MIT and Professor of Linguistics; Author, *Failed States: The Abuse of Power and the Assault on Democracy*



These are nothing more than a few thoughts on some issues that have been raised.

Glad Atran gave Arkhipov his due. My take?

Like everyone participating I'm what's called here a "secular atheist," except that I can't even call myself an "atheist" because it is not at all clear what I'm being asked to deny. However, it should be obvious to everyone that by and large science reaches deep explanatory theories to the extent that it narrows its gaze. If a problem is too hard for physicists, they hand it over to chemists, and so on down the line until it ends with people who try to deal somehow with human affairs, where scientific understanding is very thin, and is likely to remain so, except in a few areas that can be abstracted for special studies.

On the ordinary problems of human life, science tells us very little, and scientists as people are surely no guide. In fact they are often the worst guide, because they often tend to focus, laser-like, on their professional interests and know very little about the world.

As for the various religions, there's no doubt that they are very meaningful to adherents, and allow them to delude themselves into thinking there is some meaning to their lives beyond what we agree is the case. I'd never try to talk them out of the delusions, which are necessary for them to live a life that makes some sense to them. These beliefs can provide a framework for deeds that are noble or savage, and anywhere in between, and there's every reason to focus attention on the deeds and the background for them, to the extent that we can grasp it.

Doubtless more understanding can be gained, and is being gained (by Atran's work, for example). That's all to the good for trying to comprehend the strange animals we are — but I don't see any signs that such comprehension is likely to be very deep.

Carolyn Porco [12.4.06]

Planetary Scientist; Cassini Imaging Science Team Leader; Director CICLOPS, Boulder CO; Adjunct Professor, University of Colorado, University of Arizona



It's a shame that Scott Atran missed the nuances of my remarks and those of several other speakers.

If there was 'an evangelical cult on a messianic mission to save humanity' at this conference, as Atran claims, I completely missed it. What I saw was a room filled with individuals, with different approaches to the interrelated issues of God, religion and society, doing what scientists do: presenting their ideas and suggestions to the gathered crowd to generate discussion and constructive debate, and to encourage further thinking. And that is exactly what has happened. It was, in all, a tremendously stimulating affair that has generated an enormous response, both among its participants, on the internet and in the media. In other words, it was a great success.

However, in some quarters, my remarks about appropriating the social accoutrements of religion and using them to spread, explain and make more humanistic the findings of science have been erroneously extrapolated and taken to an extreme I never intended them to go. Imagine my shock to see my tongue-in-cheek call for a 'Church of Science' taken with utter seriousness by Atran, and publications such as *The Boston Herald*, i.e., as a call for an organization as dogmatic and as unaccepting of criticism as most formal religions are today.

I meant nothing of the kind.

Atran states that science can't replace religion as a major factor in shaping ethics and improving the human condition. I certainly never suggested that the practice of science should dictate the precepts of ethics and morality. These guidelines for human behavior and decision-making generally come from elsewhere: moral philosophy, laws, etc. However, to go so far as to suggest, as Atran does, that scientists can't do better than ordinary folks in managing the interaction between increasing knowledge and human need, but they can do a great deal to cause harm and suffering, is to betray a serious negativity, and even bias, which I fear underlies most of Atran's comments.

Scientists have in fact done tremendous good to ease human pain and suffering and make life on Earth more enjoyable, at least for those with access to its benefits. Moreover, science is, without question, the most finely honed tool we have for separating truth from falsehood, and its objective findings can, should and must be the guide in setting the parameters within which questions of ethics and morality are decided. An excellent example of this is the delineation of the boundaries in the debate on abortion written by Carl Sagan and Ann Druyan entitled 'Is it Possible to be Pro-Life and Pro-Choice?' (*Parade*, 1990). In this article, the facts concerning the evolving characteristics of a human fetus are used to judge the point before which abortion could not reasonably be considered murder and beyond which it could.

To counter my suggestion that we should encourage early education into

the true nature of the universe, its evolutionary history, the origin of Earthly life and its inevitable demise, Atran says effectively 'it's been done'. He offers the examples of communism and fascism, both of which were based on scientific theories and philosophies, and points out they were dismal failures in weaning people off religion. Excuse me? The very last role models on my mind were the former Soviet Union and the Third Reich! These states did not exactly adhere to philosophies founded on humanistic principles, and I'm sure their treatment of science and its relation to human existence didn't either

As for Atran's comments regarding my discussion of death, doesn't it go without saying that "being alive" is cognitively ... processed quite differently from "being dead"? And isn't it obvious that people — and animals, too — would rather live than die? This drive is guaranteed by the very strong survival instinct hard-wired into all of us. Hence, the prayers and the crossing of fingers when one feels dying may be imminent.

My suggestion takes up long after these acknowledgements, and begins with my belief that if people realized that the state of death will be no worse than the state we inhabited before birth, and that there will be no sentiments of any sort (and so feelings of sadness and the missing of loved ones will be entirely absent), the prospect of not being alive would be much less frightening and easier to accept. At the moment, religious people are offered quite a different description of reality: an eternal after-life, filled with sentiment, that could go in one of two directions — heaven if you are a 'believer' or hell if you aren't.

Such an acceptance of the state of death will not, of course, diminish the fear of dying and for good reason: there is a good chance that it will be the most painful and harrowing experience any of us will ever undergo, and I, for one, am not looking forward to it. But what is on the other side of that transition need not be feared and therefore, need not be falsified.

Finally, regarding the 19th century French positivists and their failed attempts to add science-based ceremony to secular life, I'm not daunted in my belief that this could be a beneficial social alternative to the embrace offered by religions. Religious practices have had millennia over which to develop and reach the state of refinement we see today. Science as we know it is scarcely 400 years old. We need time to catch up. I think to the extent that humans require social organizations within which to express and share their humanity, there will someday arise the kinds of practices that I am suggesting. It is only a matter of time.

Do I really want to see scientists going door to door, and evangelical scientist ministers, or 'scienisters', espousing the beauty of science on TV in the manner of Oral Roberts or Billy Graham? No, not really.

But I do believe that there is an opportunity and a need to spread the word, not heard or appreciated widely enough, that science is a positive transforming feature of human culture, that what it has bequeathed to us so far has revolutionized human existence for the better, has shown us with great clarity our connectedness to, and our place in, the magnificent scheme of Universal existence, and that these truths, along with a strong, secular moral philosophy that emphasizes goodness over evil, can be empowering, uplifting, spiritually fulfilling, and form the foundation of a meaningful life spent on this planet. And that would be a life, however

brief, worth living.

Scott Atran [12.3.06]

Anthropologist, University of Michigan; Author, *In Gods We Trust: The Evolutionary Landscape of Religion*



I do not criticize Sam Harris, or those he identifies with, for wanting to rid the world of dogmatically-held beliefs that are vapid, barbarous, anachronistic and wrong. I object to their manner of combating such beliefs, which is often scientifically baseless, psychologically uninformed, politically naïve, and counterproductive for goals we share. And I agree with Dan Dennett that silence in the face of dangerous lunacy, or even in the face of moderate unreasonableness, "can be just as culpable as lying." That's why I attend to suicide bombers (directly in the field and analytically from afar, in places like Kashmir, Palestine, Sulawesi and *Science, Nature* and *Foreign Policy* magazines) as well as to seemingly unreasonable preachings from some participants at the Salk conference. (A note to bloggers: I'm *not* comparing conference participants to suicide bombers; I'm saying that I deal with unreason where I can.)

At the conference, Harris and partners ignored the increasingly rich body of scientific research on religion. They ignored the vast body of empirical data and analysis of terrorism — a phenomenon they presented as a natural outgrowth of religion. The avowedly certain but uncritical arguments they made about the moral power of science and the moral bankruptcy of religion involved no science at all. Some good scientists stepped out of their field of expertise, leaving science behind for the unreflective sort of faith-based thinking they railed against. Sadly, in this regard, even good scientists join other people in unreason.

Harris despairs that my approach to dogmatism is to throw up my hands and "make declarations about 'the basic irrationality of human life and society'." No, I argue that one way to deal with this important problem is to use science and rational processes to study irrational ones and then to leverage that scientific knowledge in ways that can affect public policy, although this second step may have to be more art than science. Harris suggests that if, indeed, irrationality is some vestige of our evolutionary legacy, then we should still be able to master it and perhaps eventually eliminate it from society through reason and vigilance as we are increasingly able to do with rape. I think a better, deeper, more pervasive analogy would be sex: repress it one way and it will pop out other ways.

Dennett worries: does my recommending that we don't tell hostage takers their beliefs are nonsense really mean "he [Atran] is recommending that we should *always* just lie?" This is the wrong lesson: if you usually lie in these kinds of dangerous situations, you will more than likely wind up dead (in the long run, people who lie and are insincere are *always* more likely to be found out because there is *always* some chance they will reveal themselves when they believe others aren't looking, and because there is *always* some chance others are looking after all). A fortiori, you needn't lie

at academic conferences.

Before proceeding further allow me a little pedantry: Harris warns readers that some people "may even mistake [Atran's approach] for science." So, I ask you to bear with me as I sometimes cite the peer-review that my claims have undergone in scientific journals and forums lest the enormity of this mistake escape you.

My critique of Harris and company was that:

- (1) An increasing body of scientific research on religion suggests that, contrary to Harris's personal and scientifically uninformed intuitions about what religion consists of, the apparent invalidity of religious thought is insensitive to the kind of simple-minded disconfirmation through demonstrations of incoherence that Harris and others propose.
- (2) *No data* by Harris or others was offered to suggest that the naturalistic worldview they mean to replace religion with would be, or could be, successful; or that such a worldview would generate more happiness, compassion or peace (which most of us at the conference hope for).
- (3) Evidence supporting empirical claims about negative behavior caused by religious beliefs in general, or Islam in particular, was based on a decidedly selective sample or idiosyncratic interpretation (e.g., Harris tells us that he has read the Qur'an and on his reading, which he may share with some minority of Muslims, the Qur'an literally prescribes, or at least sanctions, suicide terrorism).
- (4) Experiments on "sacred values" (which Harris refers to in his reply but misunderstands, and which were presented in more rigorous form before the American Association for the Advancement of Science and the National Security Council at the White House) suggest that arguments by Harris and others about how to best lessen the noxious effects of dogmatism are liable to do more harm than good for his own cause (which is also my own cause and that of most others at the conference).

Harris laments that my criticism has "yet to say anything of relevance" about the central point in his (and Dawkins's and Weinberg's) rebuke of religious faith, namely, that "intellectual honesty is better than dogmatism." What he says is trivially true, because that point has no meaning to the discussion. Everybody who spoke at the conference made the assumption that intellectual honesty is better than dogmatism, and so my critique of Harris had nothing to do with that, or with other assumptions that were taken for granted: for example, that speaking the truth is better than lying or remaining silent (which Dan Dennett invokes), or as several monkey species and most other apes perceive, that it's easier to cooperate by being fair than unfair.

According to Harris, any argument against his position "must take one of the following forms" (I think it is very strange for a scientist to stipulate all and only those forms a counter-argument can take, but lets play along):

(1) Certain religious beliefs are true.

(2) Religious beliefs are so useful that they are necessary.

(3) Religious people are too irrational and dangerous so "Please keep your mouth shut."

Harris asserts that I harbor belief in (2) but do not establish it, and that I refuse to address (1) or (3). Therefore my arguments do not address anything of relevance.

Let's start with the last point (3) and work forward.

(3) Do Not Shut Up In The Face Of Irrationality, But Know Who You Are Dealing With And Act Accordingly.

Some religious people are irrational, as most of us are in many situations in our lives, as when we fall in love, or hope beyond reason. Of course, you could be uncompromisingly rational and try whispering in your honey's ear: "Darling, you're the best combination of secondary sexual characteristics and mental processing that my fitness calculator has come up with so far." After you perform this pilot experiment and see how far you get, you may reconsider your approach. If you think that approach absurd to begin with, it is probably because you sincerely feel, and believe in, love.

Some religious people are very irrational and dangerous, but these are the people that I study and deal with on a personal level, trekking with mujahedin, interviewing jihadi leaders, and engaging suicide bombers directly. What I do believe is that the terms of engagement that Harris proposes for confronting irrationality generally would be deadly if applied to such cases.

My approach to dogmatism is to practically engage irrationality where I believe it is most dangerous and where I think I can have the most effect (for example, in negotiations with Hamas and Israel to stop Qassam missile attacks, or in field investigations of beheadings in Azad Kashmir – efforts reported in the last two issues of *The Bulletin of the Atomic Scientists*). If I employed Harris's recommendation for dealing with irrationality in such cases, by lambasting the conflicting parties with how preposterous are their core beliefs, I would probably be kicked out or killed (and in misjudging the ways reason is best advanced, I have on a few occasions been very nearly killed).

(2) Religious Beliefs Are Sometimes Demonstrably Useful, Never Logically Necessary, But Occasionally Practically Wise. As a scientist, I try to translate these useful cases in terms that render superfluous their religious aspect and so, logically, the religious aspect is not necessary. Nevertheless, given the particular historical context in which they function they may be practically wise. For example:

A research team that I co-directed in the Maya Lowlands for more than a decade — including psychologists, biologists, linguists, and anthropologists — found that only one of three human populations that live in the same environment practices agro-forestry in a sustainable manner (measured in terms of crop diversity, canopy cover, soil nutrients, etc., as reported in *Proceedings of the National Academy of Sciences USA*). We found the most reliable predictor of behavioral differences between the three groups (Itza'

Maya, Q'eqchi' Maya, Ladino) to be their respective mental models of how humans, plants and animals interact in the rainforest (reported in *Current Anthropology* and *The Journal of the Royal Anthropological Institute*). And the best indication of a sustainable distribution of species for the forest was the mental model held by the men of one group (computed by factor analysis from individual responses) of which species the forest spirits desire most to protect (this is reliably different from what people themselves consider most worthy of protection, as reported in *Psychological Review*). One hypothesis is that the male Itza' model of forest-spirit preferences represents a statistical summary of knowledge accumulated over two millennia. In fact, spirit preferences for certain species best reflect anthropogenic changes in the forest's composition that began some two millennia ago.

We provided this information to understandably skeptical representatives of the World Bank. We compared Itza' notions of forest spirit preferences to the very different models of species preferences elicited from the other two local groups as well as from representatives of 17 of the world's most prestigious and scientifically-informed non-governmental conservation organizations. Our demonstration helped to convince the World Bank to re-allot aid monies to the Itza', the group with forest-spirit model of the forest. This group has subsequently shown itself best able to manage the rapidly dwindling forest reserves of northern Guatemala at a fraction of the cost earmarked or wasted on other conservation efforts.

Is it logically necessary that this knowledge of a sustainable species distribution be confounded with "forest spirits"? No. But would it be better for the Itza' to extricate this knowledge of forest spirits, which is embedded in a millennial cultural tradition, and adopt our scientific analysis (assuming it is entirely valid and complete)? Of course not. By way of comparison, if you were to ask a physics class to construct a model of where a soccer ball will land after it has been kicked, the best class would give some very complex but only roughly accurate calculation (based on the leg's arc, the foot's position relative to the ball, the ball's size, weight, initial velocity and spin, gravity and drag, wind speed at the time, etc.). But were you to ask players on a soccer team, they'd likely tell you to just "keep your eye on the ball," meaning pay attention only to the ball's distance and angle relative to the observer. Can you bet which is the better predictor under the time constraints of a real match, the physics class or the soccer team?

(1) Core Religious Beliefs Are Not True Or False, But Also Not Vacuous. Harris insists that either I must show that religious beliefs are true, or keep quiet. But as I explained at the conference, for core religious belief it literally makes no sense to ask whether they are true or not. Harris huffs that "as to matters of real substance, Atran makes insupportable claims about religion... 'like religious beliefs are not false in the usual sense of failing to meet truth conditions'." In philosophy, since Aristotle, such beliefs have been described as "category violations," like a bodiless God with the ability to physically lift physical bodies. Modern philosophers, like A.J. Ayer and the logical positivists, routinely characterized religious utterances in this way.

Harris, again, uses his own intuition to decide what religious statements mean, and that his literal understanding of the Qur'an (or Bible or Veda) must be what people who actually believe in the Qur'an (or Bible or Veda) understand. For example, in drinking wine at a Mass and eating the wafer, Catholics who take their beliefs seriously should acknowledge that they are

cannibals or, if not, they are being incoherent. The difference between him and believers is that he knows that such beliefs are factually false but believers are supposedly blind to the evidence and believe them to be factually true, no matter how incoherent. (Though in a somewhat bizarre response to Lawrence Krauss, Harris offers a curious account of Tibetan Buddhist beliefs, including reincarnation, as perhaps not quite false because Tibetan Buddhism is morally better than other religions).

In fact, there is now a substantial body of empirical research indicating that core religious beliefs are literally senseless and lacking in truth conditions. For example, in my own studies with Ara Norenzayan, Ian Hansen, Mark Schaller and others (first reported in the *Behavioral and Brain Sciences* article that Dennett recommends in his most recent book as a good summary evolutionary account of religion) we find that what allows religious beliefs to win out in the competition over other ideas in human memory is that they are counterintuitive. What does "counterintuitive" mean? To answer this requires a short digression into the cognitive theory of religion.

Empirical research on the cognitive basis of religion over the last two decades has focused on a growing number of converging cross-cultural experiments on "domain-specific cognition" emanating from developmental psychology, cognitive psychology and anthropology. Such experiments indicate that virtually all (non brain-damaged) human minds are endowed by evolution with core cognitive faculties for understanding the everyday world of readily perceptible substances and events. The core faculties are activated by stimuli that fall into a few intuitive knowledge domains, including: folkmechanics (object boundaries and movements), folkbiology (biological species configurations and relationships), and folkpsychology (interactive agents and goal-directed behavior). Sometimes operation of the structural principles that govern the ordinary and "automatic" cognitive construction of these core domains are pointedly interrupted or violated, as in poetry and religion. In these instances, counterintuitions result that form the basis for construction of special sorts of counterfactual worlds, including the supernatural, for example, a world that includes self-propelled, perceiving or thinking mineral substances (e.g., Maya sastun, crystal ball, Arab tilsam [talisman]) or beings that can pass through solid objects (angels, ghosts, ancestral spirits).

Religious beliefs are counterintuitive, then, because they violate innate and universal expectations about the world's everyday structure, including such basic categories of "intuitive ontology" (i.e., the ordinary ontology of the everyday world that is built into *any* language learner's semantic system) as person, animal, plant and substance. They are generally inconsistent with fact-based knowledge, though not randomly. As Dan Sperber and I pointed out a quarter of a century ago, beliefs about invisible creatures who transform themselves at will or who perceive events that are distant in time or space flatly contradict factual assumptions about physical, biological and psychological phenomena. Consequently, these beliefs more likely will be retained and transmitted in a population than random departures from common sense, and thus become part of the group's culture. Insofar as category violations shake basic notions of ontology they are attention-arresting, hence memorable.

But only if the resultant impossible worlds remain bridged to the everyday world can information be readily stored, evoked and transmitted. For example, you don't have to learn in bible class that God could pick up a basket ball if you've already been taught that He can topple a chariot. And

you don't have to be told that God can become angry if you worship other Gods or do things He doesn't like once you've already learned that He's a jealous God. This is because such further pieces of knowledge are "automatically" inferable from our everyday commonsense understanding of folkphysics and folkbiology (e.g., relative effort and strength required to displace different sized objects) and folkpsychology (e.g., how emotions are related to one another and to beliefs). Miracles usually involve a single ontological violation, like a talking bush or horse riding into the sky, but leave the rest of the everyday commonsense world entirely intact. Experiments show that if ideas are too bizarre, like a talking tea kettle that has leaves and roots like a tree, then they are not likely to be retained in memory over the long run.

Religious worlds with supernaturals who manage our existential anxieties — such as sudden catastrophe, loneliness, injustice and misery — are *minimally* counterintuitive worlds. An experimental setup for this idea is to consider a 3 x 4 matrix of core domains (folkphysics, folkbiology, folkpsychology) by ontological categories (person, animal, plant, substance). By changing one and only one intuitive relationship among the 12 cells you then generate what Pascal Boyer calls a "minimal counterintuition." For example, switching the cell (– folkpsychology, substance) to (+ folkpsychology, substance) yields a thinking talisman, whereas switching (+ folkpsychology, person) to (– folkpsychology, person) yields an unthinking zombie. But changing two or more cells simultaneously usually leads only to confusion. Our experiments show that minimally counterintuitive beliefs are optimal for retaining stories in human memory (main results have been replicated by teams of independent researchers, see for example articles in the most recent issue of the *Journal of Cognition and Culture*).

In sum, the conceptual foundations of religion are intuitively given by task-specific panhuman cognitive domains, including folkmechanics, folkbiology, folkpsychology. Core religious beliefs minimally violate ordinary ontological intuitions about how the world is, with its inescapable problems. This enables people to imagine minimally impossible supernatural worlds that solve existential problems that have no rational solution, including avoiding death or deception. Because religious beliefs cannot be deductively or inductively validated, validation occurs only by ritually addressing the very emotions motivating religion, usually through chant and music, dance and sway, prostration and prayer — all somewhat derivative of primate expressions of social bonding and submission. Cross-cultural experimental evidence encourages these claims.

The Trouble With Memes. While I'm on the subject of the religious beliefs and their contents, and how they are transmitted, let me address the view, first proposed by Dawkins and popularized by Dennett, that religions are composed of memes. Memes are supposed to be cultural artifacts — prototypically ideas — that invade and restructure minds to reproduce themselves (without necessarily benefiting host minds beyond their capacity to service memes) much as genes dispose of physical individuals to gain serial immortality. Derived from the Greek root *mimeme*, with allusions to memory and mime (and the French word *même*, "same"), a meme supposedly replicates from mind to mind in ways analogous to how genes replicate from body to body. There is little theoretical analysis or experimental study of memes, though this isn't surprising because there is no consensual — or even coherent — notion of what a meme is or could be. Candidate memes include a word, sentence,

belief, thought, melody, scientific theory, equation, philosophical puzzle, fashion, religious ritual, political ideology, agricultural practice, dance, poem, and recipe for a meal; or a set of instructions for origami, table manners, court etiquette, a car, building, computers, or cellphones.

For genes, there is an operational definition: DNA-encoded units of information that dependably survive reproductive division, that is, meiosis (although crossover can occur anywhere along a strand of DNA, whether at the divisions of functionally defined genes or within them). In genetic propagation, information is transmitted with an extremely high degree of fidelity. In cultural propagation, imitation is the exception, not the rule; the typical pattern is of recurrent, guided transformation. Modular and innate mental structures (like those responsible for folkphysics, folkbiology and folkpsychology) thus play a central role in stabilizing and directing the transmission of beliefs toward points of convergence, or cultural attractors.

Minds structure certain communicable aspects of the ideas produced, and these communicable aspects generally trigger or elicit ideas in other minds through inference (to relatively rich structures generated from often low-fidelity input) and not by high-fidelity replication or imitation. For example, if a mother shows a child an abstract cartoon drawing of an animal that the child has never seen or heard of, and says to her child the equivalent of "this platypus swims" in whatever human language, then any child whose linguistic faculty has matured enough to understand complete sentences, anywhere in the world, will almost immediately infer that mom is talking about: (a) something that belongs to the ontological category animal (because the lexical item "swims," or its equivalent in another language, is cognitively processed under +animate, which is implicitly represented in every human's semantic system), (b) this animal belongs to one and only one folk species (because an innately-determined and universal assumption of folkbiology is that animals divide into mutually exclusive folk species), and (c) the animal is probably aquatic (because part of the ordinary meaning of "swims" is moves through water).

Inference in the communication of many religious beliefs, however, is cognitively designed never to come to closure, but to remain open-textured. For example, in a set of classroom experiments, we asked students to write down the meanings of three of the Ten Commandments: (1) Thou Shall Not Bow Down Before False Idols; (2) Remember the Sabbath; (3) Honor They Father and Thy Mother. Despite the students' own expectations of consensus, interpretations of the commandments showed wide ranges of variation, with little evidence of consensus.

In a serial attempt at replication a student in a closed room was given one of the Ten Commandments to paraphrase; afterwards the student would call in another student from the hallway and repeat the paraphrase; then the second student would paraphrase the paraphrase and call in a third student; and so on through. After 10 iterations the whole set of ten paraphrases was presented to another group of students who were asked to choose one phrase from a new list of phrases (including the original Ten Commandments) that "best describe the whole set of phrases before you."

Only "Thou shalt not kill" was reliably preferred as a descriptor of the set representing the chain of paraphrases initiated by a Commandment. (By contrast, control phrases such as "two plus two equals four" or "the grass is green" did replicate).

A follow-up study explored whether members of the same church have some normative notion of the Ten Commandments, that is, some minimal stability of content that could serve for memetic selection. Twenty-three members of a Bible class at a local Pentecostal Church, including the church pastor, were asked to define the three Commandments above, as well as "Thou shalt not kill," "The Golden Rule," "Lamb of God," and "Why did Jesus die?" Only the first two produced anything close to consensus. In prior questioning all subjects agreed that the meanings of the Ten Commandments were fixed and had not changed substantially since Biblical times (so much for intuition).

In another project, students compared interpretations of ideological and religious sayings (e.g., "Let a thousand flowers bloom," "To everything there is a season") among 26 control subjects and 32 autistic subjects from Michigan. Autistics were significantly more likely to closely paraphrase and repeat content from the original statement (e.g., "Don't cut flowers before they bloom"). Controls were more likely to infer a wider range of cultural meanings with little replicated content (e.g., "Go with the flow," "Everyone should have equal opportunity") – a finding consistent with previous results from East Asians (who were familiar with "Let a thousand flowers bloom" as Mao's credo). Only the autistic subjects, who lack inferential capacity normally associated with aspects of folkpsychology came close to being "meme machines." They may be excellent replicators of literal meaning, but they are poor transmitters of cultural meaning.

With some exceptions, ideas do not reproduce or replicate in minds in the same way that genes replicate in DNA. They do not generally spread from mind to mind by imitation. It is biologically prepared, culturally enhanced, richly structured minds that generate and transform recurrent convergent ideas from often fragmentary and highly variable input. Core religious ideas serve as conceptual signposts that help to socially coordinate other beliefs and behaviors in given contexts. Although they have no more fixed or stable propositional content than do poetic metaphors, they are not processed figuratively in the sense of an optional and endless search for meaning. Rather they are thought to be right, whatever they may mean, and to require those who share such beliefs to commune and converge on an appropriate interpretation for the context at hand. To claim that one knows what Judaism or Christianity is truly about because one has read the Bible, or that what Islam is about because one has read the Qur'an and Hadith, is to believe that there is an essence to religion and religious beliefs. But science (and the history of exegesis) demonstrates that this claim is false.

Sacred Values And Bounds On Rational Resolution Of Conflict. Dan Dennett seems to argue that because most people are rational most of time, as in properly navigating when crossing the street, then people should be perfectly capable of following and accepting rational arguments against religion if only the repressive social and political support for religion could be jettisoned. Now, unlike in the field of economic judgment and decision making, where basic assumptions of rationality have been scientifically sundered (most prominently by recent Nobel laureates Danny Kahneman and Thomas Schelling), there has been little serious study of the scope and limits of standard notions of rationality in moral judgment and decision making. There is, however, some evidence that rationality is not standard for religion and morality.

Religious behavior often seems to be motivated by sacred values, that is,

values which a moral community treats as possessing transcendental significance that underlies cultural identity and precludes comparisons or tradeoffs with material or instrumental values of *realpolitik* or the marketplace. As Immanuel Kant framed it, virtuous religious behavior is its own reward and attempts to base it on utility nullifies its moral worth. Instrumental decision-making (or "rational choice") involves strict cost-benefit calculations regarding goals, and entails abandoning or adjusting goals if costs for realizing them are too high. A sacred value is a value that incorporates moral and ethical beliefs independently of, or all out of proportion to, its prospect of success."

Current approaches to resolving resource conflicts or countering political violence assume that adversaries make instrumentally rational choices. However adversaries in violent political conflicts often conceptualize the issues under dispute as sacred values, such as when groups of people transform land from a simple resource into a "holy site" to which they may have non-instrumental moral commitments. Nowhere is this issue more pressing than in the Israeli-Palestinian dispute, which the majority of people in almost every country surveyed (e.g., in the June 2006 Pew Global Attitudes Survey) consistently view as the greatest danger to world peace. Our research team – including psychologists Jeremy Ginges and Douglas Medin, and political scientist Khalil Shikaki – conducted studies indicating that instrumental approaches to resolving political disputes are suboptimal when protagonists transform the issues or resources under dispute into sacred values. We found that emotional outrage and support for violent opposition to compromise over sacred values is (a) is not mitigated by offering material incentives to compromise but (b) is decreased when the adversary makes materially irrelevant compromises over their own sacred values.

In a survey of Jewish Israelis living in the West Bank and Gaza (*settlers*, N = 601) conducted in August 2005, days before Israel's withdrawal from Gaza, we randomly presented participants with one of several hypothetical peace deals. All involved Israeli withdrawal from 99% of the West Bank and Gaza in exchange for peace. We identified a subset of participants (46%) who had transformed land into an essential value; they believed that it was never permissible for the Jewish people to "give up" part of the "Land of Israel" no matter how extreme the circumstance. For these participants, all deals thus involved a "taboo" trade-off. Some deals involved an added instrumental incentive, such as money or the promise of a life free of violence ("taboo+"), while in other deals Palestinians also made a "taboo" trade-off over one of their own sacred values in a manner that neither added instrumental value to Israel nor detracted from the taboo nature of the deal being considered ("tragic"). From a rational perspective, the taboo+ deal is improved relative to the taboo deal and thus violent opposition to the tragic deal should be weaker. However, we observed the following order of support for violence: taboo+ > taboo > tragic; where those evaluating the tragic deal showed less support for violent opposition than the other two conditions. An analysis of intensity of emotional outrage again found that taboo+ > taboo > tragic; those evaluating the tragic deal were least likely to report anger or disgust at the prospect of the deal being signed.

These results were replicated in a survey of Palestinian refugees (N=535) in Gaza and the West Bank conducted in late December 2005, one month before Hamas was elected to power. In this experiment, hypothetical peace deals (see supporting online materials) all violated the Palestinian "right of

return", a key issue in the conflict. For the 80% of participants who believed this was an essential value, we once more observed that for violent opposition the order between conditions was taboo+ > taboo > tragic, where those evaluating a "tragic" deal showed lowest support for violent opposition. The same order was found for two measures ostensibly unrelated to the experiment: (a) the belief that Islam condones suicide attacks; and (b) reports of joy at hearing of a suicide attack (there is neuroimaging evidence for joy as a correlate of revenge). Compared to refugees who had earlier evaluated a taboo or taboo+ deal, those who had evaluated a tragic deal believed less that Islam condoned suicide attacks; and were less likely to report feeling of joy at hearing of a suicide attack. In neither the settler nor the refugee studies did participants responding to the "tragic" deals regard these deals as more materially likely or implementable than participants evaluating taboo or taboo+ deals.

These experiments reveal that in political disputes where sources of conflict are cultural, such as the Israeli-Palestinian conflict or emerging clashes between the Muslim and Judeo-Christian world, attempts to lessen violent opposition to compromise solutions can *backfire* by insisting on instrumentally-driven tradeoffs and rational choices, while non-instrumental symbolic compromises may reduce support for violence. Further studies with 750 Hamas members and non Hamas controls this past June, show similar results, as do on-going pilot studies among Christian fundamentalists who consider abortion and gay marriage to violate sacred values.

Given these facts, I and others have been assisting in political negotiations that target recognition of sacred values over instrumentally rational tradeoffs. The goal is to break longstanding deadlocks that have proven immune to traditional business-like frameworks for political negotiation that focus on rational choices and tradeoffs. By targeting "sacred values" and "moral obligations" I don't seek to "ignore the role of religion" in people's actions and decisions, though Harris complains this is the reason I introduce sacred values into the discussion. My aim is quite the opposite: to politically engage those deepest held religious beliefs that are matters of life and death for peoples and nations.

Does Science And Critical Inquiry Always Or Even Usually Trump Religious Faith In Reducing Bias, Bringing Peace Or Stopping War? Judge For Yourself. Humankind does not naturally divide into competing camps of reason and tolerance, on one side, and religion and intolerance, on the other. It is true that "scientists spend an extraordinary amount of time worrying about being wrong and take great pains to prove other so." The best of our scientists make even greater efforts to prove themselves wrong. But it is historical nonsense to say that "pretending to know things you do not know... is the *sine qua non* of faith-based religion," that doubt and attempts to "minimize the public effects of personal bias and self-deception" are alien to religion, or that religion but not scientific reason allows "thuggish lunacy."

Is Augustine's doubt really on a different plane than Descartes'? Are Gandhi's and Martin Luther King's religious appeals to faith and hope in the face of overwhelming material adversity truly beside the point? Did not the narrow focus of science on the evidence and argument of the task at hand allow the production of tens of thousands of nuclear weapons, and are not teams of very able and dedicated scientists today directly involved in constructing plausible scenarios for apocalyptic lunacy? Were not Nazi

apologists Martin Heidegger and Werner Heisenberg among Germany's preeminent men of reason and science (who used their reason and critical thought to apologize for Nazism)? Did not Bertrand Russell, almost everyone's Hero of Reason (including mine), argue on the basis of clear and concise thought, and with full understanding and acknowledgement of opposing views and criticism, that the United States should nuke Soviet Russia before it got the bomb in order to save humankind from a worse evil? And Newton may have been the greatest genius that ever walked the face of the earth, as Neil de Grasse Tyson tells us, but if you read Newton's letters at St. John's College library in Cambridge, you'll see he was one mean and petty son of a bitch.

The point is not, as Harris conjures it, that some scientists do bad things and some religious believers do good things. The issue is whether or not there are reliable data to support the claim that religion engages more people who do bad than good, whereas science engages more people who do good than bad. One study might compare, say, standards of reason or tolerance or compassion among British scientists versus British clergy. My own intuition has it a wash, but even I wouldn't trust my own intuitions, and neither should you.

Have I Misrepresented Harris? Harris says that I attribute words to him that he never said at Salk "but which bear some faint resemblance to words I have written." He is right. In his last book he stated that "70 percent" of the prisoners in French jails are Muslim. I had him claiming that "over 50% of the prison population" in France was Muslim. In fact, according to Farhad Khosrokhavar, France's foremost scholar on Muslim radicalization in European prisons, "the French government estimates the Muslim prison population at about 50 percent, although in certain *banlieux* [urban suburbs] it can reach 70 percent."

Harris introduces his penultimate book with these words:

The young man takes his seat beside a middle-aged couple... smiles. With the press of a button he destroys himself, the couple at his side, and twenty others on the bus. The nails, ball bearings, and rat poison ensure further casualties on the street and in the surrounding cars. All has gone according to plan.

The young man's parents soon learn of his fate. Although saddened to have lost a son, they feel tremendous pride at his accomplishment. They know that he has gone to heaven and prepared the way for them to follow. He has also sent his victims to hell for eternity. It is a double victory.

These are the facts. This is all we know for certain about the young man.... Why is it so easy, then, so trivially easy—you could-almost-bet-your-life-on-it easy—to guess the young man's religion?

Where does Harris get these "facts"? He tells us only that he "reads." Perhaps he gets them from magazine article and newspapers. But newspaper and magazine articles written within six months of a suicide bombing have about a 30% error rate in reporting basic content, let alone the bomber's motivations or his family's feelings (compare data in the government-funded MIPT database on suicide bombings, based mostly on

newspaper and magazine articles, with our University of Michigan suicide bombing database, which checks accounts from other sources and weeds out the large "echo effect" that reverberates from early stories throughout the media). The most prolific groups of suicide bombers in recent history is largely secular though nominally Hindu, and multiple interviews with families of Palestinian and Muslim suicide bombers do not reveal pride among parents for what their children have done to any reliable degree. These facts negate the generalizations implicit in Harris's caricature of suicide bombing. Does Harris respond to the evidence with arguments "designed to minimize the public effects of personal bias and self-deception"? Or, does he persist in "pretending to know things you do not know [which] is a great liability in science"? Let science judge.

Finally, Harris says that because he and Dawkins and Weinberg never talked about scapegoating, then my bringing in statistically reliable evidence about scapegoating from studies involving thousands of people from several religions around the world is irrelevant. But I cited the evidence that atheists are as likely as religious people to scapegoat others, to hold dogmatic beliefs, and to condone violence because Harris and company repeatedly emphasize in one form or another that, all things being equal, atheism bests religion for tolerance, openness, and opposition to violence. Again, I see no evidence this is so (though I certainly wouldn't mind if were so).

Some Mistakes And Sloppiness On My Part:

—I said that "nobody bought" the argument of Epicurus and Lucretius. One would be justified in asking: So data were collected and it was unanimous? Not even Epicurus and Lucretius? Where were these results published?

—I claimed that, "in any event, in our own experiments we find that the visceral prospect of death does promote religious sentiments among all segments of the general population." I confess that we did not look at all segments of the general population, but only at three groups of psychology undergraduates (including religious believers and nonbelievers) and one sample of Yukatek Maya from Mexico.

—Vassily Arkhipov's submarine had nuclear torpedoes, not missiles.

Daniel C. Dennett [11.30.06]

*Philosopher; University Professor, Co-Director, Center for Cognitive Studies, Tufts University;
Author, Breaking the Spell: Religion as a Natural Phenomenon*



Scott Atran presents an important problem, but his treatment of it is puzzling to me:

I find it fascinating that among the brilliant scientists and philosophers at the conference, there was no convincing evidence presented that they know how to deal with the basic irrationality of human life and society other than to insist

against all reason and evidence that things ought to be rational and evidence based. It makes me embarrassed to be a scientist and atheist.

What can Atran be saying here? Not that things ought *not* to be rational and evidence based. He appeals frequently to the scientific method and warns us all not to mistake anecdotes for data; he bows to no one in his allegiance to reason and evidence. Perhaps he is saying that it is folly to expect people other than scientists to act on the basis of reason and evidence. What is his evidence for that? I have seen no evidence that shows they are unable to guide their myriad daily decisions (when to plant, what to buy, where to live,) by evidence and reason. Probably it is only on certain sensitive topics that people abandon reason and evidence. But then what is he recommending we do about this? Concede game, set and match to their irrationality on these topics? He doesn't say, aside from urging that we must strive to avoid overreacting, a message that I have stressed as well, and that I daresay everybody who participated in the Salk meeting appreciates. That's the easy part. The hard part is figuring out how to deal, diplomatically and effectively, with the variety of religious convictions that runs from truly dangerous lunacy at one end of the spectrum to the bland view that "core religious beliefs, like poetic metaphors, are literally senseless in that they altogether lack truth conditions." On the one hand, who would condone death sentences for apostates, and on the other hand, who would want to criticize an innocent taste for traditional metaphor?

Atran describes himself as a scientist and an atheist. So when does he think it is appropriate to declare his own atheistic convictions candidly, if not at the Salk meeting? He is surely right that "simply telling hostage takers their beliefs are bullshit will get you the opposite of what you want" but then is he recommending that we should *always* just lie? (Or doesn't he agree that their views are, in the cold light of day, evil bullshit?) Scientists who are atheists — surely a much larger proportion than the general public realizes — have a difficult unsolved problem of how to balance their allegiance to the truth against their appreciation of the social impact of some truths and hence the need for diplomacy and reticence. Not surprisingly, most scientists "solve" this problem with silence, but silence can be just as culpable as lying. The problem is that the dangerous fanatics get an entirely undeserved mantle of respectability from the sane behavior of the moderates. If we button our lips to avoid offending the moderates, declining to draw attention to the utter irresponsibility of the fanatics, we become complicit in perpetuating the myth that there's really nothing to criticize in religious convictions. ("We know it's nuts, but of course we must never admit it in public!")

Atran vividly draws our attention to the problem. He tells us that Weinberg, Dawkins, and Harris exhibit no knowledge about "how to deal with the basic irrationality of human life and society," but he then declines to share any knowledge of his own about how to manage this trick. Weinberg, Dawkins and Harris are saying that whatever the second, third, and fourth step should be, the *first* step must be to acknowledge the very fact of this basic irrationality of human life and society: religious convictions are rationally indefensible. (You don't have to be an expert plumber to know that the first step, when burst pipes are flooding your house, is to turn off the water!) I think they are right. The public needs to be told this. Does Atran disagree? It seems that perhaps he thinks the first step is to pile up lots of unrelated facts about all the complexities, so that, with any luck,

people will be distracted and forget that you're an atheist. I doubt that it will work.

Sam Harris [11.29.06]

Neuroscience researcher; Author, Letter to a Christian Nation



Scott Atran rebukes Richard Dawkins, Steven Weinberg and me for the various ways we each criticized religion at a recent conference at the Salk Institute. While Atran responded to us in person at this meeting, and has elaborated his views at considerable length here, he has yet to say anything of relevance to the case we built against religious faith. There are also several inaccuracies in Atran's account of the Salk meeting, and these provide some of the many straw-men with which he grapples in his essay. For instance, he attributes words to me which I never uttered at Salk, but which bear some faint resemblance to words I have written. Whatever their source, the quotations are both inaccurate and out of context, and he uses them to attribute beliefs to me which I do not hold.

As to matters of real substance, Atran makes insupportable claims about religion as though they were self-evident: like "religious beliefs are not false in the usual sense of failing to meet truth conditions"; they are, rather, like "poetic metaphors" which are "literally senseless." How many devout Christians or Muslims would recognize their own faith in this neutered creed? What is "literally senseless" about the claim that human beings were created in their present forms by God (and that evolution is, therefore, a fiction)? What is "literally senseless" about the proposition that an eternity in a fiery hell awaits nonbelievers after death? Or the expectation that Jesus will one day return to earth and magically lift good Christians into the sky while hurling sinners into a lake of fire? More than half of the U.S. population apparently believes these things. And despite Atran's protestations on the subject, religious literalism is an utter commonplace in the Muslim world. In fact, openly doubting the perfect veracity and sublimity of the Koran can still get a Muslim killed almost anywhere on earth.

Atran's comments, both at the Salk conference and in his subsequent essay, miss the point. The point is not that all religious people are bad; it is not that all bad things are done in the name of religion; and it is not that scientists are never bad, or wrong, or self-deceived. The point is this: intellectual honesty is better (more enlightened, more useful, less dangerous, more in touch with reality, etc.) than dogmatism. The degree to which science is committed to the former, and religion to the latter remains one of the most salient and appalling disparities to be found in human discourse. Scientists spend an extraordinary amount of time worrying about being wrong and take great pains to prove others so. In fact, science is the one area of discourse in which a person can win considerable prestige by proving *himself* wrong. Of course, individual scientists may or may not be privately honest or personally deluded. But the scientific method, with its institutionalized

process of peer review, double blind trials and repetition of experiments, is beautifully designed to minimize the public effects of personal bias and self-deception. Consequently, science has become the preeminent sphere for the demonstration of intellectual honesty. Pretending to know things you do not know is a great liability in science; and yet, it is the *sine qua non* of faith-based religion.

Atran would have us believe that specific religious doctrines—like the idea that martyrs go straight to Paradise—are either not believed by anyone, or if believed, are not relevant to people's behavior. To this end, he brandishes empirical results that fail even to strike a tangent to the issues under discussion ("scapegoating"? When did Dawkins, Weinberg, or I ever talk about scapegoating?). Given his approach to these issues, it's not clear what could possibly constitute evidence for Atran that people are motivated to act on the basis of their religious beliefs:

Sam Harris and others at the conference tells us that suicide bombers do what they do in part because they are fooled by religion into seeking paradise, which includes the promise of 72 virgins. But neither I nor any intelligence officer I have personally worked with knows of a single such case (though I don't deny that their may be errant cases out there). Such speculations may reveal more the sexual fantasies of those who speculate rather than the actual motives of suicide bombers. All leaders of jihadi groups that I have interviewed tell me that if anyone ever came to them seeking martyrdom to gain virgins in paradise, then the door would be slammed in their face.

The first thing to point out is that such cases do exist, "errant" or not. Second, by narrowly defining the promise of Paradise in terms of its sexual perquisites Atran makes the influence of theology on the behavior of jihadists seem like an exception to the rule. Whether or not they are solely fixated on the promise of virgins, the reality of Paradise and their "duty to God" is so often mentioned by jihadists that one cannot reasonably deny the role that religious belief plays in underwriting their actions. Atran ignores the role of religion, even when it bursts into view in his own research. Here is a passage from a paper on his website ("What Would Gandhi Do Today? Nonviolence in the an Age of Terrorism") in which he summarized his interviews with jihadists:

Rather than obey a utilitarian 'logic of rational consequence' these actors perhaps more closely follow a 'logic of moral appropriateness. ' Consider, for example, our recent interviews with a number of self-identified recruits for martyr attack from the Hamas Block at al-Najah University in Nablus (which provides more suicide bombers than any other demographic group of Palestinians) as well as a number of active fighters in Indonesia from Jemaah Islamiyah, Al-Qeda's main ally in southeast Asia, trained in Afghanistan, the southern Philippines, Sulawesi and the Mollucas. All were asked questions of the sort, 'So what if your family were to be killed in retaliation for your action?' or 'What if your father were dying and your mother found out your plans for a martyrdom attack and asked you to delay until the family could get back on its feet?' To a person they answered along lines that there is duty to family but duty to God cannot be postponed. 'And what if your action resulted in no one's death but your own?' The

typical response is, 'God will love you just the same.' For example, when these questions were posed to the alleged Emir of Jemaah Islamiyah, Abu Bakr Ba'asyir, in Jakarta's Cipinang prison in August 2005, he responded that martyrdom for the sake of jihad is the ultimate fardh 'ain, an inescapable individual obligation that trumps all others, including the four of the five pillars of Islam (only profession of faith equals jihad). What matters for him as for most would-be martyrs and their sponsors I have interviewed is the martyr's intention and commitment to God, so that blowing up only oneself has the same value and reward as killing however many of the enemy.

What may appear, to the untutored eye, as patent declarations of religious conviction are, on Atran's account, nothing more than "sacred values" and "moral obligations" shared among kin and confederates. What Atran ignores in his interpretation is the widespread Muslim belief that martyrs go straight to Paradise and secure a place for their nearest and dearest there. In light of such religious ideas, solidarity within a community takes on another dimension. And phrases like "God will love you just the same" have a meaning that is worth unpacking. What is God's love good for? It is good for escaping the fires of hell and reaping an eternity of happiness after death. To say that the behavior of Muslim jihadis has little to do with their religious beliefs is like saying that honor killings have little to do with what their perpetrators believe about women, sexuality, and male honor.

Consider the recent cartoon controversy: A Danish newspaper published some caricatures of the Prophet Muhammad; word of the transgression was assiduously spread in the Muslim world; and then we were all given a glimpse of just how reasonable and compatible with civil society conservative Islam can be. How can we interpret these events if we are to take instruction from Atran? Does he believe that religion was orthogonal to this phenomenon? Muslims didn't take to the streets and start killing people because of their religious beliefs. This behavior was an expression of economic desperation, or politics, or "blowback," or humiliation — anything and everything but religion conspired to bring us this spectacle of thuggish lunacy. The reality, however, is that if the doctrine of Islam were different, the beliefs of devout Muslims would be different, and this difference would have consequences at the level of their behavior. If the Koran contained a verse which read, "By all means, depict the Prophet in caricature to the best of your abilities, for this pleaseth Allah", there wouldn't have been a cartoon controversy. Can I prove this counterfactual? Not quite. Do I really need to?

The terrible truth is that millions (probably hundreds of millions, if not billions) of religious people read scripture as though it were an infallible guide to understanding reality and how to live within it. This is a problem: because on matters that remain absolutely central to our collective well-being, the doctrines of the Bible and the Koran are by turns vapid, anachronistic, barbarous, and wrong.

Is it possible that Atran is claiming that the greatest crimes of the 20th century were the products of reason run amok? How else can we understand this passage?

Two descendant "isms" of secular monotheism — communism and fascism — were explicitly based on what were once

seriously thought to be scientific theories and philosophies. These particular variants led to the greatest mass murders in human history...

Were the regimes of Stalin and Hitler actually the products of too much intellectual honesty? Was an overweening demand for good evidence and coherent argument really what built the Soviet gulag and the Nazi crematoria? Are the Swedes — a majority of whom appear to be atheists (poll results range from 45-80%) — gearing up for the next great atrocity?

It is amazing to see someone like Atran defend religious dogmatism by pointing out that the consequences of political and racist dogmatism have also been terrible. One of the most conspicuous problems with communism and fascism is that they are so similar to *religions*. These political ideologies are systems of brittle, divisive, and dehumanizing dogmatism. And they regularly give rise to personality cults which evince all the perverse features of religious hero-worship. I invite Atran to produce a single example of a society that has suffered because its members became too *reasonable* — that is, too open to evidence and argument, too critical of dogma, etc.

If there is an argument against "evangelical" atheists like Dawkins, Weinberg, and myself it must take one of these forms:

- (1) Certain religious beliefs are true (or likely to be true); here's why...
- (2) Religious beliefs, while not likely to be true, are so useful that they are necessary; here's the evidence...
- (3) Many religious people are so irrational that it is simply too dangerous to criticize their beliefs. Please keep your mouth shut.

Atran has not attempted (1), has made a few noises suggesting that he probably agrees with (2), and hasn't owned up to (3).

At the opening of his essay, Atran states that the effort to "roll back political fundamentalist movements in the United States and across the world is important and praiseworthy. " He then goes on to write as though fundamentalists scarcely exist. He also assumes that there is some natural separation between "political fundamentalism" and "religious belief. " The reality, however, is that in so far as a person *really* believes that the book he keeps at his bedside is the perfect word of the Creator of the universe, he will be motivated to take the contents of this book very seriously. As a result, Iron Age ideas about everything high and low — about sex, cosmology, gender equality, immortal souls, the validity of prophecy, etc. — will continue to subvert our public discourse. Many of these ideas, by their very nature, will constrain science, exacerbate human conflict, and divert public resources. Atran's approach to solving this problem is to make declarations about the "basic irrationality of human life and society. " It is true that there is no shortage of people who will applaud this approach. And some of them may even mistake it for science.

Nicholas Humphrey [11.28.06]

Psychologist, London School of Economics; Author, Seeing Red: A Study in Consciousness



Scott Atran's warning against scientific triumphalism is interesting and persuasive — and a wonderful piece to have on *Edge*. He's telling us we may win the battle and still lose the war. And he's right. No one should be claiming "mission accomplished. " In fact we scientists who study human nature ought to be the first to recognise how big a task we face in winning hearts and minds. Every newborn human infant — every little "natural dualist" — is going to present post-religious civilization with a new challenge.

Scott Atran [11.29.06]

Anthropologist, University of Michigan; Author, In Gods We Trust: The Evolutionary Landscape of Religion



In response to suggestions about continuing the conversation I had on the podium with Richard Dawkins and Sam Harris at the Salk Institute conference on "Beyond Belief," here I would like to elaborate a bit on what I said at the time. I am always very, very leery when scientists use science to justify political or moral missions. Science can sometimes deeply inform politics or ethics; however, I do not think that science can justify either. Consider:

(1) The Basic Irrationality of Human Life and Society. The task of containing and trying to roll back political fundamentalist movements in the United States and across the world is important and praiseworthy. Fundamentalist-inspired attempts to dictate what science must or must not consider, such as the de facto criminalization of evolutionary teaching in certain Muslim countries or force feeding the inanities of Intelligent Design in American high schools, are damaging to science and society. However, efforts to fight religious belief itself — to "de-program" the religious — make about as much sense as attempts to banish the irrationalities of romantic love, vengeance, or any sentiment of hope beyond reason.

The main underlying current of thought at the Salk Institute's recent conference on "Beyond Belief" was that until now science and reason have too passively surrendered or compromised to religion and unreason, which are wily and ruthless street-fighters. Think of Tomás de Torquemada, the Holy Inquisitor who burned books, imperfect Christians, Muslims and Jews; or Abu Musab Zarqawi, chief of Al Qaeda in Iraq, who blew up and beheaded imperfect Muslims, Christians and Jews; or Ann Coulter, the raucous media idol of a virulent brand of American Christian conservatism, who would bury Darwin and every godless liberal in history's garbage heap, right in there with Hitler and Stalin. Then think of Socrates meekly

swallowing his poison for telling the truth, Galileo abjectly renouncing his own seminal discoveries, or Pakistan's greatest scientist, physics Nobel laureate Abdus Salam, professed over and over again his undying love for the Holy Qur'an to a government that condemned him as a heretic, and which today even more than before treats Darwin's teachings as if they were criminal.

Now, according to Salam's colleague and co-Nobel Prize winner Steven Weinberg, scientists must rise up to the challenge of liberating humanity from "the long nightmare of religion." Biologist Richard Dawkins tells us that we need to "come out of the closet" and form a political lobby of committed atheists and scientists to do public battle with religion and other forms of "rubbish" that tyrannize the mind. For neuropsychology student Sam Harris, technological advances in the ability to terrorize and wage war require an uncompromising and unrelenting intellectual struggle to destroy religion — especially, but not exclusively, Islam — and banish unreason beyond the pale of civilization.

I find it fascinating that among the brilliant scientists and philosophers at the conference, there was no convincing evidence presented that they know how to deal with the basic irrationality of human life and society other than to insist against all reason and evidence that things ought to be rational and evidence based. It makes me embarrassed to be a scientist and atheist. There is no historical evidence whatsoever that scientists have a keener or deeper appreciation than religious people of how to deal with personal or moral problems. Some scientists have some good and helpful insights into human beings' existential problems some of the time, but some good scientists have done more to harm others than most people are remotely capable of.

(2) Where Is the Data. The belief that science can or should replace religion as a major factor in motivating and shaping — rather than just informing — politics or ethics, and by so doing steadily improve the human condition, is itself a delusion. The speculations I heard in the conference, about what religion can or cannot do and what the motives or consequences of religious belief are, have been almost entirely supported by the smallest of data sets, usually a N of 1 — the speculator himself or herself — and only on the basis of that person's selectively uninformed opinion. Imagine if you tried to do science this way, you'd be met with embarrassment and bewilderment, not lauded or applauded.

Of course, if it can be proven that religious beliefs are particularly dangerous to life and limb — at least any more dangerous than a belief in the cleansing power of "democracy" — attempts at (say) de-Islamicization might be as important as de-Nazification. Yet there is no such proof, and in the absence of any proof, or even compelling data of any sort. In fact, those of us doing actual empirical research in this area have uncovered evidence to the contrary of what was claimed. Jeremy Ginges, a psychologist at the New School, finds that belief in God does not promote violence, combative martyrdom or almost anything else the "God delusion" was blamed for at the conference. University of British Columbia psychologists Ara Norenzayan and Ian Hansen have recently shown, for some 10,000 subjects surveyed in several countries and continents, that although believing "my God is the only God" increases the odds of scapegoating by 32%, simply believing "there is a God" *decreases* the tendency to blame others for one's troubles by 45%. These researchers also show that atheists with exclusivist beliefs are just as likely to

scapegoat others as Christians, Jews or Muslims.

It is true that Elizabeth Loftus and Mahzarin Banaji presented compelling data on the formation of false beliefs and implicit biases. But the relevance of this research to the formation or suppression of religious beliefs is distant and doubtful. For one thing, religious beliefs are not false in the usual sense of failing to meet certain truth conditions, like "the earth is flat" or "natural grass is orange. " Rather, core religious beliefs, like poetic metaphors, are literally senseless in that they altogether lack truth conditions; that is, there are no logical or empirical criteria for judging whether such utterances are true or not.

As Aristotle and Kant noted, there is no more literal sense — no right or wrong to the matter — to deciding if "a bodiless God is omnipotent" than to deciding if "a colorless green idea has wings" As Hobbes surmised, such notions are truly incomprehensible. They are used primarily to evoke other ideas in an open-textured manner, depending on the context at hand and on people's interests at a given time. That is why religious ideas can be "adapted" to so many different situations, and in contrary ways. Literal dogmatists who try to pin down the meaning of core religious beliefs are quite the exception, not the rule.

(3) Moral Myopia. In science there is cumulative progress. This is a fact and the progress is real, despite postmodernism's doubts. Most of the speakers we heard from believe, as professor Dawkins clearly does, that there is also cumulative moral progress. I am much less sure of this. Hitler and Stalin were no mere aberrations of history and the Cold War could easily have led to the annihilation of civilization as we know it. "Civilization is intermittent," Menahem Begin ruefully observed.

History, I believe, is contingent for its development on unforeseen and improbable events, and cascades forward in spurts and spirals. (Indeed, it was only the unsung heroism of Vassily Arkhipov, one of three officers on a Soviet submarine who refused to go along with the other two in giving the order to launch a nuclear missile strike on the United States when his boat came under attack during the Cuban Missile Crisis, thereby truly saving civilization and humanity as we know it.) Liberty, compassion and happiness are recurrently won or lost in history in alternation with periods of tyranny, cruelty and suffering. If it were otherwise, perhaps religion would fade away, as would poetry and art. But given our evolutionary makeup, that counterfactual world may not even be nomologically possible.

The atheist agenda promulgated at the conference, with its evangelical tone, fits well within the historical trend of universal monotheisms, however atheist in appearance, including all the great secular and revolutionary "isms" that have violently punctuated modern history: colonialism, communism, fascism, anarchism, socialism, democratic liberalism. (Before monotheism, there was no notion of humanity in the sense of all humans being of a kind, and thus no idea of saving humankind for the "good," or of a recalcitrant and residual part of humanity rejecting salvation because they were "bad" and "evil").

Secular monotheism began in earnest with the Enlightenment and had as its first uncompromising political expression the Reign of Science instituted by the Jacobins during the French revolution (the American revolution was also partly inspired by the Enlightenment, but was much less

uncompromising). It brought us, along with the meter, a ridiculous new naming system for the months as well as the modern concept of "terror" and the guillotine as supposedly the most rational and humane way to defend universal values of liberty, equality and fraternity. Rationality and secular humanism, it appears, do not protect us from mass slaughter.

Two descendant "isms" of secular monotheism — communism and fascism — were explicitly based on what were once seriously thought to be scientific theories and philosophies. These particular variants led to the greatest mass murders in human history. Although, my historical sample is only a N of 3, and a poor base of evidence for generalizing to the role of science in politics in general, it is still 200% more informed than most other views heard at the conference, and does not bode well for another push in this direction. (And by the way, politically tendentious teleological as well as social Darwinian views of human history and society are still very much with us, as in Francis Fukuyama's *The End of History* and *The Bell Curve* by Richard Herrnstein and Charles Murray.)

(4) A Strange Idea: Science Rituals to Replace Religion. We heard from Carolyn Porco that science education, pure reasoning about existential problems such as death, and collective rituals to replace religious awe with the awe and wonder of science may help free us from religion and religious violence. But there is no evidence that any of these suggestions will work and some evidence they won't. For example:

The Soviets vigorously denied religious education and promoted science education, but several survey studies indicate that about 50% remained religious nonetheless; and I find no shred of evidence that those who were atheist were more insightful or understanding of the their neighbors or the world around them.

On death: A couple of thousand years ago Epicurus and Lucretius tried the sort of reasoning about death that Dr. Porco mentioned: since we did not care about not being alive for the indefinitely many generations that preceded our birth, why should we care about not being alive for indefinitely many generations after our death? Nobody bought the argument, of course. Developmental psychologists such as the late Giyoo Hatano and Harvard's Susan Carey show that "being alive" is cognitively learned and processed quite differently from "being dead" while decision theorists, such as Danny Kahneman and the late Amos Tversky, have repeatedly shown that loss (e.g. , dying) is processed very differently from gain (e.g. , becoming alive). In any event, in our own experiments we find that the visceral prospect of death does promote religious sentiments among all segments of the general population (whether institutionalized or not; for instance, crossing your fingers or simply hoping beyond reason when you experience severe turbulence on a plane flight).

On rituals: 19th century French positivists proposed very much what Dr. Porco proposes in terms — albeit somewhat tongue in cheek — of awe-inspiring ceremonies and even temples to science. Apart from the few who founded these practices and artifacts, the attempt failed utterly to woo any significant portion of the general population, or even make further inroads among the scientific community. Most scientists rightly thought these efforts were artificial and absurd. Most religious people thought the same.

No society in recorded history has ever survived more than about three generations without a religious foundation. Western Europe, many

confidently say, is about to buck the trend. Now, I'm not one for predicting the future (such predictions almost always range between zero and chance) but I do think that there was something prescient in a statement that André Malraux — the great French writer, resistance fighter, government minister and avowed atheist — said towards the end of his life, in the 1970s, when religion appeared to be waning across the world, falling into the divide between the clashing secular ideologies that mostly covered the world: "The next century will either be religious or it won't *be*. "

(5) Misrepresentations of Islam in General. We first heard from Steven Weinberg, and then from every other second speaker, about the history of Islam, about why Muslim science went into decline after the 13th or 14th centuries, and about why suicide bombers, the most fanatically religious of all would-be mass murderers, are an outgrowth of Islam. Missing at "Beyond Belief" was erudition and deep understanding of Islamic history other than the usual summaries of names and achievements.

Why would Islam first cause science to flourish and then decline unto suicide bombing? (One might note that Chinese science, too, went into decline relative to the West after the 14th century, but is now rapidly catching up; and that until recently the most prolific group of suicide bombers was the nominally Hindu but mostly secularist Tamil Tigers.) No mention was made of the fact that Islamic science, indeed, Classical Arab civilization, collapsed primarily because of massive invasions of Mongols and other Asiatic hordes; we've heard only the wholly unsupported claim that religion has had something to do with it.

Perhaps it did, but some causal argument and evidence would have to given other than a mere chronology of selectively juxtaposed events (for a start, one might look at a book by Pakistani physicist Pervez Hoodbhoy, titled *Islam and Science — Religious Orthodoxy and the Battle for Rationality*, which was recently translated into Arabic).

We heard from Sam Harris that Muslims represent less than 10% of the population in Western European countries such as France, but over 50% of the prison population. The obvious inference expected from the audience is that Islam encourages criminal behavior. But what is not reported is that Muslims in the U.S. are as *underrepresented* in prison populations, as are U.S. Jews, and that the predictive factors for Muslims entering European prisons are almost exactly the same for African Americans entering U.S. prisons, namely lack of: employment, schooling, political representation, and so forth. Moreover, religious education is a *negative* predictor of Muslims entering European prisons.

In our global jihadi database, which we are developing under a defense department contract, and which is perhaps the most comprehensive open source database on the subject, we find that most jihadis are "born again" and come to religion late in life, and only very seldom through mosques or madrassahs. And among jihadis outside Europe, and in particular suicide bombers, science education is a strong *positive* predictor (the most representative educational categories of suicide bomber — a finding independently confirmed by Oxford sociologist Diego Gambetta — are engineer and physician, be it for Al Qaeda or Hamas).

Sam Harris and others at the conference tells us that suicide bombers do

what they do in part because they are fooled by religion into seeking paradise, which includes the promise of 72 virgins. But neither I nor any intelligence officer I have personally worked with knows of a single such case (though I don't deny that there may be errant cases out there). Such speculations may reveal more the sexual fantasies of those who speculate rather than the actual motives of suicide bombers. All leaders of jihadi groups that I have interviewed tell me that if anyone ever came to them seeking martyrdom to gain virgins in paradise, then the door would be slammed in their face.

Richard Dawkins tells us that Islam oppresses women. While also condemning the terrible asymmetries between men and women in many Islamic societies, I would only note that the subordination of women has relatively little to do with religion *per se* and much more to do with the kinship structure of Arab society. Arab social structure and cultural identity are built around a patrilineal system that passes rights, obligations and duties exclusively through the father's blood line.

Genealogies, however fictive, are traced back centuries to justify power and prestige. Any suspicion cast on *any* woman's honor *anywhere* in the genealogy can undermine the whole line. That is the principal consideration behind what is to most of us an intolerable subjugation of women, including the grotesque practice of "honor killing." Granted, Arab kinship is incorporated into Islamic canon, but belief in God really has nothing much at all to do with it.

(6) Misrepresentations About Suicide Bombers in Particular. Let me say something more here about suicide killers, because they were brought up at the conference again and again as those religious foils who best justify the establishment of a new lobby of reason. Unlike others at the conference, I actually study and know first hand something about such people because I have interviewed a number of would-be suicide bombers, failed suicide bombers, families of successful suicide bombers and leaders of organizations that sponsor suicide attacks, from the cities of Western Europe to the jungles of Southeast Asia.

First some contrary facts: it is wrong that suicide bombers are invariably Islamic. In fact, the single most prolific group of suicide attackers has been the Tamil Tigers of Sri Lanka, an avowedly secular movement of national liberation whose major constituency is nominally Hindu. True, since 2001 the overwhelming majority of suicide attacks have been sponsored by militant Muslim groups, but there is little if any precedent in Islamic tradition for suicide terrorism. As for the "tremendous pride" that invariably trumps parental love, which Sam Harris posits as a trivial truth about the families of Palestinian suicide bombers, I have yet to meet a parent who would have done anything in his or her power to stop their child from such an act, but none I talked to ever knew and few ever imagined their child doing such a thing.

Here's a diary entry from my interview in Gaza's Jabaliyah refugee camp, in September 2004, with the parents of Nabeel Masood, a 16-year-old who exploded himself in the Israeli port of Ashdod the previous April. Nabeel's mother was reading a letter from her son's high school head master when I walked in the door; she was crying although her son had already been dead for months. She handed me the letter. It read:

"Mr. and Mrs. Masood, it gives me great pleasure to inform you

that your son Martyr Babel [sic], has passed his tests successfully in the 11th grade. He was first in his class. He was distinguished not only in his hard studying, sharing, and caring, but also in his good morals and manhood. I would really like to congratulate you for his unique success in both life and the hereafter. You should be proud of your son's martyrdom. "

Shortly before the attack, Nabeel had received word that he had received a scholarship to study in England, but the two cousins he most loved were then killed in an Israeli raid, so he went to the Mosque and prepared himself to die. I asked his father, "Do you think your son's sacrifice will make things better?" "No," he said, "this hasn't brought us even one step forward. " I asked him if he was proud of what his son had done. He showed me a pamphlet, specially printed by Al Aqsa' Martyrs Brigades and endorsed by Hamas, praising the actions of his son and the two other young men who accompanied him. "Here, you take it," he pushed the pamphlet into my hands, "burn it if you want. Is this worth a son?" The reaction of Nabeel's parents was typical. Although the plural of anecdote is not data, the preceding is illustrative of a wider pattern.

Earlier that month, Sheikh Hamed Al-Betawi, spiritual leader of Hamas, told me in Nablus: "Our people do not own airplanes and tanks, only human bombs. Those who undertake martyrdom actions are not hopeless or poor, but are the best of our people, educated, successful. They are intelligent, advanced combat techniques for fighting enemy occupation. " The statistics that I and others have gathered confirm much of what he says — most Hamas suicide bombers, for example, are college educated and come from families that are economically better off than their surrounding populations. Neil de Grasse Tyson was quite right in asking whether suicide terrorism would disappear as a weapon of choice if other arms were available.

Despite atavistic cultural elements, global jihadism is a thoroughly modern movement filling the popular political void in Islamic communities left in the wake of discredited western ideologies co-opted by corrupt local governments. Jihadism's apocalyptic yearnings and born-again vision of personal salvation through radical action are absent from traditional Islamic exegesis. Nor does Islam *per se* or "Muslim civilization" really have anything to do with terrorism — no more than some impossibly timeless or context-free notion of Christianity, Judaism, Hinduism or Buddhism can be held responsible for the dead millions these religious traditions have been blamed for.

Appeals to Muslim history and calls for a revival of the Caliphate are heartfelt, though to some extent jihadism is also a counter-movement to the ideological and corresponding military thrust ensconced, for instance, in the *National Security Strategy of the United States*, which enshrines liberal democracy as the "single sustainable model of national development right and true for every person, in every society. " In "defense of civilization" (the concept used in the *NSS* document) the United States allots more money to military endeavors than do all of the other nations of the world combined, and has a military presence in over one hundred other countries (a majority of the earth's nations). Although the U.S. claims never to target innocent civilians, and characterizes their deaths as "collateral damage," across cultures people generally pay attention to consequences rather than motives (e.g. , most Americans have little sympathy for or desire to know what motivated the 9/11 attackers). For

this vantage, it is legitimate to ask whether the greatest danger to world peace comes from religiously-inspired terrorism or from the overreaction to it.

As matters now stand, threats from terrorism in general, and religious terrorism in particular, are greatly exaggerated. A generation ago, at the height of the Cold War, the Soviet Union and the U.S. had about 125,000 nuclear weapons that could annihilate most of the adversary's population in ninety minutes or so. Today's terrorists do not remotely pose such an existential threat. Even our darkest present fear, and the Department of Homeland Security's "worse case scenario" — the explosion of one or two 1-10 kiloton nuclear bombs by terrorists — pales by comparison. And the old Al Qaeda, which actually had an infrastructure that might have accomplished such a feat, is practically dead. Most of those close to Osama bin Laden are gone, in custody or in solitary hiding. Al Qaeda itself has not had a successful operation in nearly four years (since Tunisia) and its remainder does not know who most of the new terrorists are (mostly self-starting groups of amateurs) and cannot reliably communicate with those they do know. Only we can do grievous harm to ourselves by taking the terrorists' bait and reacting in ill-conceived and uncontrolled ways that inflate and so empower our enemies, alienate our friends, and frighten our own citizens into believing that they must give up basic liberties or root out religion in order to survive.

(7) Face Your Own Responsibilities First. Scientists are emotionally and intellectually no better able than most ordinary folk to manage or dominate the unending cycle in which changing knowledge — including space age wonders — interacts with human needs that have not changed appreciably since the Pleistocene Stone Age. But given the power that scientists have, they are much better able than most ordinary folk to cause great harm and suffering by direct attempts to manage and guide the future. At the very least, scientists should first pay attention to the consequences of their discoveries not only for the betterment but also for potential worsening of the human condition, however unintended.

(8) Facing the Wrong Issue. If scientists do believe that they are ethically bound to improve the lot of ordinary people, or at least to decrease violence and increase possibilities for the pursuit of happiness, as I do, then perhaps the greatest challenge — and one that has been wholly overlooked here — is "how do we as scientists advance reason in an inherently unreasonable world?" This is a very difficult issue and one that cannot be seriously addressed by simply trying to muscle science and reason into everyday or momentous human affairs. I am privy to hostage negotiations, and be assured that simply telling hostage takers their beliefs are bullshit will get you the opposite of what you want, like the hostage's head delivered on a platter. Of course, that's an extreme case; but reason by backward induction towards the less extreme cases in the actual political and social conditions of our present world and you will find that the tactics proposed at the conference for an unlikely strategic shift in humankind's thinking will most probably blowback and backfire. And I almost thank God that even the best of our scientists are not prominent political negotiators or policymakers.

It is my conviction, informed by some years of anthropological fieldwork, psychological experimentation and political negotiations, that reason in the sense of consistent argumentation from evidence and logic is only one of several cognitive tools that humans are endowed with in order to navigate

the physical and social world they live in — very good for finding the hidden springs and causes of the world around us but pretty bad for morally deciding what to do about what we find. More often than not, reason — as David Hume so cogently put it — "is and ought to be a slave of the passions. " In any event, the conference thoroughly instantiated that sentiment.

Some in the audience spontaneously applauded when I posed the question, "how do we as scientists advance reason in an inherently unreasonable world?" including many of the scientists present. That is anecdotal evidence that professor Dawkins's and Mr. Harris's positions are not entirely representative of science or scientists in regard to religion and to the respective roles of religion and science in politics and ethics. Dr. Tyson and Lawrence Krauss seemed to me very skeptical about the wisdom or prospect of implementing Steven Weinberg's call for science to save humanity from "the long nightmare of religion. " The nightmares but also the dreams will very likely remain a substantial part of what it means to be human, despite any hope or attempt to wish them away.

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