

Religious and Sacred Imperatives in Human Conflict

SCOTT ATRAN

CNRS – Ecole Normale Supérieure, France

University of Michigan

& John Jay College of Criminal Justice



The Power of Absurdity

Humans define the groups to which they belong in abstract terms.

Often they strive for lasting intellectual and emotional bonding with anonymous others, and make their greatest exertions in killing and dying not to preserve their own lives or to defend their families and friends, but for the sake of an idea – the transcendent moral conception they form of themselves, of ***“who we are.”***

In ***The Descent of Man***, Darwin cast it as the virtue of “morality... the spirit of patriotism, fidelity, obedience, courage, and sympathy” with which winning groups are better endowed in history’s spiraling competition for survival and dominance.

Across cultures, primary group identity is bounded by sacred values, often in the form of religious beliefs or transcendental ideologies, which lead some groups to triumph over others because of ***non-rational commitment*** from at least some of its members to actions that drive success independent, or all out of proportion, from expected rational outcomes.



- Our studies suggest that costly and seemingly arbitrary ritual commitment to apparently absurd beliefs deepens trust, galvanizing group solidarity for common defense and blinding members to exit strategies ([Atran & Norenzayan, *BBS*, 2004](#); [Atran & Henrich, *Biol Theory*, 2010](#); [Atran & Ginges, *SCIENCE*, 2012](#))
- By contrast, fully reasoned social contracts that regulate individual interests to share costs and benefits of cooperation can be more liable to collapse: with awareness that more advantageous distributions of risks and rewards may be available down the line, then defection is always possible.

Selfishness & Reciprocity

- In *The Origin of Species*, Darwin promotes adaptations only for the individual's own use in its struggle to gain resources to produce offspring: “good for itself,” but “never... for the exclusive good of others.
- So, if we give to charity, or help children, strangers and the infirm, it's because we seek enhanced social status, or a heightened sense of self worth, or affirmation of our belief that as we do for others in need so we expect others to do unto us should we become needy, or whatever else may serve our interests.
- In the first place,” Darwin later wrote, “each man would soon learn from experience that if he aided his fellow-men, he would commonly receive aid in the end.”



Universals of Mundane Morality

- Over the last decade or so, there has been a concerted effort to study the universal foundations of morality in our species.
- By far, the dominant focus in psychology, including evolutionary psychology, has telescoped in on morality in terms of a (naturally-selected) propensity for Gold-Rule principles of fairness, and cooperative distributions of risks and rewards, that mitigate selfishness in favor of reciprocity to make social life possible.



The Limits of Mundane Morality

- But the issue here is whether insights into people's everyday moral sense of equality and mutual advantage can illuminate transcendent moral percepts critical to the competitive creation of cultures.
- For Darwin, moral virtue most clearly is associated not with intuitions, beliefs and behaviors about fairness and reciprocity, but with a propensity to what we nowadays call “parochial altruism”: especially extreme self-sacrifice in war and other intense forms of human conflict, where likely prospects for individual and even group survival had very low initial probability.

*“Ah, but a man’s reach should exceed his grasp,
Or what’s a heaven for?”*

(Andrea del Sarto)

For Alfred Russel Wallace, co-discoverer of the theory of evolution by natural selection, moral behavior (along with mathematics, music, and art) was evidence that humans, as opposed to all other animals, had not evolved through natural selection alone:

“The special faculties we have been discussing clearly point to the existence in man of something which has not derived from his animal progenitors—something which we may best refer to as being of a spiritual essence... beyond all explanation by matter, its laws and forces.”

The Mystery of Moral Virtue

Needless to say, Wallace's account of altruism as a spiritual creation beyond all material explanation did not sit well with Darwin's empirical mind bent:

"I hope you have not murdered too completely your own and my child," lamented Darwin in a letter to Wallace.

But Darwin himself produced no causal account of how group love might have emerged, nor did he give any good reason why natural selection should have produced truly selfless devotion only in humans, other than to say that because our ancestors were so physically weak, only group strength could get them through.

Religion to the Rescue?



Evolutionary Dilemmas

- *Understanding religion requires explaining why religious beliefs and devotions are both universal and variable across cultures,*
- *... and why religion is so often associated with both large-scale cooperation and enduring group conflict.*
- *The emerging lines of research I 'll talk about suggest these oppositions result from the intersection of 3 converging processes.*

First, the interaction of certain reliably developing cognitive processes, such as our ability to infer the presence of intentional agents, favors—as an evolutionary byproduct—the spread of certain kinds of counterintuitive concepts, like gods and spirits.

Second, participation in rituals and devotions involving costly displays exploits various aspects of our evolved psychology to deepen people's commitment to both supernatural agents and religious communities.

Third, competition among societies and organizations with different supernatural beliefs and practices has increasing connected religion with both within-group prosociality and between-group enmity.

This connection has dramatically strengthened within the last 5-10 millennia, as part of the evolution of complex societies.



When Reason (Purposely) Fails

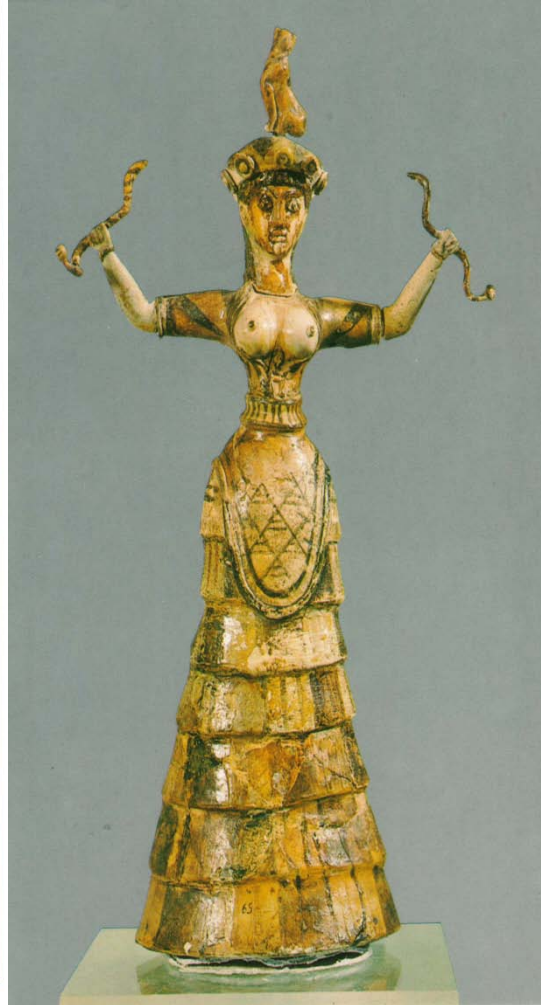
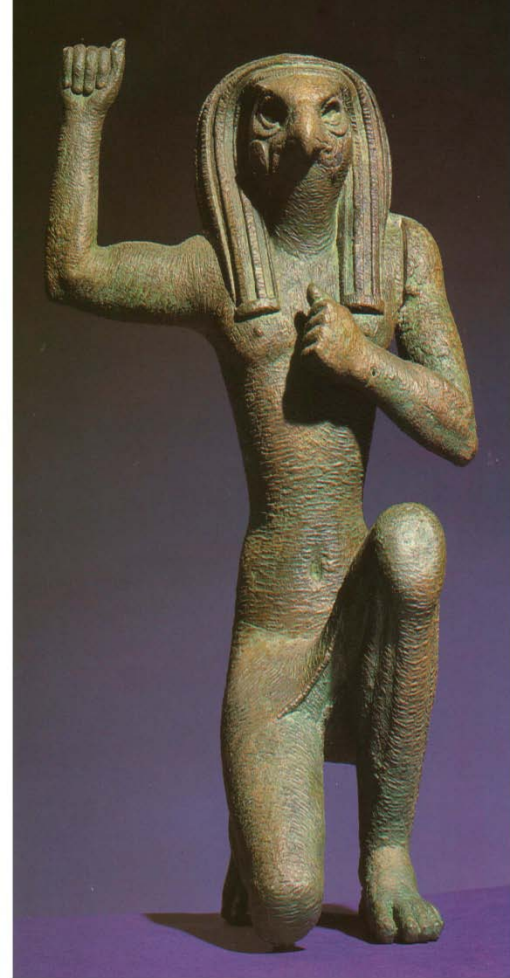
Religion creates moral communities under the rule of immaterial but physically sentient and powerful deities – that is, entities whose semantic description is contradictory, or literally “incomprehensible,” as Hobbes noted (e.g., “God is one and three”).

Such beliefs are logically and empirically inscrutable, but can be tied to clear norms and behaviors through context-specific interpretations (as with understanding metaphors, and as in weekly sermons).

But even when context fixes meaning, though, seemingly contrary evidence seldom undermines religious belief, especially among groups welded by costly commitment in the face of outside threats.



- If people literally applied such prescriptions to factual navigation of everyday environments they would be likely be either dead or in the afterlife in very short order – too short for most individuals to reproduce and the species to survive. Their fitness value would be close to nil: nada, zip.
- The trick is in knowing how and when to suspend factual belief without countermanding the facts and compromising survival.
- But why take the risk of neglecting the facts at all, even in exceptional circumstances?



Religious Beliefs are Counterintuitive
(Folkphysics, Folkbiology, Folkpsychology)

- Core religious beliefs minimally violate ordinary notions about how the world is, with all of its inescapable problems.
- This enables people to imagine minimally impossible supernatural worlds that solve existential problems, including death and deception.
- Cross-cultural experiments indicate that such beliefs grab attention, activate intuition, mobilize inference, and can readily accommodate seemingly contrary events and interpretations, in ways that facilitate their mnemonic retention, cultural transmission, and historical survival.

Table 1. Mundane relations between naturally-selected conceptual domains and universal categories of ordinary ontology. Changing the relation in any one cell (+ to -, or - to +) yields a minimal, supernatural counterintuition. For example:

Switching a cell (- folkpsychology, substance) to (+ folkpsychology, substance) yields a thinking talisman or statue, whereas switching (+ folkpsychology, person) to (- folkpsychology, person) yields an unthinking zombie

ONTOLOGICAL CATEGORIES	Conceptual Domains (and associated properties)				
	Folkmechanics	Folkbiology		Folkpsychology	
	(Inert)	(Vegetative)	(Animate)	(Psycho-Physical, e.g., hunger, thirst, etc.)	(Epistemic, e.g., believe, know, etc.)
PERSON	+	+	+	+	+
ANIMAL	+	+	+	+	-
PLANT	+	+	-	-	-
SUBSTANCE	+	-	-	-	-

Table 2. Examples of intuitive statements (INT) and bizarre (BIZ), minimally counterintuitive (MCI), maximally counterintuitive (MXCI) counterparts in counterbalanced design

INT

- Crumbling Ice
- Crystallizing Glass
- Gossiping Child
- Chanting Man
- Grazing Cow
- Wandering Deer

BIZ

- Nauseating Cat
- Dangling Squirrel
- Blinking Newspaper
- Floating Pencil

MCI

- Giggling seaweed
- Sobbing Oak
- Cursing Horse
- Admiring Frog
- Solidifying Lady
- Melting Grandfather

MXCI-Control

- Cheering Limping Turtle
- Chattering Climbing Pig

MXCI

- Squinting Wilting Brick
- Squealing Flowering Marble

Figure 4

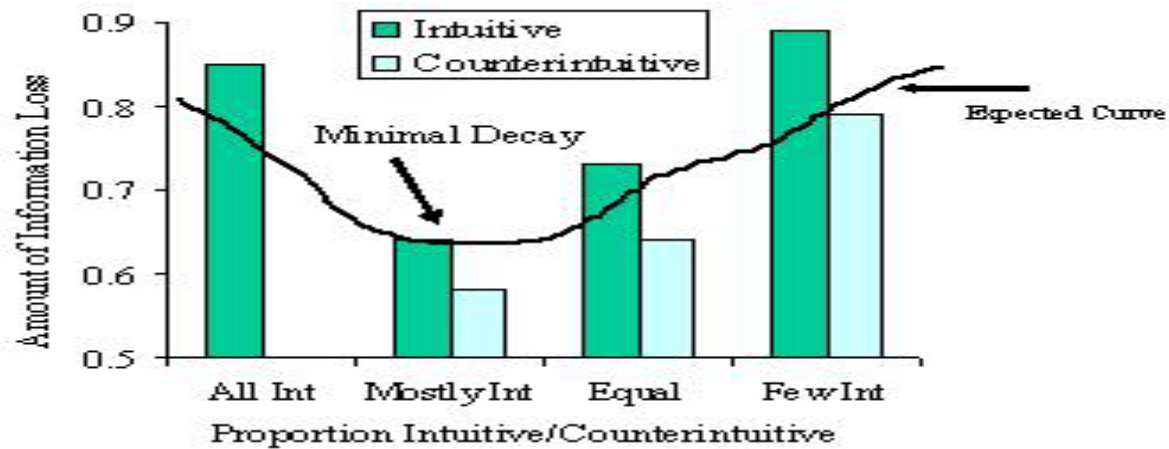


Fig. 4. Memory degradation over 1-week (immediate minus delayed recall) for USA students by proportion of intuitive (INT) and minimally counterintuitive (MCI) beliefs.

Figure 5

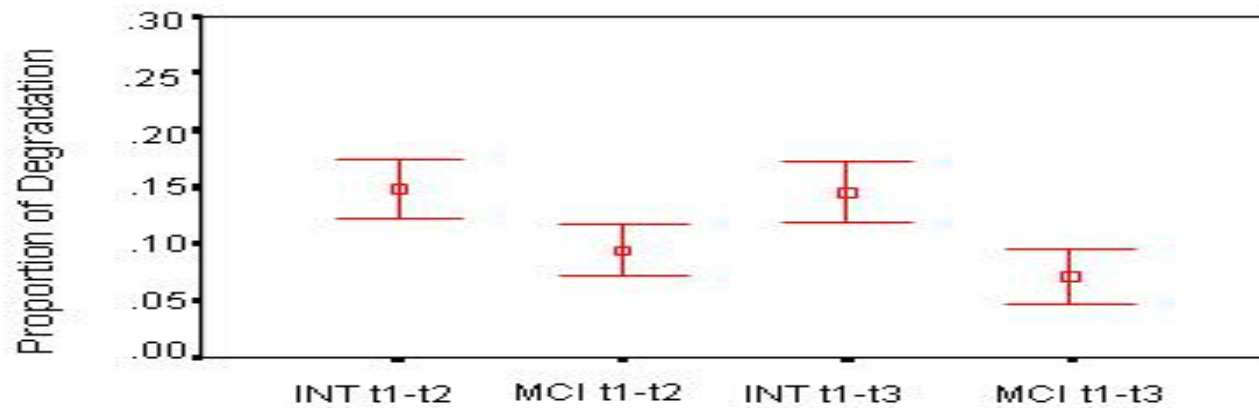


Fig. 5. Memory degradation over 1 week (t1-t2) and over 3 months (t1-t3) for Yukatek Maya by proportion of intuitive and minimally counterintuitive beliefs (error bars, 95% confidence interval)

Faces in the Clouds, Voices in the Wind



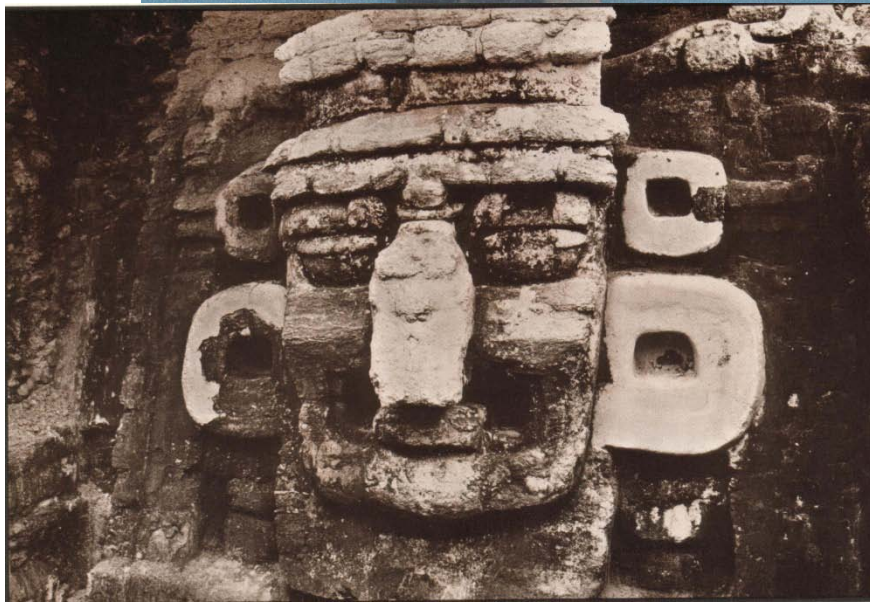
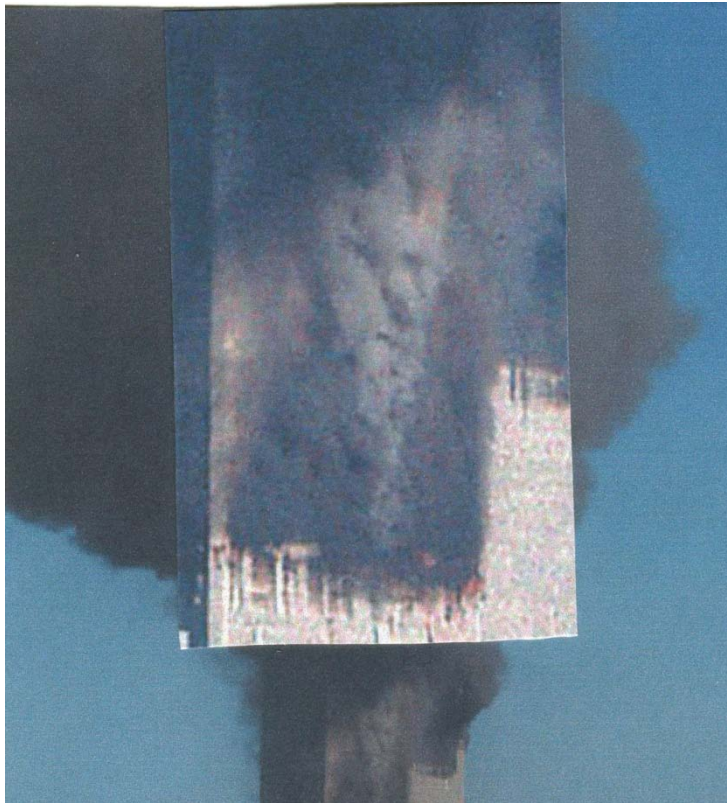


Hair-Trigger Agency detection

- Religions invariably center on supernatural agent concepts, such as gods, angels, ancestor spirits, demons and jinns.
- Mundane AGENT concepts are central players in what psychologists refer to as “folkpsychology,” specifically the “theory of mind module” (or ToM).
- ToM is a species-specific cognitive system devoted to making inferences about the knowledge, beliefs, desires and intentions of other minds.



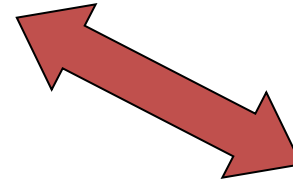
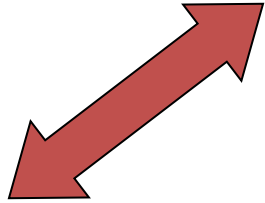
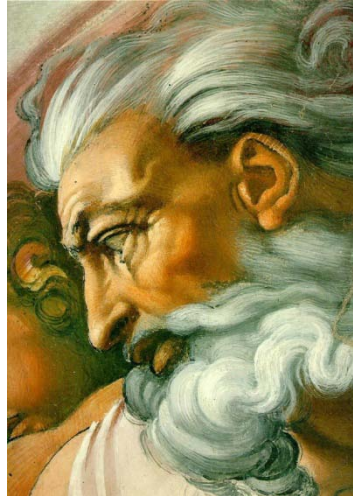
- Recent brain-imaging (fMRI) studies show that people's statements about God's level of involvement in social events, as well as the deity's purported emotional states, reliably engage ToM-related the prefrontal and posterior regions of the brain that appeared latest in human evolution.
- A plausible hypothesis is that AGENCY evolved hair-triggered in humans to respond “automatically” under conditions of uncertainty to potential threats (and opportunities) by intelligent predators (and protectors).
- From an evolutionary perspective, it's better to be safe than sorry regarding the detection of agency.



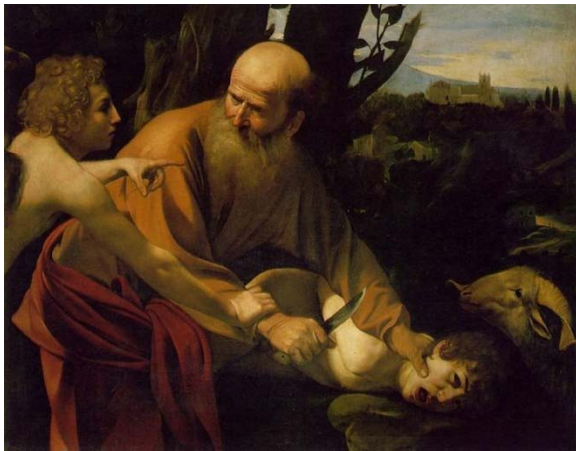
- Abraham's willingness to sacrifice more than his own life – that of his only and beloved son – is exemplary: “For love of God is... incommensurable with the whole of reality... there could be no question of human calculation.”
- Hundreds of millions of people across the planet celebrate Abraham's actions as noble and heroic rather than murderous, evil or insane.
- For the Christian philosopher Søren Kierkegaard, true faith could only be motivated by “a gigantic passion” to commit to the “absurd.”

Why?

Gods, spirits



Ritual



Costly Commitment

Existential Concerns

(Atran & Norenzayan, BBS, 2004)



Existential Anxieties: Catastrophe / Death



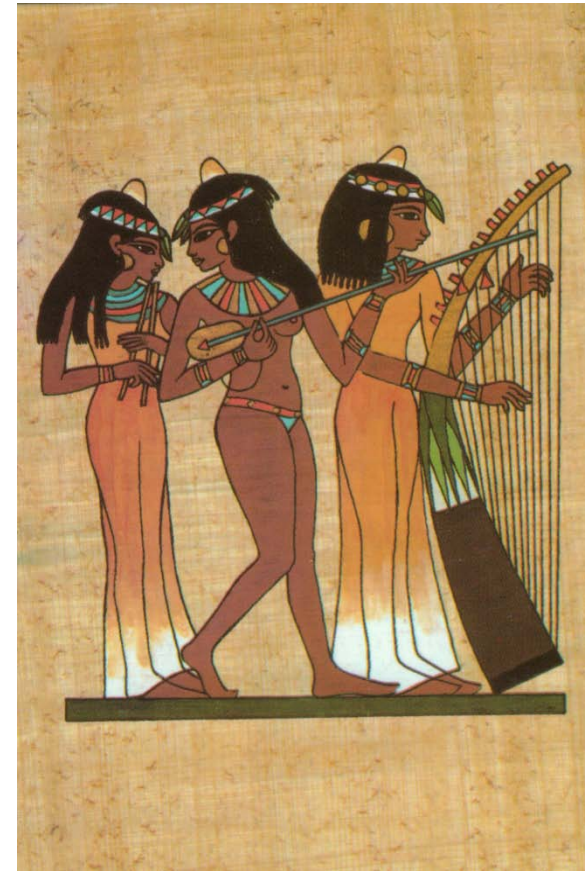
The Tragedy of Cognition

Supernatural belief buffers death and catastrophe

- Humans have survival instinct. Yet aware of inevitability of death.
- Some catastrophes are unavoidable. Yet hard to believe meaningless.
- Belief in gods and miracles intensifies when people are primed with awareness of death ([Atran & Norenzayan, 2004](#)), or when facing danger, as in wartime.
- Devotion to a world religion correlates positively with existential insecurity ([Norris & Inglehart, 2004](#))

Religious beliefs comprise minimally impossible (counterintuitive) words to deal with existential dilemmas, like death and catastrophe, deception and defection.

Because religious beliefs cannot be deductively or inductively validated, validation occurs only by ritually addressing the very emotions motivating religion.



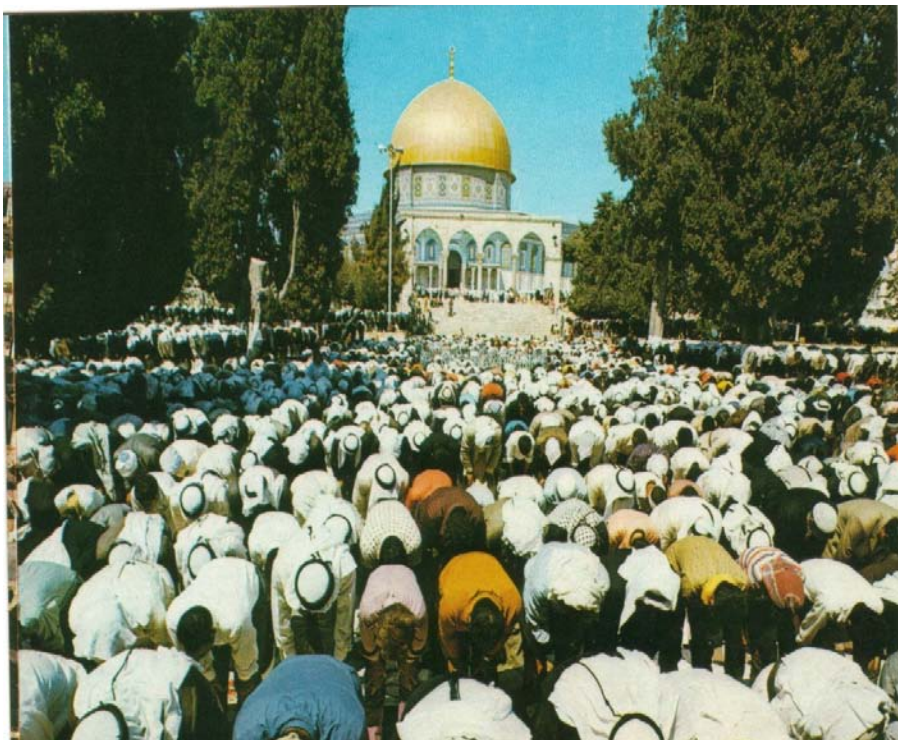
Emotional COMMUNION

A key feature of the creativity of human worship is use of music in social ritual. Even the Taliban, who prohibited nearly all public displays of sensory stimulation, promoted a cappella religious chants.

In a survey of persons who reported a religious experience music emerges as the single most important elicitor of the experience (49 % of cases), followed by prayer (48%) and attending group services (41 %).

Recent studies found that strangers acting in synchrony —marching, singing and dancing — cooperated more in subsequent group exercises, even in situations requiring personal sacrifice, and even when no positive emotion was attached to the movement.

- In addition, expressions of commitment often take the form of **primate dominance hierarchies**.
- In human societies, the dominant commitment-inducers make costly and hard-to-fake displays of their commitment to still higher supernatural authorities (penis blood-letting by Maya priests and kings, penitence of the Christian kings, fasting of the Moslem kings, the Pope kissing and washing the feet of his subordinates).





The Role of Ritual in the Cultural Learning Species

- Human social learning, in contrast to other species, generates vast bodies of know-how and complex practices that accumulate and improve over generations.
- Cultural learners acquire novel beliefs from models (experts, leaders), as children acquire unfamiliar tastes from adults, by inferring commitment through actions (“Cultural Learning Theory,” Boyd & Richerson).

Unlike mundane commonsense or scientific beliefs, faith in apparently absurd religious beliefs does not – indeed, cannot – rest on logical coherence and empirical evidence, or belief in authorities reliant on these.

Rather, apparently absurd religious belief is sustained by costly rituals whose elements need have no instrumental relationship in everyday life.

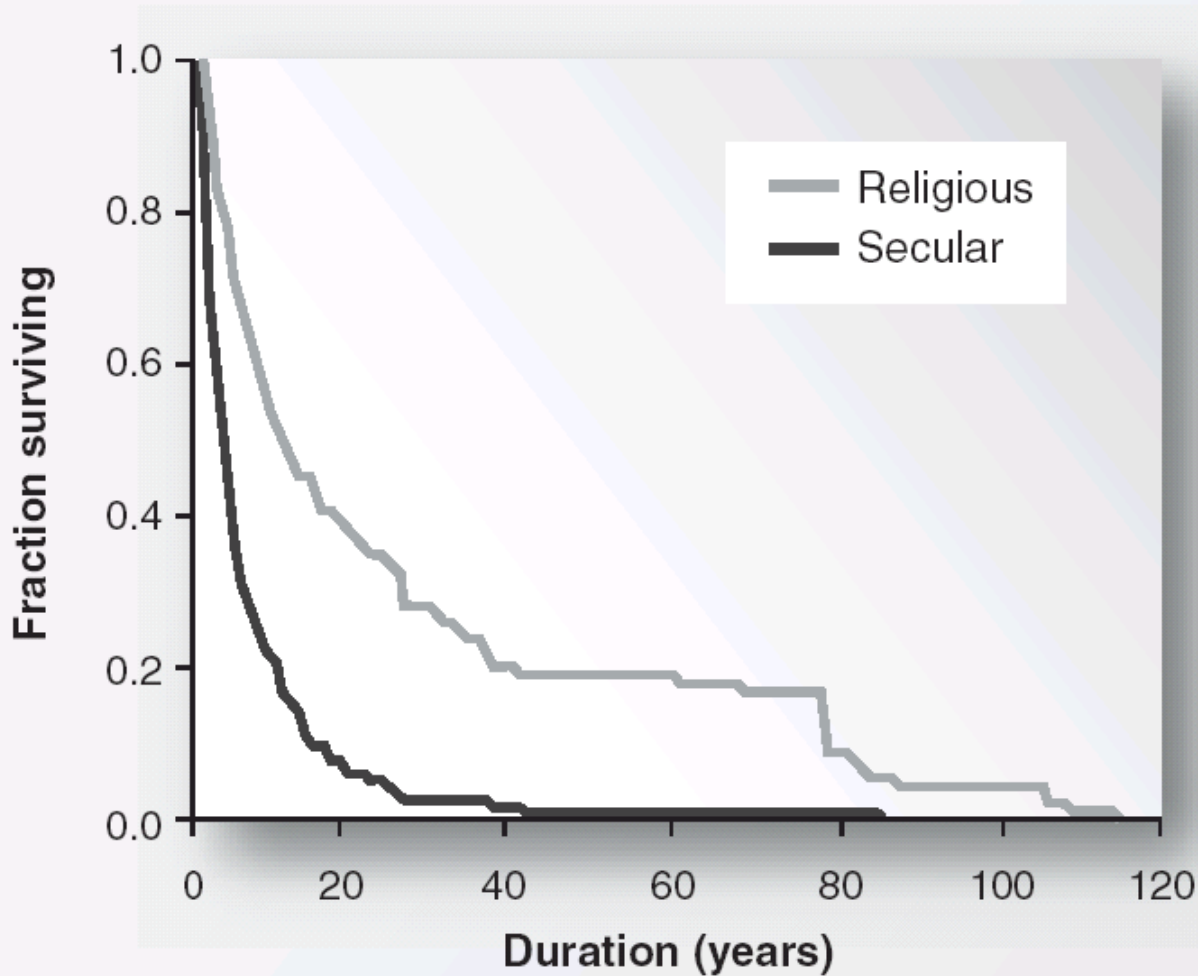


Ritual as Costly Commitment

- Costly practices such as alms-giving, priestly chastity, and even martyrdom can increase the likelihood that onlookers will commit to a group and its belief system, no matter how large the group or absurd the beliefs.
- For example, *the Navajo* are among the most successful survivors of Native American groups, and spend as much as 1/3 their productive time on priestly rites (Kluckhohn & Leighton, *The Navajo*).

19th Century Commune Survival Rates N=200

Sosis, *CrCultRes*, 2000



Controls:
Commune type
Year founded
Year dissolved

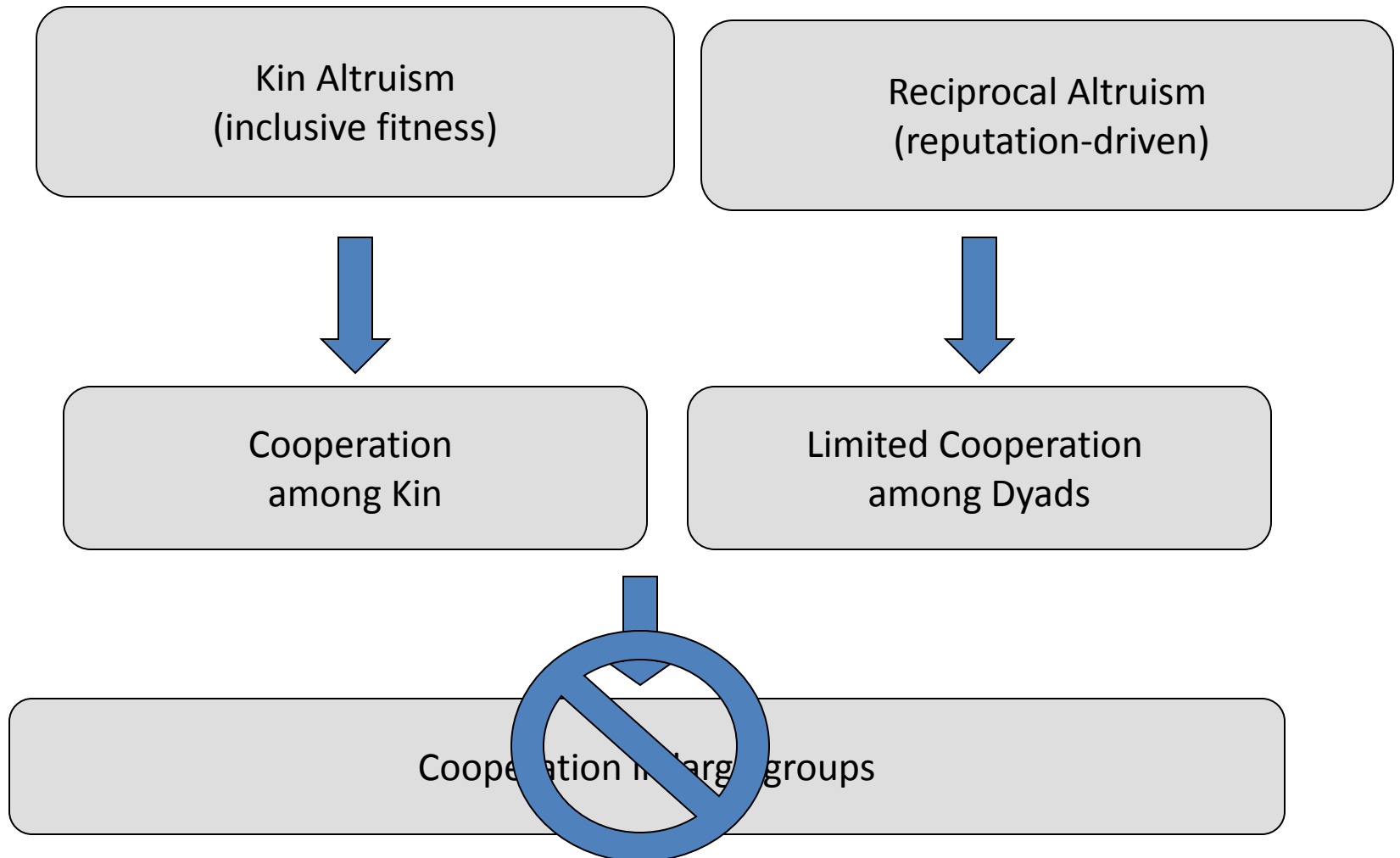
Log Rank T statistic = 40.14, $df = 1$, $p < .00001$

Puzzle: Big Cooperative Groups



Solution: Big Gods

Puzzle of Cooperation in Large Groups



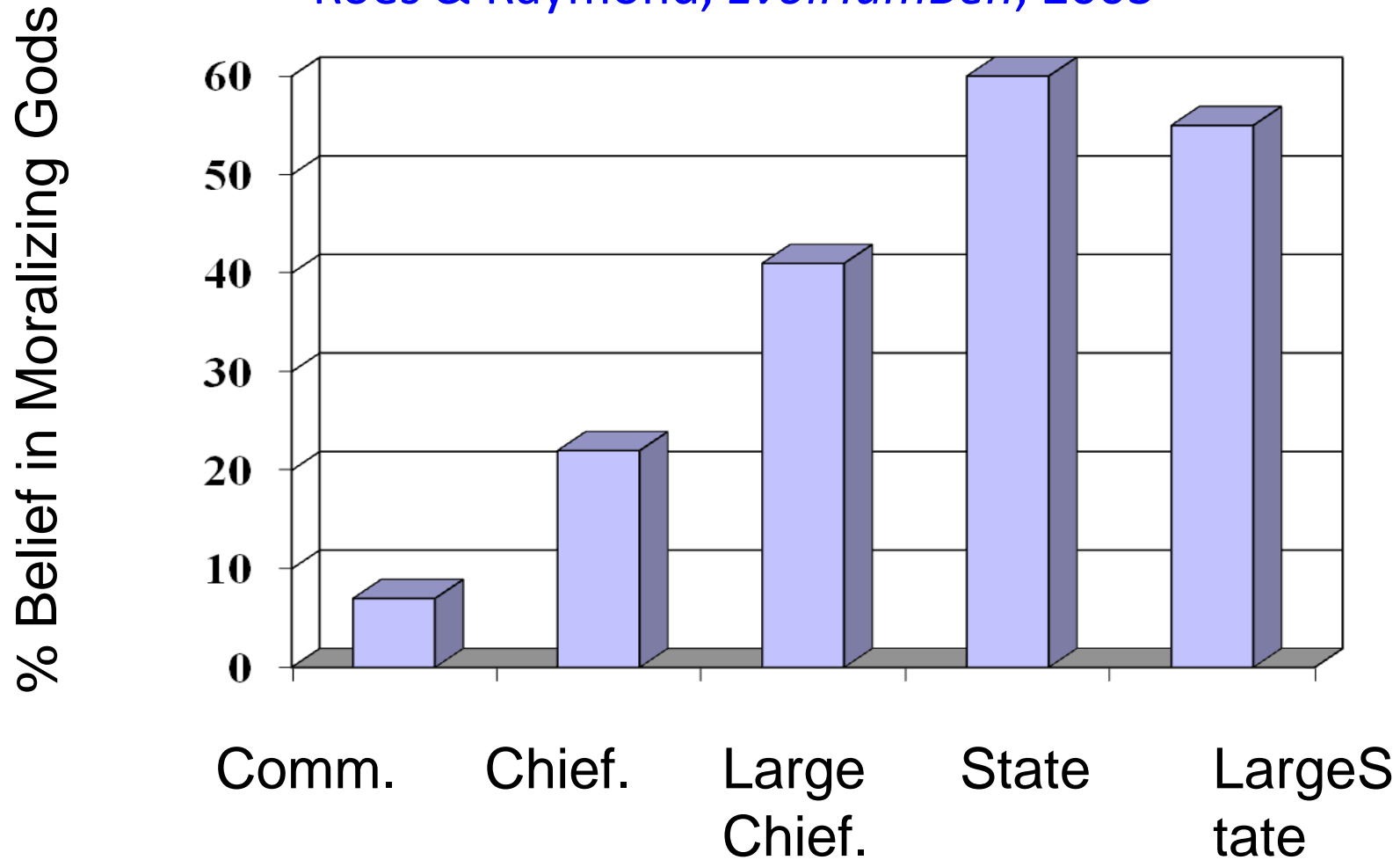
Atran & Henrich, “The Evolution of Religion,” *Biological Theory*, 2010

- As societies grow, it can be harder to enforce moral norms, and punish free-riders on the public good.
- This in turn can make such societies less cohesive & less able to compete with other expanding societies.
- *Moral deities do lots of things to help resolve all this, and help explain **The Religious Rise of Civilizations***
- Crucially, they define the sacred boundaries of societies and the taboo things you can't do. If you really believe in these moral gods then the problem of punishment also becomes easier, as you punish yourself.

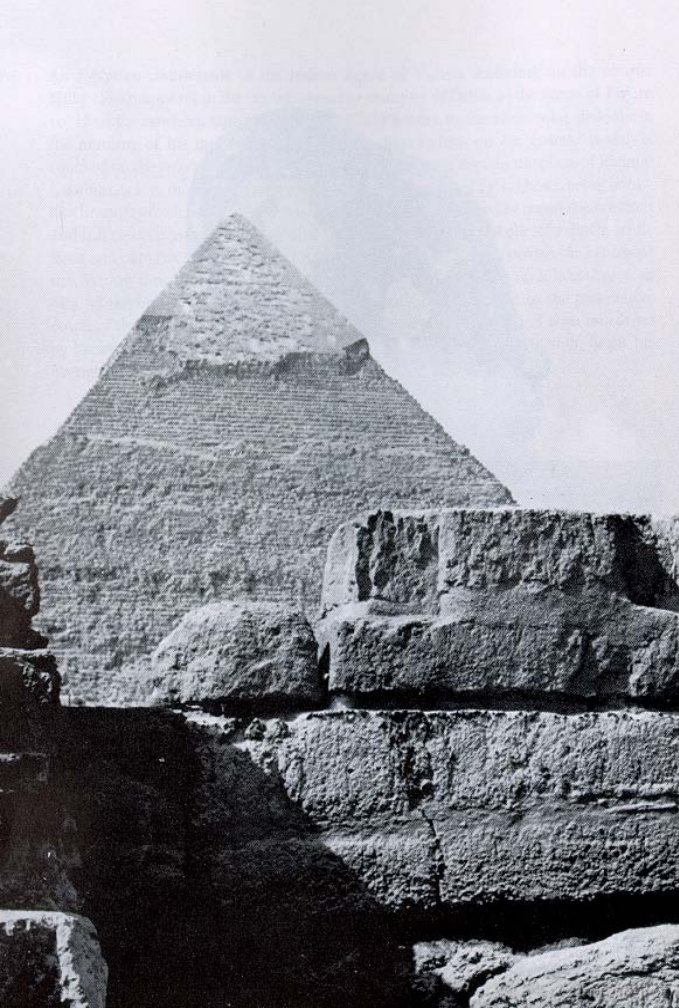
- The general thesis is that once belief in supernatural agency emerged as a by-product of mundane cognitive processes, cultural evolution favored the spread of high gods who directly impose moral rules telling people what they should and shouldn't do.
- Human groups seek expansion into resource-rich environments, where they tend towards greater competition, and thrive by becoming larger. But more opportunities arise for larger groups to fissure.
- To keep large-scale societies intact, transcendent supernatural agents arose, more absolute and context-free in moral authority to elicit cooperation among even anonymous individuals.

Big Groups, Big Gods

Roes & Raymond, *EvolHumBeh*, 2003



Controls: inequality*, missionary*, pop. density, region
Kendall's $\tau = .29$, $p = 10^{-4}$ (SCCS, N=186)



**Spiraling Group Competition
+ Costlier Sacrifice & Commitment
= The Religious Rise of Civilizations**



- Archaeology indicates that rituals became much more formal, elaborate and costly as societies developed from foraging bands into chiefdoms and states.
- In Mexico before 4000 B.P., for example, nomadic foraging bands relied on informal, unscheduled and inclusive rituals.*
- With permanent villages and multi-village chiefdoms (4000-3000 B.P.), rituals were managed by social achievers (prestigious “Big Men” and chiefs) and scheduled by solar and astral events.
- This is also appears the case for pre-dynastic Egypt (6000-5000 B.P.) and China (4500-3500 B.P.), and North American chiefdoms.

Pressure From Above

Lab EXPS

- Supernatural monitoring
- Primed thoughts of God
- Generosity in Dictator & Ultimatum Games

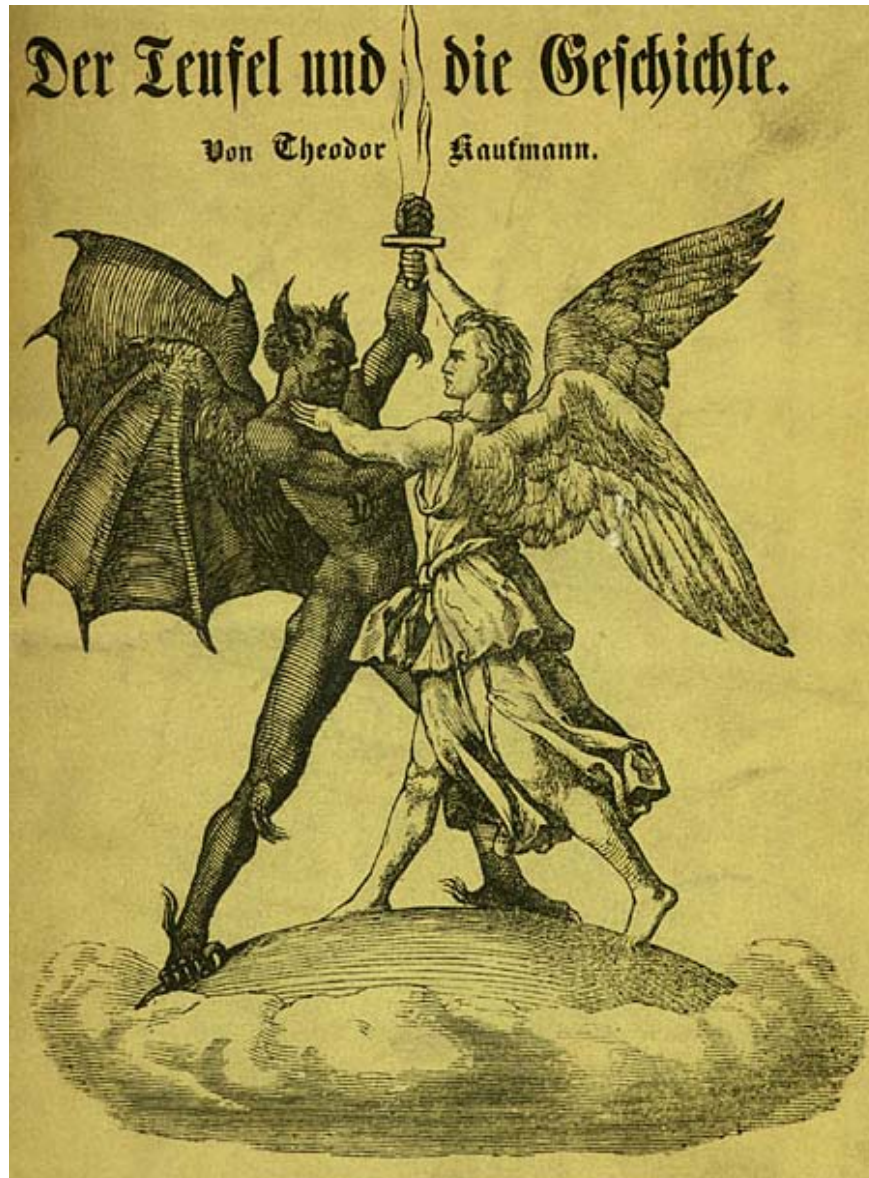


Religious rituals and intergroup conflict

- The relationship between religious ritual and in-group solidarity also translates into greater willingness to kill and die for a cause in inter-group conflict.
- Studies of 60 small-scale societies reveal that groups in the most competitive socioecologies (with frequent warfare) endure the costliest rites (genital mutilation, scarification, etc.) to display solidarity ([Sosis, Kress & Boster, *EHB*, 2007](#)).
- Cross-cultural studies indicate that participation in collective religious ritual increases parochial altruism and, in relevant contexts, support for suicide attacks ([Ginges, Hansen & Norenzayan, *Psych Science*, 2009](#)).

- Arbitrary assignments of sacredness, whose transgressions are taboo and often severely punished, unequivocally distinguish otherwise closely associated groups:
- Sabbath and Kosher laws isolated Hebrew hill tribes from Canaanite neighbors and, in later centuries, diaspora Jews from surrounding societies.
- Ritual association with chosen animals and plants socially separated contiguous Australian aboriginal groups for millennia.
- The more antagonistic a group's neighborhood, the more proprietary the group's sacred values, increasing in-group reliance, but also disbelief and potential conflict towards other groups.

Religion: The Devil and Angel of Human History



Religion's Truest Disciples

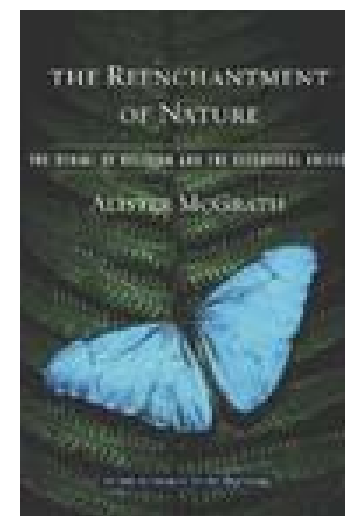
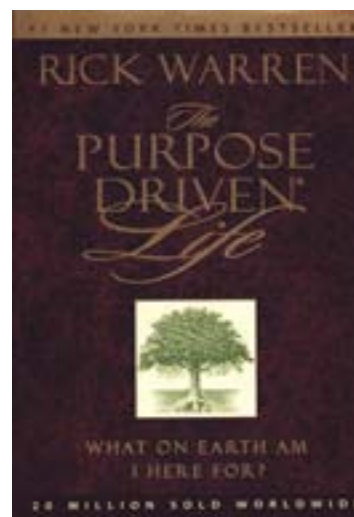
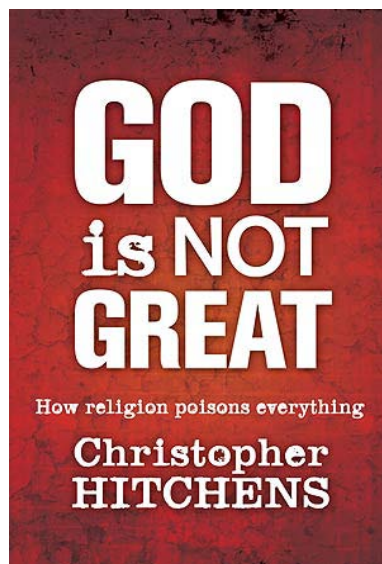
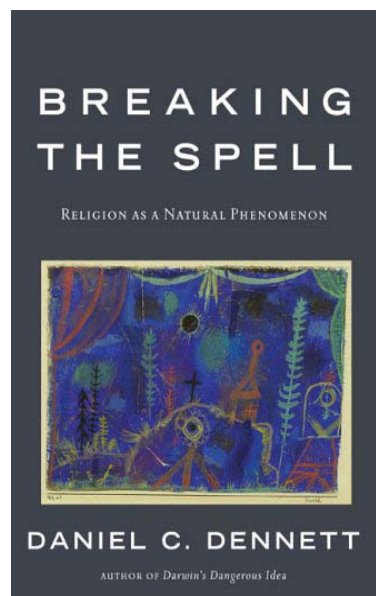
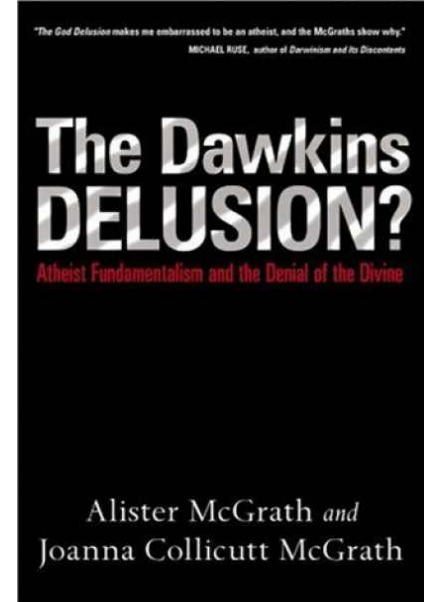
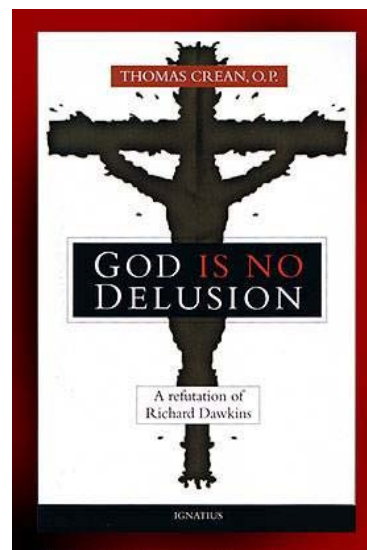
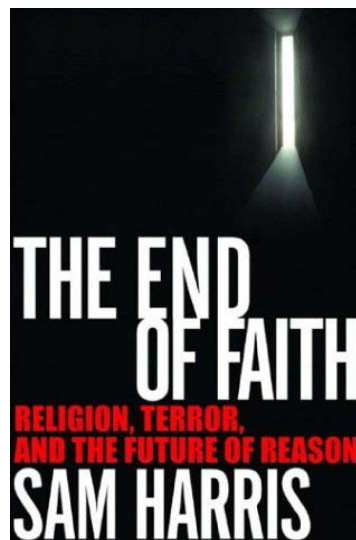
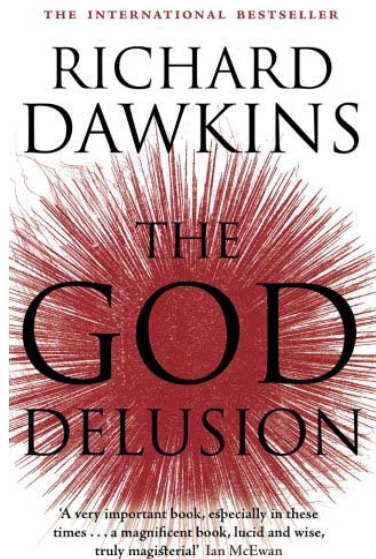


or



Religion and War

- Religious beliefs and sacred values facilitate both large-scale cooperation and enduring group conflict.
- For example, the mainly **non-violent Civil Rights Movement** and **extremely violent Al-Qaeda movement** were strongly motivated by religious commitment:
 - to “right the national sin” of slavery in one case,
 - to “restore God’s law” against indignity and injustice in the other, however important other economic, social and political factors.
- Yet, ever since the 9/11 attacks, New Atheist thinkers claim that religion is chiefly responsible for war and much human misery, which its demise would greatly reduce.





- New Atheist thinkers, who generally embrace by-product views, see religion as an intellectually worthless but dangerous evolutionary accident readily exploited by predatory societies and kleptocrats.
- But most by-product theorists now focus on merging by-product with adaptationist accounts that emphasize cultural (rather than biological) selection (e.g., by emulating historical success).
- From this vantage, religion, including self-sacrifice for sacred group values, emerged for in-group cooperation in a competitive environment, with high moral gods emerging to enhance prospects for the growth and survival of large-scale societies and civilizations.

BBC “War Audit” (scale of 1 to 5 on religious causes of war):

The majority of all wars (44/73 or 60 %) had no religious motivation -
- a zero rating.

Only 3 wars -- the Arab conquests of 632-732, Crusades, and the Reformation Wars of the 16th and 17th centuries - earned a 5 (truly religious wars)

Only 7 wars earned a rating of 3 or more -- less than 10 %.

(about 7 % --123 of 1763 -- in Phillips and Alexander, *The Encyclopedia of Wars*)

There is little religious cause for the internecine Russian and Chinese conflicts and world wars responsible for history’s most lethal century (even counting the Holocaust).

In fact, explicit religious issues have motivated only a small minority of recorded wars.

Religion & the Origins of ‘Humanity’

- Inclusive concepts of “humanity” arguably emerged with the rise of universal religions.
- Thus, Buddhism spread beyond India by eliminating social castes, and early Christianity became the Roman Empire’s majority religion chiefly through peaceful trading networks built on trust and self-sacrificial displays (caring for non-Christians during epidemics).
- 14th-century historian [Ibn Khaldūn](#) found that for North African Muslim dynasties with comparable military might, long-term differences in success “have their origin in religion... group feeling [wherein] individual desires come together in agreement [and] mutual cooperation and support flourish,” the more religious societies reigning longer and less belligerently.

- Studies with a diverse range of contemporary societies including foragers, farmers, and herders show that professing a world religion predicts greater fairness toward ephemeral interactants ([Henrich et al., *Science*, 2010](#)).
- *Contemporary* Islam's spread in sub-Saharan Africa is associated with religious rituals (fasting, sobriety, charity) drawing people into tighter networks of trust and trade similar to the growth of Protestant evangelicalism in the Americas and Asia.

Sacralization of Intractable Intergroup Conflict

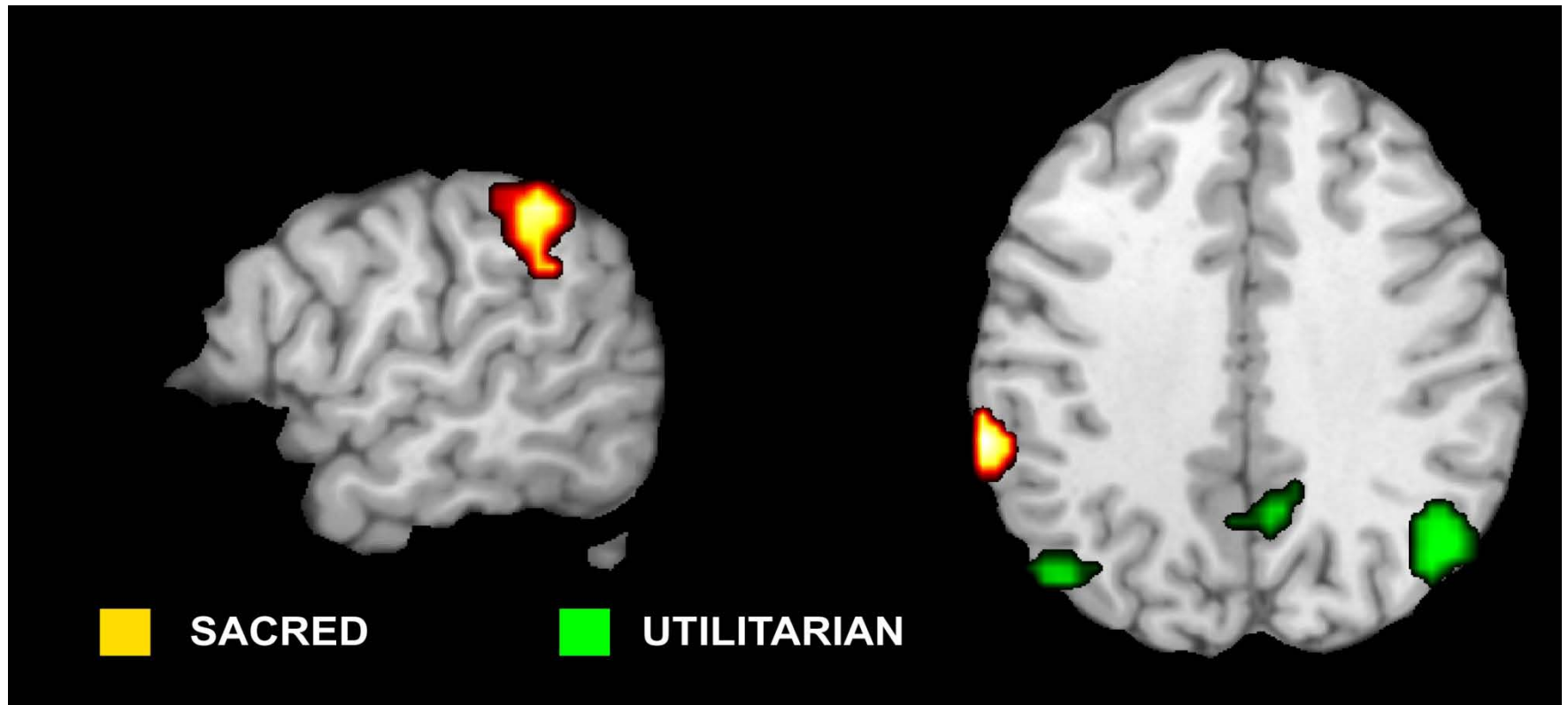
- *Sacred* values act as moral imperatives that inspire non-rational sacrifices in cooperative endeavors and war.
- There is ample historical and cross-cultural evidence that when conflict is conceived in terms of competing religious and moral frameworks, violence between groups may endure in ever shifting forms and venues for decades, even centuries.
- For then, disputes over otherwise mundane material resources (people, territory, energy sources) become existential struggles.
- Thus, while there is no necessary link between religious belief and violent conflict, during intergroup conflict protagonists may transform otherwise material interests into sacred values, as when land becomes “holy land.”

- Sacralized values, which are often but not always associated with religious belief, take on the characteristics of core religious beliefs.
- They become transcendent, emotionally-charged yet stable over time, and associated with neural processing of deontological rules rather than utilitarian calculations ([Berns & Atran, *Phil Trans Roy Soc – B*, 2012](#)).



Brain regions identified in which sacred items resulted in greater activation than non-sacred items (N= 36, $P < 0.005$)

(Berns, G. S., Bell E., Capra C. M., Prietula M. J., Moore S., Anderson B., Ginges J., Atran S..
Philosophical Trans. of the Royal Society B, 2012)





Sacred Values vs. Material Calculus

- *Much more is known about economic decision making than about morally-motivated behavior. But here are some empirical features of SVs:*
- Privileged link to emotions
- Bound to notions of personal and collective identity, of “**Who you are & whom you trust.**”
- Often have a strong inter-personal component
- Insensitive to quantity
- Immunes to material tradeoffs
- Generate actions independent of prospects for success



- Sacred values determine which social and material transactions are morally sanctioned, and can drive actions related to intergroup conflict independently of material interests or consequences:
- as with some decisions to initiate or sustain war, when religiously-motivated suicide bombers willingly die regardless if others are killed (*Atran, Talking to the Enemy*).
- or when certain Native American groups reject majority-culture offers for exploiting natural resources as violating spiritual injunctions (*Atran & Medin, The Native Mind, 2008*)
- **OFTEN PEOPLE AREN'T AWARE OF THEIR GROUP'S SACRED VALUES UNTIL THEY ARE CHALLENGED FROM THE OUTSIDE**

Incompatible sacred values can foster seemingly intractable conflicts

- Israel / Palestine
- Indonesia
- Kashmir
- Iran (nuclear issue, title to Persian Gulf)
- Pro-Life vs Pro-Choice (USA)

Sacred Values & The “Backfire Effect”

Studies with Palestinians, Israeli settlers, Indonesians, Indians, Afghans and Iranians show that:

offering people material incentives to compromise sacred values (large amounts of money, promise of a life free of political violence) can backfire, increasing violent opposition to compromise.

Backfire effects occur both for sacred values with clear religious investment (Jerusalem, *Sharia* law) and those with initially none (Palestinian refugees' right of return, Iran's right to nuclear capability). (Ginges, Atran, Sachdeva & Medin, *Amer Psych*, 2011)

Palestinian Refugees



In a 2005 study in the West Bank and Gaza, Palestinian refugees who held their "Right of Return" to former homes in Israel as a sacred value were more violently opposed to abandoning this right for a Palestinian state plus significant economic aid than to the same peace deal without aid.

Iranian Nuclear Program



In a 2010 study among Iranians, those who regarded Iran's right to a nuclear program as a sacred value were more angrily opposed to sacrificing Iran's nuclear program for conflict-resolution deals involving significant economic aid, or relaxation of sanctions, than to the same deals without aid or sanctions.

Israeli Settlers



In a 2005 study among Jewish settlers in the West Bank and Gaza, those who regarded *Eretz Israel* (God-given "Land of Israel") as a sacred value more violently opposed withdrawing from settlements for peace plus significant economic aid than for peace without aid.

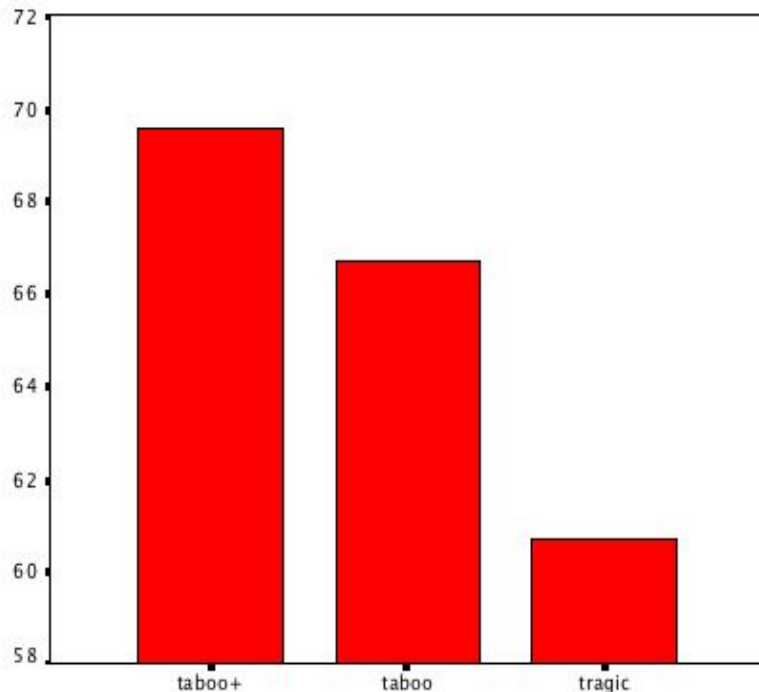
Sacred Values Can provide Surprising Breakthroughs to Peace

- **Taboo** - suppose the United Nations organized a peace treaty between Israel and the Palestinians. Under this treaty:
 - Palestinians would be required to give up their *right to return* to their ancestral homes in Israel.
 - There would be two states – a Jewish state of Israel and a Palestinian state in the West Bank and Gaza.
- **Taboo+** - Additional clause:
 - In return, the USA and the European Union would give Palestine 10 billion dollars a year for 100 years.
- **Tragic** - Additional clause:
 - On their part, Israel would apologize for their role in the dispossession and dislocation of Palestinians in 1947-8.



Refugee predictions of % of population ready to use violence to oppose: a peace deal perceived to violate a collective moral value (“taboo” condition), the taboo deal plus an instrumental incentive (“taboo+”), or the taboo deal plus a collective moral concession without instrumental value from the adversary (“tragic”)

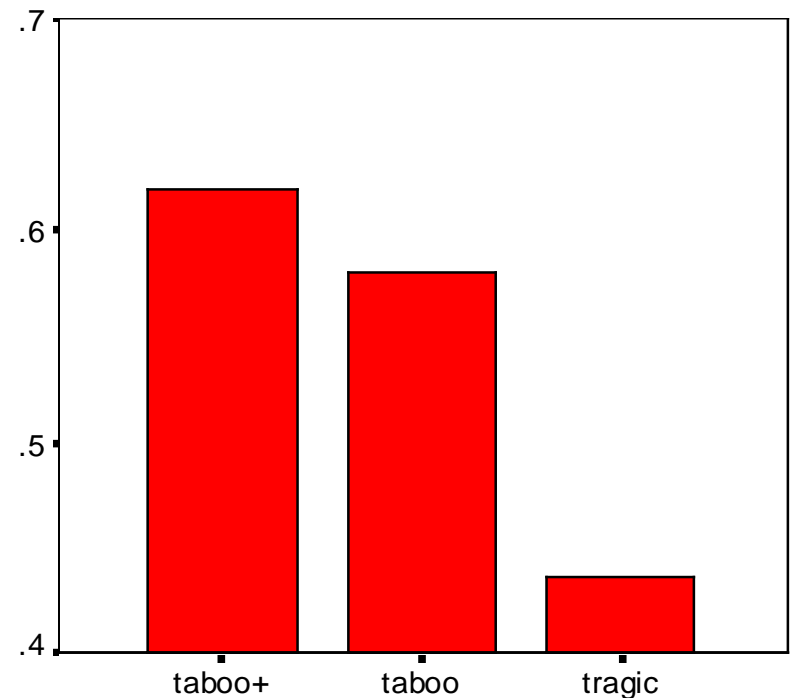
(linear trend: $F [1, 195] = 5.698, P = .018$)



Refugees reporting ‘joy’ at hearing of suicide bombing

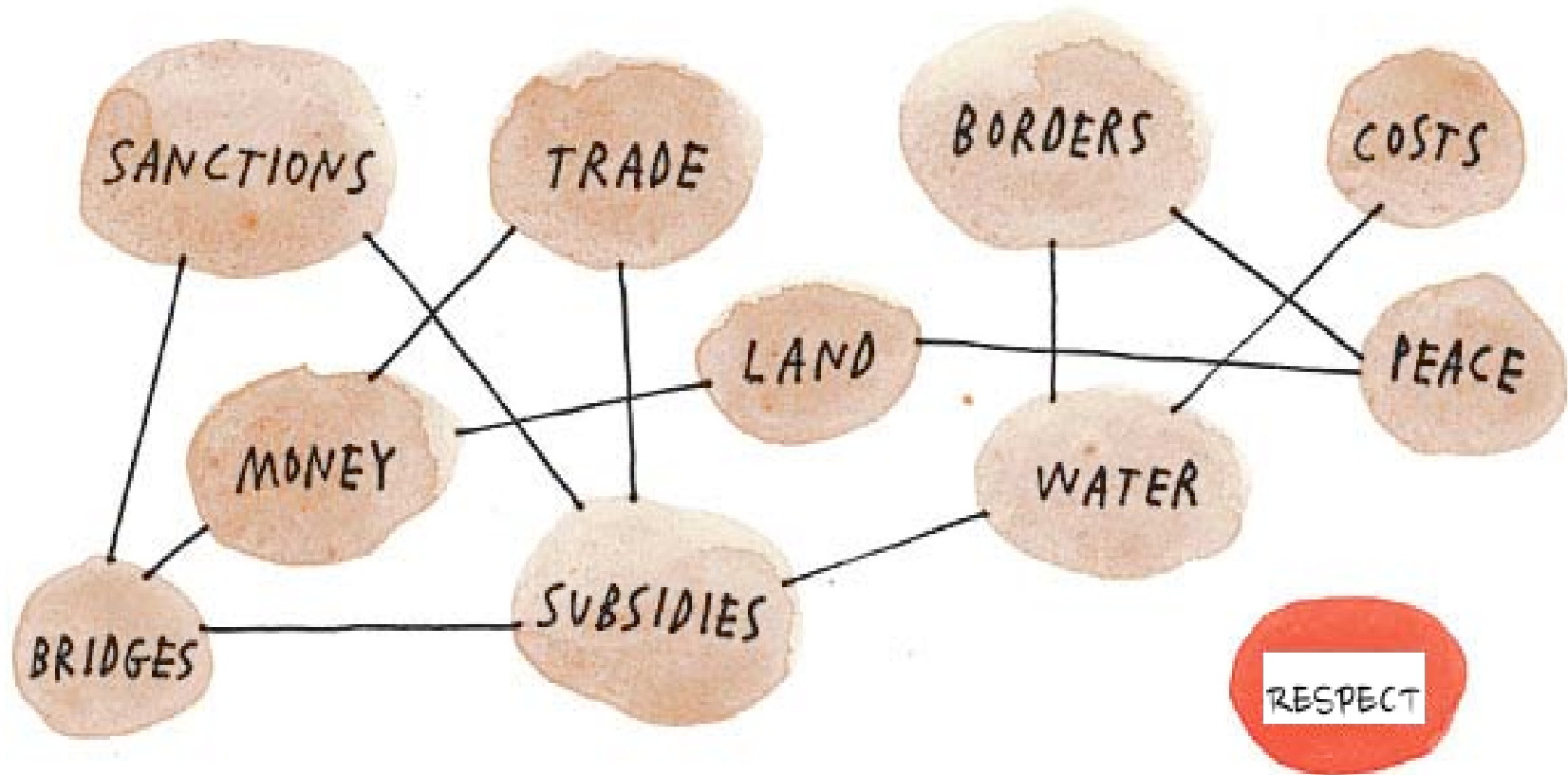
(relative to overall mean estimate)

(linear trend, $F [1, 418] = 7.48, P = .007$)



The Overriding Value of “Who We Are”

(From S. Atran, J. Ginges, “How Words Could End a War,”
New York Times, January 24, 2009)





- While sacralization of initially secular issues blocks standard “business-like” negotiation tactics, strong symbolic gestures (sincere apologies, demonstrating respect for the other’s values) generate surprising flexibility, even among militants and political leaders, and may enable subsequent material negotiations (Atran, Axelrod & Davis, *Science*, 2008).
- Moreover, as with religious beliefs generally, sacred values may be re-framed through novel, context-sensitive interpretation without compromising their absolute “truth” (e.g., Jerusalem is less a place than portal to heaven, and earthly access to the portal suffices) (Atran & Axelrod, *Negotiation Journal*, 2008).

We need to know more about cognitive and social mechanisms underlying sacralization of values that cement personal devotion to group norms.

In an internet survey of values among Americans, greater attendance in religious services corresponded with more values held sacred (measured by refusal to forsake them in an economic game).

Group interests, especially when threatened, may become sacralized through alliance to religious rituals and rhetoric, as with Iran's nuclear program. (Dehghani, et al., *JDM*, 2010)

In a longitudinal study of Palestinian adolescents, when they perceived threat to their people, those more involved in religious ritual (frequent prayer, mosque attendance) were likelier to see political issues central to conflict as absolute moral imperatives forbidding Palestinian leaders to compromise, whatever benefits or costs to their people. (Hammad, Ginges, Coman & Atran, *JDM*, 2012).

Some lines of Future Research

1. In-depth ethnography, combined with cognitive and behavioral experiments among diverse societies (including those lacking a world religion), can help identify and isolate the moral imperatives for decisions on war or peace.
2. Neuroimaging may elucidate how religion and sacred values differ (if at all) from secular beliefs and values, to better comprehend how they interact and which aspects are liable to manipulation towards violence or non-violence.
3. We need more developmental study on how children acquire religion and sacred values, and how people come to change or abandon them.
4. Formal modeling of cultural evolutionary processes should join archaeological and historical efforts to mine this multi-disciplinary research for insight into broad patterns of history and future prospects for human conflict and its resolution.

- Religion and sacred values inspire achievement of great virtue and great vice, in spiriting folk to glory or bending will to power.
- They arouse strong attitudes among believers and non-believers, which can hinder deeper, nuanced appreciation of human conflict.
- In an age where religious and sacred causes are resurgent, there is urgent need for joint scientific effort to understand them.

NEEDED

A Science of the Sacred

