I thank the organizers of this event for the opportunity to talk about one of my favorite themes – personal dominance hierarchies. I do not have much in the way of fresh new data to show you, but I will try to draw your attention to many earlier studies whose implications for evolutionary psychology may have escaped you. As an anthropologist, I will give special attention to cross-cultural research and refer to many correlations that I explored using the Ethnographic Atlas. For those interested in verifying or re-thinking the correlations, I suggest accessing this database at: https://www.academia.edu/590094/Standard_Cross-Cultural_Codes_UC_Irvine. Since I no longer have advisees of my own, I'd like to take advantage of this opportunity to suggest different research projects that I, personally, would like to see carried out – some projects simple enough for a Senior Thesis, others more complex, requiring a group of researchers. I will point out these projects throughout my talk, in the hopes that some of you may be inspired to take them up.

“Is” and “Ought”

Before turning to the topics listed in this talk’s title, I'd like to clear up one confusion that turns up far too often in academic discourse and results in unnecessarily heated discussions. As we will see, this confusion also has its roots in our evolutionary past, and has ties to dominance hierarchies. I was first introduced to this confusion when I was 12 years old and began confirmation classes into the Lutheran Church. These classes were taught by a philosophy professor from the nearby Lutheran college, and he taught us much like he taught his college students. The theme of our first class was “is” versus “ought” -- the impossibility of concluding from what “is” to what “ought to be,” and vice-versa. It took me years to realize that most of my academic colleagues had never had this lesson. Much of the following discussion was published in my article (Werner 2003).

Confusing “is” and “ought” includes several philosophical “fallacies,” Still, some neo-platonic philosophers would not consider these to be fallacies at all. Rather, they think that when we finally get to the “Truth,” we automatically arrive at the “Good” and the “Beautiful.” I read about this philosophy in the essays of Ralph Waldo Emerson in high school, and found the essays inspirational, but ultimately untenable. I wrote about this “Philosophical Idealism” in my book O Pensamento de Animais e Intelectuais: Evolução e Epistemologia (Werner 1999; Werner 1997 English translation at: http://dennis-werner.blogspot.com/) and contrasted it with other philosophical views of reality.

The most common confusion of “is” with “ought” is called the “naturalistic fallacy.” It takes two forms: first is the idea that anything “natural” is inherently good, while anything “artificial” is bad, so we ought to follow the dictates of nature. I always found this idea hard to swallow. The problem was that my father was a country veterinarian and I saw far too much cruelty in nature to believe it was inherently good. Darwin also felt appalled at many of nature's cruelties. In a letter to Asa Gray in 1860 he cited the case of wasps that lay their eggs inside the bodies of animals so that the hatchlings could eat their way out of the living victim. Darwin clearly did not think nature was morally good, and did not think we should follow its dictates. Still, at least one writer, whether in jest or in earnest I cannot tell, recognized that nature is cruel, but still thought we still should follow its “morality” – The Marquis De Sade.

The “naturalistic fallacy” also takes a second form – the idea that human nature is inherently good. This was the view of Plato and his followers, who argued that even among thieves there is honor. This view contrasts directly with the Jewish and Christian views of “original sin,” an idea that perhaps goes too far in the other direction. In arguing that saints are people who recognize that everything they do is done for selfish reasons, Martin Luther endorsed this view.
Another common confusion of “is” with “ought” is known as the “relativistic fallacy.” I consists in arguing that if the people of a given culture think that something is good, then we ought to consider it good – at least for the people of that culture. This often results in awkward convolutions of logic. I remember watching a TV commentator on “ethics” try to argue against the “farra de boi,” a ceremony involving teasing an ox or cow, eventually killing it for a barbecue. The commentator had to deal with the fact that this was a traditional activity of Azorean fishermen on Santa Catarina's coast. She needed to argue that it was wrong – an uncalled for cruelty to animals. But she also felt that cultures should be respected. She eventually came up with a circular argument in which she suggested that anything that was wrong, could, ipso facto, not be considered a tradition. With this logic she could still urge respecting culture while condemning this particular aspect of culture.

This leads us to another confusion of “is” with “ought” known as the “moralistic fallacy.” In this case one argues that if something “ought to be,” then it “is” and anything that “ought not to be” “is not.” Men and women “ought to be” equal, therefore they are. Prices of goods and services “ought to be” based on the work involved in providing them. Therefore prices “are” based on the work put into them. As the anthropologist Mary Douglas (1979) aptly points out, when looking at how things actually are, the theory that prices are a function of supply and demand fares far better.

Finally, some people might argue that there is no such thing as morality. Known as “moral nihilism” this idea also has problems because humans cannot survive without preferences, and these preferences always lead to some idea of how things “ought” to be. The neuroscientist Antonio Damasio (1994) describes a case of brain injury in which a man lost all notion of preferences. He was incapable of even the simplest tasks like classifying documents for filing. He simply could not make decisions and was totally dependent on others for even the simplest tasks.

Evolutionary Origins of Confusion between “is” and “ought”

Since I am here to discuss evolutionary psychology it behooves me to consider just how our confusion between “is” and “ought” evolved. I think the best clues come from our ambiguous vocabulary. First consider the words “correct” and “wrong.” These words might refer to questions of truth as in a true/false test in school. But they can also refer to morality as when we talk about “correct” or “wrongful” behavior. Likewise, the words “true” and “false” may refer to statements about facts, but may also be used to describe people we can trust or should be wary of. Consider also how easily we slip from questions of “is” to “ought” when we say things like “A causes B,” “A is responsible for B” and “A is guilty for B.” And finally, there is the confusion (especially common in Portuguese) between “explanation” and “justification.” We often hear Brazilian crime victims say “there's no way to explain his behavior,” when they really mean “there's no way to justify his behavior.”

I think the best explanation for this confusion comes from the way we evolved to evaluate truthful intentions in others. Byrne (1995) and Sommer (1994) as well as others argue that human brains evolved because of an arms race between the capacity to practice deception and the capacity to detect it in others. Sommer's book on the subject is even entitled “In Praise of Lying.” In his comparison of different primate species, Byrne found support for this idea in the form of a strong correlation between a species' use of elaborate tactical deception and the ratio of its neocortex to overall brain size.
In effect we act like lawyers and police investigators when cross-examining people as we attempt to detect contradictions in their statements or in their actions. That's how we know who is “true” or “false.” As scientists we do much the same as we come up with hypotheses (or other statements) and then carry out tests to see if our ideas are contradicted by our findings. That's how we check whether our theories are “true,” or “false.”

**Moral Thinking**

If there is no way to conclude “ought” from “is” how are we to make moral choices? Well, people do, in fact, have ideas about what “ought to be”. But, of course, this does not make their moral beliefs right. Still, we can at least explore some of these ideas and perhaps get a better idea about what we can do. Obviously, moral reasoning does not always translate into moral behavior, but it is still worthwhile, at least for public policy, to be clear about how we reason.

Ever since Piaget, developmental and other psychologists have devoted a good deal of attention to how people think about moral questions, and have elaborated theories about the criteria people use to make moral judgments. Researchers have discovered differences in people's reasoning based on life stages (especially throughout childhood), sex (men vs. women), ethnicities and educational levels.

The criteria used for moral reasoning include:
- purity (good) versus disgust (bad),
- rewards (good) versus punishments (bad)
- obedience to authorities, texts or rules (good) versus disobedience (bad)
- loyalty to one's group (good) versus disloyalty – treason (bad)
- adherence to “higher principles” like “justice” or “care.”

**Figure 14.3** The relationship between the neocortical ratio and the prevalence of tactical deception (measured by the excess fraction reported over that expected on the simple assumption that the more study, the more reported), for various primates.
One aspect of moral thinking related to the theme of this talk is “moral indignation.” From an evolutionary point of view, moral indignation might be seen as a kind of threat. Not a threat in which a lone individual promises to harm another, but rather a collective threat in which the promised harm would come from a group. In a literature review Miller (2001) showed that moral indignation is most easily provoked by disrespect – when one's status in the dominance hierarchy has been called into question.

Although these variations have been studied by psychologists, I know of no studies that attempt to compare moral thinking in different societies. I suspect, for example, that an emphasis on the “loyalty/disloyalty” criterion may be more common in relatively small warring societies, while “obedience to a leader or a set of rules” would be more important in more stratified societies. I also suspect that recourse to a more abstract principle (like “justice” or “care”) would be more common among the classes that make the laws. Moral indignation would more likely characterize groups undergoing change where old hierarchies are being challenged. So here are my first suggestions for research projects:

Projects for anthropologists, sociologists and historians:

1. Do warring tribal societies punish disloyalty more than other types of societies?
2. Do stratified societies punish disobedience more than other societies?
3. Do lower classes within a stratified society punish rule-breaking more than the upper classes, while upper classes punish failure to follow some principle? This study might compare the moral thinking of different religious dominations – think Episcopalians versus Pentecostals.
4. Does moral indignation within a society increase when a social group (a profession, for example) loses status to another group? Think factory workers or foot soldiers losing status to computer hackers.

Experiments for social psychologists:

5. Does “priming” with a story about violence between groups increase the value of loyalty, or punishment for “treason?”
6. Does priming with a story about social identities (ethnic, sexual, professional) increase the value of loyalty or of punishment for “treason?”
7. Does assurance that one is part of a group increase the likelihood of moral indignation?

Of course how people actually reason about morality (a question of what “is”) cannot be used as a basis for how people “ought” to reason about morality. So what can we do? I suggest the following principle as the basis for any moral system. I think it should apply to any ethical, legal or political system as well.

Maximize in a sustainable way, both physical and mental well-being.

This principle is similar to ideas found in many of the world's religious texts – “Do not do to others what you would not want them do to you” (found in the Analects of China). “Do unto others as you would have them do unto you (found in Islam, Judaism, Buddhism), or “Love thy neighbor as thyself” (The Law above all laws in Christianity). Of course, just the fact that it is similar to religious doctrines does not make it correct, and I can see at least three major problems with this principle that I do not know how to resolve:

Problem 1: Who should be included? which animals? what about fetuses? or the brain-dead? Kant thought the main question is to avoid “pain,” Rachels (1991) suggests that we should favor those that can imagine a future for themselves. I balk at these two “solutions.”

Problem 2: What about inequalities? I’m not worried about economic inequalities per se but I am concerned about inequalities in well-being. Rawls (1971) suggests thinking in terms of a lottery in which you would be placed at a given level by chance. How much inequality would you accept if you had to submit to such a lottery? But how do you deal with differences in people's willingness to take risks?
Problem 3. What about incomplete information? How can we be sure about the facts or the alternatives? How do you make decisions if you can't trust the information? I don't know of anyone who has tried to tackle this question.

So here is another suggestion for a research project, in this case for a philosopher.

**Sickness and Wrongness**

Some people consider it paradoxical that psychiatrists and neuroscientists can define in fairly precise terms various mental conditions, but have trouble defining “sickness.” I don't think this is paradoxical at all. This is because “sickness” is a question of “ought,” or rather what “ought not to be,” while “autism spectrum syndrome” is a question of “is.” Perhaps more importantly, both in the case of morality and sickness, it is more important to decide what we “ought to do” rather than how we ought to characterize “wrongfulness” or “sickness.” Is being overweight an illness? What about ugliness? or drug addiction? The real question for doctors here is not to worry about whether these are illnesses, or moral defects, but rather to decide what ought to be done. Will plastic surgery help or harm the patient? What is the best alternative for action – the alternative that will most increase well-being of the individual and those affected by the individual in society?
Dominance Hierarchies

Let me turn now to the topics in the title of this presentation. Throughout the talk, I would like to be clear about what we mean by dominance hierarchies. I think there are three major types:

1. Personal dominance hierarchies – one's personal rank in a hierarchy.
2. Social dominance hierarchies – the ranking of social groups (for example, men vs. women, native born versus immigrants)
3. Formal dominance hierarchies – based on objective criteria like exams, or production goals.

In most of my talk I will be concerned with personal dominance hierarchies, which are more directly derived from the hierarchies of our primate ancestors. As promised, I will look at implications for politics, violence, sexuality and religion.

Politics

*Man is by nature a political animal.* Aristotle

The most obvious parallels between human and animal dominance hierarchies are the personal characteristics of leaders. At least since Darwin (1872) people have observed similarities between primates and humans in their facial expressions and body language – expressions directly related to dominance and submission. The illustrations of van der Waals Ted talk are striking, and show similarities in the body swagger and open-mouthed toothy threats of dominants, and the “shit-eating grins” of submissive males, exposing their closed teeth as if to make it clear that they are not a threat.
Leadership Characteristics – Height, Aggressiveness and Father's Status

Both in animal and human societies, one of the most consistent predictors of leadership is size. Height, although not always the best predictor is consistently an important trait of leaders in most of the world's cultures, as well as in different organizations within a society. Here is a comparison of the best predictors of who becomes a leader among the Amazonian Mekranoti Indians I studied in the 1970's (Werner 1980, Werner 1982a) and in different U.S. organizations as summarized by Stogdill (1974).

Note that “intelligence” predicts leadership better among the Indians than in the United States where originality and geographical centrality are far more important. I expect this difference reflects the importance of innovation and visibility in the United States. Also, intelligent people in the U.S. have the option of specializing in science or other fields and may have difficulty communicating with the masses, making too much intelligence a handicap.

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<tr>
<th>Trait</th>
<th>Mekranoti</th>
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<td>Men</td>
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<td>Knowledge</td>
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<td>Ambition</td>
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<td>Originality</td>
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<td>Popularity</td>
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<td>Social insight</td>
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<td>8.5</td>
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<td>Father’s status</td>
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<tr>
<td>Wealth</td>
<td>9</td>
<td>15</td>
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<td>Geographical centrality</td>
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<td>Good looks</td>
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When do dominants bully?

“Aggressiveness” appears as an important trait of leaders in both societies. What makes leaders act more aggressively? To examine this question I looked at the Standard Cross-Cultural Sample (SCCS1) of the Ethnographic Atlas. This atlas consists of codings anthropologists have made of different variables for a standard sample of (mostly pre-industrial) cultures around the world in different historical periods. One major source of information for these codes is the Human Relations Area Files. Based at Yale University, the files began soon after World War II, and consist of original documents written by travelers, traders, missionaries, government personnel, and, of course, ethnographers. Many of the records are the only English translations in existence. Anthropologists have indexed these texts placing numbers referring to different topics in the margins of the pages. Originally copies of the pages were made for each index number and then filed by number into the drawer of the culture in question. With this system anyone interested in a given topic in a specific culture could pull out the pages indexed for this topic for the culture in question. Copies of the Human Relations Area Files can be found in most of the world's major university libraries. Today, a large part of HRAF can be accessed via the Internet.
Here are variables from the Ethnographic Atlas that are correlated with despotic leadership. The numbers in parentheses refer to the variable numbers in the Atlas.

Characteristics of political systems with Despotic leaders (v1134):

(v761) no checks on a leader’s power
(v762) leaders removed only through rebellion
(v763) leaders make independent authoritative decisions

Despotism is closely tied to warfare:

Despotism (v1134) is most likely in societies where:

(v679) warfare is endemic
(v693) inter community warfare is endemic
(v892) external warfare is frequent
(v894) there are military organizations like age grade warriors or a professional army
(v895) warfare decisions are taken by officials
(v896) warfare begins by announcement
(v901) there are high casualty rates in war
(v902) war leaders can use force to back up decisions
(v907) warfare is valued and enjoyed

Although despotism may, in part, encourage war, I think there's little doubt that warfare, itself, stimulates despotism. I say this because the occurrence of natural disasters is a good predictor of war (Ember and Ember 1992) and, even though despots may worsen the impacts of a natural disaster, they cannot cause hurricanes, volcanoes or earthquakes. I suspect that people, in an emergency, are more willing to accept a bully's behavior in order to assure immediate and decisive actions.

Another factor that might affect the aggressiveness of leaders is hierarchical instability. De Waal (2018) points out that secure chimpanzee dominants actually spend more time than others in consoling others – just the opposite of bullies. He suggests that this makes it more difficult for lower-ranking males to join forces into a coalition to overthrow their leader. But when the dominant's position is challenged, there is a switch to more bullying types of behavior (Sherwell 2011). I know of no research on this question in human societies, and cannot think of how to examine it with data from the Ethnographic Atlas. So here is an area where I'd very much like to see some research. Here are a couple of suggestions:

Do unstable hierarchies result in more bullying styles of leadership? (experiments for social psychologists)
Do secure leadership positions (ex. lifetime appointments) result in less bullying, more generous styles of leadership? (for sociologists and political scientists)

There is also a traditional anthropological explanation for despotic leadership (Carneiro 1970, Clastres 1974). This argument looks at the options for those being bullied. In many technologically simple societies the easiest way to avoid bullies is simply to “vote with your feet” -- just move away. Indeed:

Just moving away (Fission) (V785) is common in societies where
Leaders have limited power (V759)
Leaders do not have unchecked power ((V761)
There are no formal leaders, or leaders can be more easily removed (V762)
Leaders govern by persuasion rather than by authoritative decisions (V763)

According to the Carneiro-Clastres theory just moving away becomes difficult when individuals have to
move from highly productive places (like irrigated fields) to wastelands (like deserts, or the oceans surrounding islands). This makes the option to flee much more expensive, and putting up with bullying more palatable. Archaeologists and anthropologists have devoted a great deal of attention to this argument, but no one has figured out a way to actually code the costs of moving away from a tyrant. I won't even suggest a research project here, as I think it terribly complicated.

One popular argument envisages a curvilinear relationship in the evolution of despotism. Beginning with more despotic dominance hierarchies among primates, Boehm (1999) suggests that early human foragers suffered less from bullies because of the option to flee, while technologically more complex societies closed off this option. What deserves more attention here is the “fleeing” option among primates suffering from bullying. So here is a research suggestion for ethologists.

How easy is it for individuals in a primate group to just leave? Do the dangers from predators or the lack of food resources affect an individual’s option to flee? Are there differences among species here? Are there differences among communities of the same species?

Finally, one important factor related to autocratic rule is the degree of social conformity demanded in a culture (Gelfand, et al. 2011). In an extraordinarily thorough and careful analysis, Jackson et al (2019) carried out a series of quantitative studies, including one that compared contemporary nations, one that compared U.S. states, and one that compared pre-industrial societies found in the Human Relations Area Files, as well as priming experiments in social psychology. All arrived at the same results: “Ecological threats,” (warfare, disease outbreaks and/or bouts of resource scarcity) result in pressures for greater conformity (stricter norms with greater punishment for those who deviate from these norms, and less openness to new ideas or practices). Greater emphasis on conformity, in turn, results in more prejudice toward different ethnic groups, religious faiths or sexual minorities, and in a greater willingness to severely punish offenders.

There are a few questions about why threats might encourage conformity over diversity. One argument is that conformity encourages cooperation by emphasizing the importance of membership in a group. Another possibility is that threats make people fearful, and that makes them afraid to deviate, or maybe threats make people mistrustful of others and demand conformity to show loyalty? On the other hand do groups encourage diversity in behaviors in order to encourage thinking “outside the box” where innovation is economically important? Research projects that contrast these arguments would be highly welcome.

Sociologists, or anthropologists might contrast these arguments for different religions or industries.

Social Psychologists might examine how fear or mistrust affect pressures for conformity.

Social psychologists might examine if priming for innovation encourages diversity.

Other questions for sociologists or anthropologists

1. Does a higher frequency of social interaction (or population density) require stricter norms of behavior in order to avoid conflict (for example, keeping the noise down, driving cautiously)?

2. Do threats (like natural disasters, disease or war) make people more fearful of deviating from norms so as not to upset the gods?

3. Do threats make people distrust others, so people try to conform to avoid suspicion.

4. Do industries requiring trust (e.g. the diamond industry) require more conformity?

5. Does an industry or economy that requires innovation (e.g. Silicon Valley) need to stimulate cross-fertilization of ideas via behavioral diversity?
Leadership Inheritance

Finally, a word about leadership inheritance. What's behind the correlation between the status of fathers and sons? How can this be explained for the Amazonian Indian society? By most standards the Mekranoti would be considered an egalitarian society. Land is common to all, and people may plant their gardens anywhere they please, although once planted the produce from the garden is considered the property of the one who planted it. The only difference in “wealth” is the right to possess certain ceremonial objects, which anyone could produce, but only certain people are allowed to use. Yet despite this economic equality, the sons of the Mekranoti chief enjoy greater prestige, and “father's status” predicts influence as much among the Mekranoti as in the United States. Why should this be so?

In trying to unravel this mystery while writing my doctoral thesis I looked at various anthropological theories about leadership inheritance and felt terribly frustrated that none seemed to work. No amount of statistical manipulation with variables would give the result I was looking for. Enough said for the idea that you can prove anything with statistics – at least if you're being honest! Finally, I marked a meeting with my thesis advisor. Her reaction was simple – “So the theories don't work. Go home and think about the people in your study. Come up with something else.” At first I was unnerved, but eventually just relaxed and let the data tell me what was going on. There were a few items that fit as intervening variables between being “a son of the chief,” and influence. One was simply height. The other was intelligence. I did not like this result. It sounded too much like genetic determinism, but reality is the way it is. The other important variable was “having knowledge of civilized ways.” Reflecting on this I realized that the chief's sons knew more about civilized ways because the foreigners in the village (anthropologists, missionaries and FUNAI personnel) had to deal with the village chief, and in doing so they automatically grew to know his family better than other families in the village. The chief's sons had become culture brokers. A path analysis showed that this was indeed the strongest intervening variable (Werner 1982b, Werner 1980).

The more I reflected on this, the more interesting the idea became. I realized that the “culture broker” role falls on elite families in most, if not all, societies that maintain important political and trade contacts with other groups. To carry out their diplomatic functions, children from these families must learn from an early age how to exhibit the “discreet charm of the bourgeoisie,” as so aptly portrayed in Buñuel's famous film. I would dearly like to see someone carry out a study of this in different cultures. So here's another research suggestion:

Do greater political and trade contacts between societies result in stronger correlations between one's parents influence and the influence of their offspring? Is this independent of wealth differences within a population?
In her best-seller, *The Hidden Life of Dogs* (1993), Elizabeth Marshall Thomas describes how her dogs lived in relative peace with each other until a new animal was introduced into the kennel. At this point fighting broke out among all the animals, until the new-comer's place in the hierarchy was finally established. This is a common theme in animal studies. Whenever an established hierarchy is challenged the top dog must defend its position. If it loses, it becomes vulnerable, and may be challenged by lower-ranked individuals, who in their turn may also become targets for dominance challenges, all the way down the hierarchy.

It is on this variable that I would like to concentrate this section of my talk. The importance of unstable hierarchies in generating violence has received some attention by psychologists, but far less than I think the variable deserves. Especially lacking are studies of the factors that lead to this instability. In the diagram below I have outlined some of the possible causal connections and research that supports these connections.

![Diagram showing the relationship between technological innovations, changes in jobs, child circulation, constant evaluations, and the resulting unstable hierarchy leading to violence.](image)


c. ?

d. Shackleford (2005)

e. Shackleford (2005), Masamura (1997), Wilkinson (2001)

f. ?

g. Paksarian et al. (2014)

h. Lindner (2004)

i. Lindner (2004)

I have placed “unstable hierarchies” in the center of the diagram, but would like to begin with “violence.” The first connection of this variable (“a” in the diagram) is with “self-esteem,” a variable that has received a good deal of attention. Early studies showed correlations of a lack of self-esteem with violent behaviors, while later studies suggested it is excessive self-esteem in the form of narcissism that leads to violent behaviors. This apparent contradiction has been pretty well resolved, in my view, by clarifying that it is the threat to self-esteem, that really
matters. Narcissism results in over-rating one's prestige, which can be easily threatened by reality, or by the unconscious realization that one is not so highly valued as thought. Even without narcissism, experiencing humiliation may also provoke political or religious violence.

When hierarchies are less stable, there are more threats to self-esteem (letter “c” in the diagram). There are many situations that may result in unstable hierarchies. A high risk of losing everything is one. I know of no studies directly analyzing this link (d). So here is another possibility for research.

Do societies with a high risk of personal bankruptcy have more unstable hierarchies and more aggression or violence? Situations that might increase risk include lack of health or accident coverage.

One well-studied variable related to this risk is the “culture of honor.” “Honor cultures” are characterized by the need to affirm one's status in a personal dominance hierarchy at all times. In an “honor culture” individuals must constantly demonstrate their “toughness,” and willingness to fight in order to maintain their status. Honor cultures develop where there is the possibility of losing everything by thievery and where there is a lack of a central authority capable of enforcing rules (“e” in the diagram). Situations that match this criterion include “prisons” (especially those with less control by warders), street gangs (especially in neighborhoods with few or ineffective outside authorities), and nomadic herding cultures (where it is relatively easy to rustle animals, and move away from retaliations).

I used data from the Ethnographic Atlas to look for cross-cultural correlations with the “toughness” so characteristic of honor cultures. Here is a summary of results:

**Toughness v625 (males aggressive, strong, sexually potent) correlated with:**

- childhood training for aggressiveness (v298, v300)
- childhood training for competitiveness (v302, v304)
- punishment for adultery (v966)
- idea that men should dominate their wives (v621)
- acceptance of violence between members of the local community (v781)
- taking of female captives in war (v870)
- women ostracized for barrenness (v952)
- greater frequency of rape (v174)
- ritualized fear of women (v635)
- frequent endemic warfare (v693)
- endemic conflict within community (v767)
- more capricious and arbitrary political leadership (v760)
- herding of sheep (v1487)
- herding of horses (v1515)
- herding of donkeys (v1516)

**Toughness not Correlated with**

- female economic or political power (v660-v663)
- physical fight to solve disputes (v770)
- other specific aspects of war
- herding of cattle (v1514)
- importance of pastoralism generally (v858, v246)

These cross-cultural results trigger a few reflections. First, it may come as a surprise that “toughness” is not related to women's power in economic and political matters. This suggests that “patriarchy” is not behind the emphasis on male toughness. I think the explanation for this is that male social dominance (where males, as a group, are seen as superior to females) is very different from personal dominance, where males compete among themselves within a male hierarchy. The correlation with training for competitiveness is in line with this argument. Other correlations, like “ritualized fear of women,” reflect a separation of men from women. This results in all-male groups
where personal dominance really counts. The correlations with mistreatment of women are about very personal, not wider social, situations.

The lack of correlations with female power also suggests that toughness is not due to “protest” masculinity, as suggested by some anthropologists (Ember et al. 2005). According to the protest masculinity argument children identify with the caretaker who controls resources. When very young, it is the mother who controls these resources, especially where males are absent. This leads to a primary female identity. However, when male children later perceive that it is males who actually control things, they develop a “protest” masculine identity that makes them exaggerate male characteristics to convince themselves that they belong to the privileged social group. The failure of toughness to correlate with male social dominance repudiates this argument.

Finally, I was surprised that there was no correlation with cattle herding, since cattle-herding cultures like the East African Masai are notorious for their emphasis on toughness. Then I realized that many cattle-herders (like dairy farmers) are not nomadic, so losses and gains due to thievery are less likely. Unfortunately, I could find no pre-coded ratings for nomadic herding in the Ethnographic Atlas. Perhaps someone might clarify this cross-culturally.

One factor that may affect aggressiveness is a hyper-sensitivity to one's place in the hierarchy. I once had the opportunity to study teenage offenders interned in the now-extinct FUCABEM. One of the things that most impressed me was that most of the boys seemed to fall into one of two psychological profiles. First were the smiling young men who exhibited extraordinary charm. One wondered why such captivating youth would ever be locked up, until looking at their files and reading about the really heinous crimes they had committed. In short, they fit the profile of your classic psychopath. The other boys were full of resentment, complaining that no one really appreciated their qualities. They resembled the “borderline” diagnostic. When looking at their past, the psychopaths were more likely to come from homes without father-figures, while the borderlines were more likely to have “circulated” between households during their infancy, moving from one family to the next, with periodic internments in orphanages. I suspect their childhoods were forever marked by the need to affirm their places in the personal hierarchies of every place they lived. This could easily lead to a hyper-sensitivity to how others rated their rank in society. Indeed there is some systematic evidence that childhood circulation is related to borderline syndrome (“g” in the diagram).

I placed a few arguments in the diagram for which I have no evidence whatsoever. One suggestion is that periodic evaluations might lead to more feelings of aggressiveness because they make hierarchies less stable (letter “f” in the diagram). I expect these feelings should be more intense if the evaluating criteria are more ambiguous. Aggressiveness should also be more intense if the changes in hierarchy result in more gains and losses (letter “d” in the diagram, or if the evaluations are more public. I could find no studies that directly answer these questions. So here are more suggestions for research projects.

Do more frequent and public evaluations result in more feelings of aggression? When evaluations are based on less objective criteria are these feelings more intense? When the consequences of changes in hierarchy are greater are there more feelings of threat to self-esteem and more aggressiveness?

Do companies with administrative policies like “total quality control” suffer greater hostilities and feelings of aggression?

Does exposure to reality shows in which participants are constantly being evaluated and humiliated result in more feelings of hostility and aggression?

Finally, in the links “h” and “i” in the diagram I suggest that changes in the job market caused by technological innovations may be behind some of the political sentiments that are shaking the world these days. There is an age-old rivalry between “jocks” and “geeks” that dates back at least to the moment when a Roman soldier killed Archimedes. Generally it has been the jocks, with their courage, loyalty and idealism that have enjoyed the greatest prestige. In one of cinema's greatest lines, the Arab leaders in the film “Lawrence of Arabia” are gathered together to discuss what to do now that World War I has ended. Lawrence enters the conference room, but is told that he is no longer needed. He has all the virtues of youth, which are the virtues of war – “courage, loyalty and idealism.” But peace requires the vices of old age – “caution, mistrust and cynicism.”

War still requires the virtues of youth, but technological changes have made intelligence more and more
valuable. Whereas brave cowboys were the heroes of the 1950's TV shows, today it is the geeks, like MacGyver, or the hackers and scientists of CSI who have been enjoying ever greater prestige. This difference is reflected in the job market, as even the military prefer technological savvies. Salary differences reflect this as geeks enjoy ever higher incomes while unqualified workers' wages have stagnated. This surely creates resentment as the hyper-masculine jocks lose status to the geeks they once disdained. A little cross-national research might be helpful here.

Do greater educational differences in societies undergoing technological change predict greater resentment and disdain for science?

Sexuality

“Everything is about sex, except sex, which is about power”

*Internet Meme falsely attributed to Oscar Wilde*

Sexuality is one of the most researched topics in evolutionary psychology, and links with dominance hierarchies have been well established. In this section I want to draw attention to three topics where I hope to inspire a few new ideas.

**Partner Choice**

**Rape**

**Homosexuality**

**Partner Choice**

Here are some findings relating partner choice to dominance

**Women's preferences:**

Women find physically dominant men more interesting for short term than for long term mates, while they prefer less-dominant men for long-term mating, and somewhat also for short-term relationships. (Buunk et al. 2002. Garth and Fletcher 2004)

Generally, women prefer socially dominant (high prestige) men over physically dominant men. (Snyder et al. 2008)

Women who fear crime are more likely to desire physically dominant males (Ryder et al 2016).

Women prefer submissive roles in BDSM (Wismeier and Assen 2013).

Women find more dominant men attractive, but not more dominant women (Sadalla et al. 1987)

**Men's preferences:**

Men are more interested in women's looks and age than in prestige (Easton et al. 2015)

Men prefer a dominant role in BDSM (Wismeier and Assen 2013)
Men find more dominant men attractive, but not more dominant women (Sadalla et al. 1987)

In healthier societies, men think more feminine faces are prettier (Marcinlowska et al. 2014)

**Face: the facts**
Average men’s preference for femininity against health index

In cultures where men are characterized by toughness (V625) men prefer plumper women (Ember et al. 2005)

I suspect the reason for this may be that extremely thin women are less likely to conceive, and that plumper women may guarantee more offspring for more physically dominant men. Here is a table I constructed from the Ethnographic Atlas in support of this idea.

<table>
<thead>
<tr>
<th>Count</th>
<th>V1248</th>
<th>Page 1 of 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>plump or (origina moderate</td>
<td>Slim or fat</td>
</tr>
<tr>
<td></td>
<td>l codel.</td>
<td>degree slender</td>
</tr>
<tr>
<td>V625</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marked emphasis</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>25</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Moderate emphasis</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Little or no emphasis</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>33</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Column</td>
<td>Total</td>
<td>37</td>
</tr>
</tbody>
</table>

GAMMA 0.45, p<.05
Anthropologists and others have suggested several arguments for why rape might be more common in some societies than others. Here are four popular arguments, with evidence from cross-cultural correlations based on the codings from the Ethnographic Atlas.

Argument 1 – Men rape because they lack access to sex with women (Thornhill and Palmer 2000). Several factors that might lead to lack of access fail to predict which societies have more frequent rape.

Frequency of rape (v174) not correlated with:
- the ratio of men to women in a society
- a later age of marriage for males
- the percentage of men who are married polygynously

But frequency of rape (v174) is higher where
- a higher percentage of women are married polygynously (v79)

Argument 2 – Men rape more where “patriarchy” (male social dominance) is stronger (Boakye 2009)

Frequency of rape is not correlated with
- most measures of women's power in society (V657-V663) or with the value placed on women's lives and work (V630-V636)

But rape is more frequent (v174) where
- males do virtually no domestic work (v585)
- males have total say over their own work (v592)
- women contribute little to subsistence (v595)

Argument 3 – Men rape more where there is more warfare and aggressiveness in society (Brown et al. 2018).

Frequency of rape is not associated with
- any of the Ethnographic Atlas' variables relating to warfare or measures of childhood inculcation for aggressiveness

Gamma = -.81, p<.05
But rape is more common where males are tougher (v625)

Argument 4 – rape is more common where women lack the protection of family (Otterbein 1979).
Frequency of rape is not correlated with
  matrilocaity (uxorilocality) (V697) where women live near their own relatives after marriage.
  endogamy (V72) where women marry men from their own village.

Trying to join these different findings, I suggest that the key is the “culture of honor.” In these societies, males spend more of their time within an all-male personal hierarchy, with more dominant males monopolizing more of the women. This leads to the need to show toughness to maintain one's position.

Because of the small sample sizes of the cultures in these analyses, I doubt whether the data in the Ethnographic Atlas will be able to sort out the different arguments more clearly. However, social psychologists may fare better at isolating the mechanisms behind men's willingness to rape. Here are some possible experiments with “priming”:

1. Does priming about one's position in a personal male hierarchy lead to greater willingness to rape?
2. Does priming about a man's hording of women lead to a greater desire to demonstrate one's toughness?
3. Does priming about other men hording women lead to a greater willingness to rape?
4. Does priming about the separate social spheres of men and women lead to a greater desire to demonstrate one's toughness?
5. Does priming about the separate social spheres of men and women lead to a greater willingness to rape?

Male Homosexuality

Several arguments have been proposed about how exclusive male homosexuality might have evolved. All hark back to the idea that the genes determining (or simply allowing) exclusive homosexuality can be passed on by the relatives of exclusive homosexuals.

1. The same gene that gives rise to exclusive homosexuality also makes homosexuals' female relatives more fecund (Iemmola and Camperi 2009, Vanderlaan et al. 2014).
2. The genes that give rise to exclusive homosexuality also make homosexuals more likely to give economic or other support to their relatives, helping them raise more offspring (Vasey and Vanderlaan 2010)
3. The genes that give rise to exclusive homosexuality make their male and female relatives more cooperative with each other because they show a willingness to yield in disputes which gives the kin group an advantage in rearing children (Muscarella 2000, Werner 2006)

There is some evidence for all of these theories: One study showed that the female relatives of male homosexuals were, indeed more fertile (Iemmola and Camperi 2009). Another study showed that homosexual males did indeed help their siblings raise more children (Vasey and Vanderlaan 2010). Homosexuals have, indeed, been shown to have more submissive personalities (Jozifkova and Flegr 2006) and many of their physical and psychological traits are characteristic of submissive individuals (Bogaert 2010, Brooks 2004, Bullough 1973). Finally, correlations of physical or psychological traits with homosexuality are much stronger when “passive” homosexuals are distinguished from “gays” in general (Walpole 2017, Weinrich et al. 1992), suggesting that the “sexual role preference,” may be more important than “preferred sex of partner” in defining homosexuality.

Although there may be limited support for the first two evolutionary arguments about homosexuality, I would like to concentrate on the last argument which is directly tied to dominance hierarchies and has two advantages.
First, the cooperation theory is more in line with studies of animal behavior, which show homosexual behavior to be common among our closest primate relatives in situations requiring cooperation – either to avoid conflicts (as among bonobos) or to clarify dominance relationships (in common chimpanzees and gorillas). It also fits in with the evolution of cooperation across species, as we move from more solitary species to ever greater cooperation (The theory might be called “Blessed are the meek, for they shall inherit the earth.”) In solitary species one of the most basic communication strategies is to mark territories. In more cooperative species a dominant may admit a subordinate into its territory, but this is subject to the condition that the newcomer recognize its subordinate status. This status may be clarified by using the same scent markings that identified territorial boundaries to now mark the subordinates themselves. This may require the subordinate's “paying homage” to dominants by “kissing ass,” or, to use the Brazilian expression, by “puxando o saco,” a gesture common in vervet monkeys. Finally, in the most cooperative species mutual markings may signal the willingness to collaborate by demonstrating a willingness to sometimes relinquish one's own desires to those of another.

Second, the cooperation theory also accounts for human homosexual behaviors that go beyond the behaviors of exclusive homosexuals. The sisters' fecundity argument and the helpful relative argument are totally silent on these behaviors. Those unfamiliar with the literature on homosexuality in non-Western cultures vastly underestimate the relevance of these behaviors.

Anthropologists and historians have documented the various “homosexual systems” that characterize different cultures. Most of the work is devoted to male homosexuality, since female homosexuality is less-well known and perhaps more difficult to identify. One classification system divides societies into three “systems”

First, are societies characterized by homosexual relationships between “typical” (non-differentiated) males. In these societies homosexual behaviors are considered normal and typical for all males. These relationships may take various forms. Most familiar in modern societies is the occurrence of homosexual rape in prisons, but homosexual rape has also been well documented in modern wars like the genocides in Bosnia, Rwanda, the Congo, Libya and other societies (Storr 2011, Omona 2014). In these cases the intent of the homosexual activity is clearly to humiliate or degrade others. History is replete with mentions of this activity in different cultures. Another common occurrence of homosexual activity between typical men is known as the “master-apprentice” relationship. This system has been identified in many cultures around the world (ancient Sparta, the Azande of southern Sudan, The Siwans of Egypt, the Maya in Central America, in Buddhist monasteries, and in numerous native cultures in New Guinea and Australia). In these cases a boy's father may designate another adult male to instruct his son in specific skills, and at times a marriage ceremony may tie an older male to a younger male wife for a period of time. In one extreme case (the Etoro of New Guinea) male homosexual behavior is deemed essential to a boy's maturation, and is strongly encouraged, while sexual relationships with females are taboo for most days of the year and always considered dangerous (Werner 1979, Cardoso and Werner 2003). In still other cultures (for example many of the Hellenistic societies) powerful males kept harems of “catamites” (male sexual slaves), and in some ancient stories soldiers formed homosexual love relationships (Comrade Loves of the Samurai, Gilgamesh and Enkidu, Achilles and Petroclus, David and Jonathan). In none of these accounts are the men involved considered psychologically different from typical males in a society, although in most the relationships involve a clear dominance hierarchy of victors over the defeated, or of older men over boys.

In a second homosexual system, found in a great many of the world's cultures, there is a clear distinction between the typical male who engages as the “active” partner in homosexual relationships, and a culturally distinguished exclusive homosexual who serves as the “passive” partner. This system is probably the most common in the cross-cultural literature, and is found among native groups in all of the world's continents. Again, a relationship of dominance of the “active” partner over the “passive” partner is common.

Finally, a third homosexual system is the modern “gay” culture in which socially differentiated males have relationships with other socially differentiated males. This system is relatively new on the world stage, and depends on living in large urban settlements.

To some extent all of these types of relationships may co-exist, but usually one type of relationship stands out. For example, in ancient Greece the “master-apprentice” relationships stands out, but humiliation of enemies in war, or alliances with fellow soldiers also occurred. As for socially differentiated exclusive passive homosexuals, these too are documented in ancient Athens. Being more effeminate, such men were not allowed to vote in elections, but were
otherwise well tolerated.

Why do societies differ in these systems? A cross-cultural study suggests that homosexual relationships between typical males may be related to the need to guarantee loyalty (more cooperation) where such cooperation is extremely important, as in warfare – especially where other criteria to mark loyalties (like a common language) may not be enough. Indeed, this homosexual system is most common where there is a great deal of warfare between groups that speak the same language (known as “internal warfare” among anthropologists) (Cardoso and Werner 2013).
<table>
<thead>
<tr>
<th></th>
<th>Internal warfare seems to be absent or rare (original code 1)</th>
<th>Internal warfare seems to occur once every 3 to 10 years (original code 1.5)</th>
<th>Internal warfare occurs every year, during particular season (original code 3.5)</th>
<th>Internal warfare seems to occur constantly anytime of year (original code 4.5)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only gender-stratified homosexuality (homosexual relationships of culturally non-differentiated men with culturally differentiated homosexuals)</td>
<td>15 (60%) Aymara 1 (4%) Creek 1 (4%) Omaha 2 (8%) Otao Nuba Toraja 2 (8%) Hausa Maori 3 (12%) Burmese Marquesans Vietnamese</td>
<td>25 (100%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some age-stratified or egalitarian homosexuality (same culturally approved homosexual relationships between culturally non-differentiated men)</td>
<td>6 (23.6%) Cayapa Japanese Kimam Nyakyusa Romans Turks 0 1 (4.8%) Egyptians 0 2 (8.5%) Nundo Mongs Tivi 0 3 (14.3%) Gheg Albanians West Samoa Chinese 9 (42.9%) Azande Bailinese Javanese Koreans Nambuccara Orokika Riffians Tupinamba Yanomamo</td>
<td>21 (100%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21 1 2 3 2 5 12</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gamma = .34, p = .005
What about the prevalence of homosexual relationships between typical (“active”) males and socially differentiated (“passive homosexuals”)? In this case cooperation may not be so important as with internal warfare, but may still be significant. In “clientelistic” cultures where “who you know” is more important than “what you know” sexual relationships with a “passive” homosexual (especially if group sex is involved) may serve to guarantee male-male bonds. Where clientelism is less important these bonds may be less important, and may even be discouraged.

In his study of the homosexual behavior of heterosexually-identified males among working-class men from Istanbul, Bangkok and Florianópolis, Cardoso (Cardoso and Werner 2013), statistically ruled out the ideas that heterosexuals engage in homosexual behaviors because they lack access to women, need money, or are closet bisexuals. But the study did find that the heterosexuals who had sex with passive homosexuals agreed more with the statement that “getting ahead depends more on who you know than what you know.”

### Importance of knowing right people and homosexual behaviors

<table>
<thead>
<tr>
<th>Important to know the right people</th>
<th>No Homosexual behaviors</th>
<th>Some Homosexual behaviors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree very much</td>
<td>23(95,8%)</td>
<td>1(4,2%)</td>
<td>24</td>
</tr>
<tr>
<td>Disagree somewhat</td>
<td>13(72,2%)</td>
<td>5(27,8%)</td>
<td>18</td>
</tr>
<tr>
<td>Agree somewhat</td>
<td>41(80,4%)</td>
<td>10(19,6%)</td>
<td>51</td>
</tr>
<tr>
<td>Agree very much</td>
<td>68(63,0%)</td>
<td>40(37,0%)</td>
<td>108</td>
</tr>
<tr>
<td>Total</td>
<td>145(72,1%)</td>
<td>56(27,9%)</td>
<td>201</td>
</tr>
</tbody>
</table>

**Gamma = .45, p<.000**

Another indicator of the hierarchical nature of human homosexuality is that the heterosexuals who had sex with gays were also more likely to have practiced bullying when younger.

### Childhood bullying and homosexual activities

<table>
<thead>
<tr>
<th>Bullied others in childhood</th>
<th>No Homosexual behaviors</th>
<th>Some Homosexual behaviors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>never</td>
<td>72(84,7%)</td>
<td>13(15,3%)</td>
<td>85</td>
</tr>
<tr>
<td>sometimes</td>
<td>60(85,2%)</td>
<td>32(34,8%)</td>
<td>92</td>
</tr>
<tr>
<td>Many times</td>
<td>15(55,6%)</td>
<td>12(44,4%)</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>147(72,1%)</td>
<td>57(27,9%)</td>
<td>204</td>
</tr>
</tbody>
</table>

**Gamma = .46, p<.000**

This latter finding may also help to explain a curious finding by different researchers: “Homophobic” heterosexuals
have been shown to find images of homosexual pornography more exciting than do non-homophobic heterosexuals (University of Rochester 2012, Adams et al. 1996). Most researchers attribute this finding to the neo-Freudian theory that men become homophobic in order to repress their unconscious homosexual desires. The finding that youthful bullying predicted which heterosexual males actually had sex with homosexual males suggests that there was no unconscious repression at all. More likely, these men simply found pleasure in dominating other males. At least one author has suggested just this theory (Brooks 2004).

Another implication of this theory concerns homosexual rape in prisons – an idea that also harks back to the question of “honor cultures.” Da Silva (1997) found that prisoners in Florianópolis most often justified rape (especially of snitches and rapists) by saying they wanted to protect “families.” Yet it was not the prisoners most concerned about families who favored rape. Rather it was those most concerned about their status in the prison's personal hierarchies. Similarly, in an experimental project with university students Mendes (1997) found that students were more likely to finish a short comic story with a prison rape when the story began with a reference to the importance of personal loyalties (rather than administration rules) combined with an indication that hierarchies were unstable (frequent changes in cell-mates). (Just to be fair, I should also point out that in both of these studies “absence of women” arguments also predicted rape).

Based on these reflections about homosexuality I suggest two research projects:

Male homosexuals have already been found to have more submissive personalities than heterosexuals. Do people with (passive) homosexual siblings also have less dominating personalities then people with no homosexual siblings?

Are the most dominant (hyper-masculine) males attracted to any homosexual pornography, or simply to pornography that emphasizes sexual domination?

**Religion**

*Those who say religion has nothing to do with politics do not know what religion is.* Gandhi

It is impossible to talk about religion in evolution or anthropology without first clarifying how we define it. So here are four popular defining features, contrasted with equally important defining features of science.

<table>
<thead>
<tr>
<th>Religion</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>deals with the supernatural (Tyler 1871)</td>
<td>deals with the natural world</td>
</tr>
<tr>
<td>deals with the sacred (what cannot be questioned) (Durkheim 1897-1898)</td>
<td>requires questioning and testing ideas</td>
</tr>
<tr>
<td>deals with what “ought to be”</td>
<td>deals with what “is”</td>
</tr>
<tr>
<td>deals with meaning, purpose, subjectivity (Geertz 1985)</td>
<td>Indifferent, depends on objectivity (requires replication)</td>
</tr>
</tbody>
</table>

For most people, and for early anthropologists, the “supernatural” criterion has been the most important. During the Reformation, Luther tried to distance his views from the “superstitious” fantasies of Roman Catholicism, and made belief in a “transcendent” God (who does not violate his own laws of nature) from the catholic belief in an “imminent” God (who can upend natural laws). Many later scholars, like Thomas Jefferson, author of the Declaration of Independence and second U.S. president, also tried to distance themselves from beliefs in magic. Jefferson went so
far as to rewrite the Gospels, removing all the distracting special effects, and concentrating on the moral lessons. In one of the worst predictions ever he (like later evolutionary anthropologists) thought that religion would gradually become more and more rational, and that the U.S. would lead the world in this.

Feeling that religion is a good thing, but still wanting to eliminate magic, Durkheim concentrated on the “sacred” by which he meant ideas that cannot be questioned. In France, he suggested, this would include ideas like “la République” or “Joan of Arc.” Also to be considered religions would be Confucius’ emphasis on “harmony,” Buddha’s emphasis on “enlightenment,” or the humanist’s doctrine that “all humans are of equal value.” Geertz would later bring even those who question everything into the religious fold, by making “meaning” its defining feature.

Attempts to explain the evolution of religion have most often concentrated either on the evolution of a moral sense and cooperation (Sosis 2009, Sosis and Ruffle 2003; Norenzayan and Shariff 2008) or on beliefs in the supernatural (McClenon 1997, Rossano 2006). The studies of cooperation use basically the same arguments as those on “conformity” which we already discussed. The correlations with “threats” may explain why people declare things as “sacred” (not to be questioned), but say nothing about why beliefs in the supernatural should be required.

The studies of supernatural beliefs generally see magic as adaptive by helping alleviate stress – an idea confirmed by more recent studies in neuroimaging (Alcorta 20). In anthropology probably the best theory in this line is still that proposed almost a century ago by Malinowski (1935). Malinowski suggested that magic is used when three conditions apply. A problem is 1) unpredictable, 2) uncontrollable and 3) important. In these situations there simply is no rational solution possible, and it is useless to continue struggling to find one. Resorting to magic puts an end to the anguish by giving people a feeling that they have done what they can. These three conditions have been shown in repeated studies to predict the conditions that induce people to resort to magic. Well-studied examples include unpredictable serious illnesses, finding water wells where geology makes this unpredictable (Vogt 1972). and unpredictable moments in sports, like pitching baseballs (Gmelch 1978). The theory also helps explain why modern societies differ so much in their religiosity. Cross-national studies show that people are more religious in countries with greater economic insecurity (Barber 2011, Storm 2017) and violence (Paul 2005, Carreras and Verghese 2018). Here are some scatter-grams from Rees' (2009) cross-national studies.

Although these studies are in line with Malinowski's theory, there may be some question as to whether insecurity causes religious beliefs or these beliefs cause greater insecurity. One time-series study found that an increase in the percent of non-believers in a society leads to greater economic development (Ruck et al 2018). I would guess that this is because people turn to science rather than religious dogmas to make decisions.

While Malinowski's theory explains when people use magic, it does little to explain variation in the characteristics of supernatural beings. Here I turn to the studies of Guy Swanson, whose ideas bring me back to theme of this talk – dominance hierarchies. Unfortunately, Swanson’s awkward writing style made his ideas too opaque for most people to follow, and so his ideas have not received the attention they deserve. In two books Swanson studied the correlations between a society’s political structure and the characteristics of its gods. In the first he looked at pre-industrial societies (Swanson 1960), and in the second he tackled the question of why some political entities decided on protestantism while others remained catholic during the Protestant Reformation (Swanson 1967).

Behind Swanson's theories is the idea that our abstract ideas are built up from more concrete concepts. We see this often in the etymology of words. This was brought home to me when I learned German where etymologies are strikingly obvious – at least to foreigners. For example, the verb for “depends on” is “abhängen” literally “hangs on,” an expression also common in English but which I had somehow missed. Of course the expression “depends on” derives from the same idea, but words for abstract concepts in English are often borrowed from French or Latin, so we miss the etymology.

To understand Swanson's theory we have to realize that in human societies power structures are often unseen, unlike the more tangible personal dominance hierarchies of our primate ancestors. For us to understand these abstract
structures we need more concrete metaphors, and the more down-to-earth images we have of gods fulfill this function.

In his comparisons of the societies in the ethnographic literature, Swanson discovered many correlations between the characteristics of a culture's gods, and the characteristics of its power structures. For example, societies with hierarchical political structures (such as national, state, local levels) the gods had this same structure. The High God (for example, "God the Father") represents an international political structure (like the U.N.) while lesser gods (like Nossa Senhora Aparecida) represent a nation, or a state (like Nosso Senhor de Bonfim). Ancestor Worship is found where lineages hold political power (like owning land, or forming war alliances). Where particular occupations hold political power, there are likely to be gods representing these professions (like “war gods” for military organizations). Where there are formal judges in a society, the gods are likely to judge morality. Where there are no judges in the power structure, the gods do not get involved in human morality. Here is a table to illustrate this:

<table>
<thead>
<tr>
<th></th>
<th>no high god, or high god does not judge morality</th>
<th>High God judges human morality</th>
</tr>
</thead>
<tbody>
<tr>
<td>society has no formal judges</td>
<td>78 (61%)</td>
<td>12 (31%)</td>
</tr>
<tr>
<td>society has formal judges</td>
<td>49 (39%)</td>
<td>27 (69%)</td>
</tr>
</tbody>
</table>

\( \phi = .25, p < .001 \)

In his analysis of the Protestant Reformation, Swanson distinguished three types of political structure. First were societies where the central powers (a king, or a governing council) could make decisions that were directly implemented throughout society. Second were societies where the central powers (kings or councils) made decisions, but these decisions were contingent upon approval at some other political level (for example, appointments for provincial offices needed local approval). Third were societies where decisions were made directly by a local or special interest group (like a guild). These political structures were reflected in theological issues. For example, in the first type of society, Holy Communion was characterized by “transubstantiation” -- the bread and wine became the body and blood of Christ directly through the ritual carried out by the Catholic priest. In the second type of society, “consubstantiation” meant that in the ritual carried out by the Anglican or Lutheran pastor, the bread and wine only became the body and blood of Christ if the communicant accepted this. While in the third type of society, for the Calvinist communicant, the bread and wine only “represented” the body and blood of Christ.

Other studies have shown correlations between beliefs in things like a more punitive, authoritarian god, and more punitive authoritarian government policies (Bader et al. 2006). But many additional questions might also be examined. For example, Fry (1982) once compared the rise of Methodism among England's working class, with Brazilian beliefs in Candomblé and Umbanda. He suggested that the differences might be related to the greater importance of clientelism in Brazil. In short, \( \text{exu} \) might represent the corrupt politician that you need at times, while \( \text{satanás} \) represents this same corruption that should be rejected.

I think Swanson's ideas deserve much more attention than they have received and I would very much like to see more research on this topic. A former student of mine, who also worked as a psychoanalyst, once carried out a study among his university students contrasting Freud's ideas about gods representing relationships with parents, and Swanson's ideas about gods representing governing bodies. Unfortunately, nothing much came of this – nothing to support Freud or Swanson. I think the problem was that his sample had limited variation. Most of the students were female, from well-to-do families, and Roman Catholic. I would very much like to see a study with a more varied population, including people from different ethnic, economic and religious backgrounds. I don't think much of interest will come from simple comparisons of religious dominations. The important distinctions may lie elsewhere. For example, I suspect that fundamentalist Muslims, Christians and Hindus might share more similarities with each other than they do with more liberal thinking people of the same dominations. So here is my last 24suggestion for a research project.
Do beliefs about people's relationships with their gods correspond better with their relationships with the power structures of their society, or with the relationships they had with their parents when young?

Final Comments

Evolutionary psychologists have devoted a good deal of attention to how human cooperation has evolved, but most of the attention has been given to altruism (where cooperation is with genetically related people) or to reciprocity (where simulations and empirical studies have assumed equal players). I hope to have convinced some of you of that we ought to be looking more closely at dominance hierarchies and how they evolved. I've only touched on a few of the themes that might be of interest. I think there are many other aspects of our lives that might also be implicated – health, career choices, friendship patterns, perhaps even things like urban planning, dietary preferences, and much, much more.

Perhaps some of you may take me up on one of my specific suggestions in this talk. I would like that, even if I'm shown wrong. The best studies, in my view, are those that contrast different arguments to explain variation – some of which don't come from evolutionary psychology at all. Evolutionary psychology will become more convincing when it demonstrates that its arguments account better for psychological and sociocultural variation than do other theoretical orientations, or when it explains variations that others hadn't even thought of.
References Cited


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