

Chapter 3 — Magical Thinking in America (ROUGH DRAFT - PLEASE DO NOT CITE)

The world is filled with strange and impossible beliefs. Koreans think that signing their name with red ink will bring them harm. Syrians presume that yo-yos can cause droughts. Romanians believe that if you're cruel to animals, you'll have overly hairy children. The Chinese think the number 4 is unlucky, whereas the number 39 brings scorn in Afghanistan.¹

Such notions are easy to scoff at, particularly for those of us who don't share them. To most Americans, banning yo-yos or avoiding red pens not only seems bizarre and irrational, but a sign of other people's oddity and inferiority. And even within our own culture, we often dismiss other's superstitions and religious beliefs as a cognitive deficit, an inability to reason properly.² Yet, magical beliefs are universal to the human experience and we Americans are no exception.³ In fact, Americans are a fantastically magical people: 70 percent of us believe in angels, 52 percent believe in Satan, 44 percent believe in extra-sensory perception (ESP), 42 percent believe in ghosts, and 28 percent believe in past lives. This compares to only 43 percent of Americans who believe in Darwin's theory of evolution by natural selection; not that much more than the 40 percent who believe in the very erroneous fact that dinosaurs and humans coexisted. From the standpoint of fantastical or implausible beliefs, Americans are every much as enchanted as Koreans, Romanians, or Afghans.

These facts are important, not simply to highlight the similarity between Americans and other peoples, but to illustrate a very important idea: like people around the globe, Americans do not perceive the world solely through the lens of some Enlightenment style rationality. Instead, they understand much of what happens in the world through magical beliefs. Whether it is

¹ <http://www.thrillist.com/travel/nation/superstitions-around-the-world-list-of-some-funny-and-strange-beliefs>

² (French and Wilson 2007, Wiseman and Watt 2006, Dawkins 2006)

³ Brown, Donald E. Human universals. New York: McGraw-Hill, 1991.

supernatural ideas about End Times, paranormal beliefs about the healing power of crystals, or conspiracy theories about autism or the attacks of 9/11, Americans routinely embrace explanations that run contrary to mainstream scientific or political views.

And common to all of these beliefs is magical thinking. As we described in Chapter 2, magical thinking is a natural tendency that arises from the intersection of our emotional needs and cognitive patterns. When we are distressed, we look for any plausible concept or idea that will improve our certainty and restore our emotional equilibrium. Concepts and ideas usually achieve this intuitive plausibility, as long as they follow certain rules. If we want our team to win the world series, we will look for something associated either with baseball (our team's cap) or with some other type of success (the shirt I was wearing when I won a lottery). The concepts or ideas that meet these associative criteria get adopted as beliefs. But the importance of magical thinking goes beyond superstitions or specific beliefs, for it encapsulates the ways we intuitively comprehend the world. The "rules" of magical thinking represent a type of "folk cognition," an innate grammar for making sense of uncertainty.⁴

Or at least this is the theory. But to validate this conjecture we need to do more than simply look at superstitious or magical beliefs because, in themselves, such things may not always come from magical thinking. For many people, magical beliefs exist more as mental habits rather than heartfelt experiences. Lots of people believe in God, for example, not because they've had a supernatural or religious experience but because God is an idea they were brought up with. In this case, their belief in God is no different than the belief that the Earth revolves around the Sun, that George Washington was the first president, or any other notion that they haven't perceived first hand. For such people, their magical beliefs may not inform their comprehension of the world. So if we want to understand what is behind the odd and seemingly irrational character of

⁴ For a highly enjoyable summary of the psychological literature on magical thinking see: Hutson, Matthew. *The 7 laws of magical thinking: How irrational beliefs keep us happy, healthy, and sane*. Penguin, 2012.

Americans' opinions, we need to look beyond mere beliefs and examine how they process information about the world. We need to examine the *process* of magical thinking.

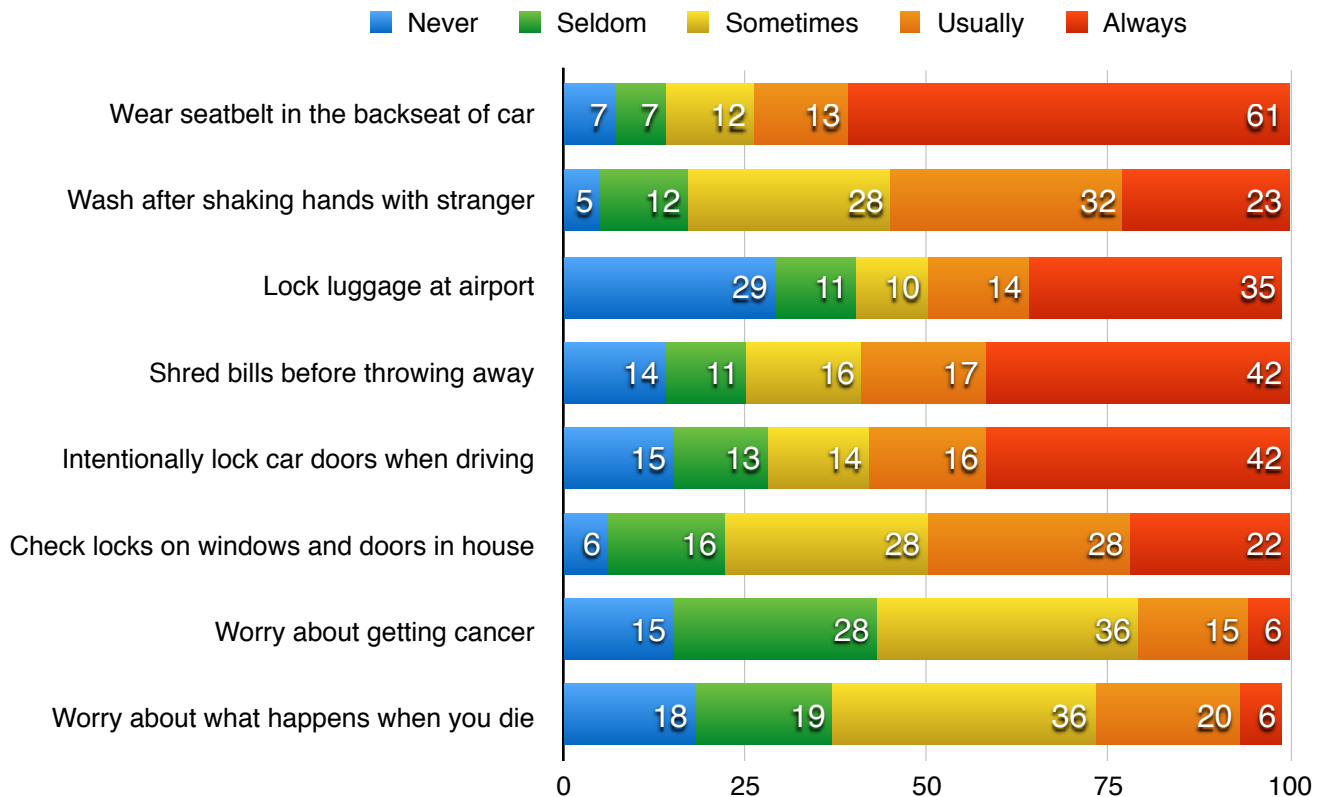
In this chapter we attempt this. We say attempt because we face a considerable empirical problem: magical thinking is a dynamic phenomenon. It involves psychological processes that are complex and idiosyncratic and emotional states that are subjective and ephemeral. All of these factors make magical thinking a very difficult thing to measure, particularly in a large scale survey. Nevertheless, in a series of surveys, we employ a sets of novel questions that try to gauge them. These include a scale of apprehensive behaviors, a pessimism scale, and a scale of symbolic thinking. Although these measures are rather crude, they are all highly predictive of a wide variety of magical beliefs. No matter whether it is a belief in “End Times” prophesy, ghosts, or a conspiracy theory that the government is deliberately withholding natural cures for cancer, the results are the same—Americans who are more apprehensive and pessimistic, and who prioritize symbolic thinking are all more likely to embrace magical beliefs and are less likely to endorse scientific explanations. As early anthropologists like Charles Fraser and Bronislaw Malinowski suggested, we find that there is a grammar to magical thinking and it is rooted in a lexicon of uncertainties, apprehensions, and metaphor.

MEASURING APPREHENSION

Magical thinking starts with our emotions. As we discussed in the previous chapter, magical thinking arises from the emotional instability triggered by uncertainty and threats. When we face something we can't comprehend and feel apprehension, we concoct or embrace any explanation that seems intuitively plausible in order to make ourselves feel better. But this emotional characteristic makes magical thinking a very difficult phenomenon to measure. For emotions are very difficult things to gauge, especially in something like a national survey sample. After all, our moods change across time — in the morning we may feel tranquil, in the afternoon, we may feel anger, in the evening feel unease. Whatever emotions we manage to capture at one period may not be necessarily indicative of someone's overall state. In addition, people experience their

emotions in different ways — some people are moody and volatile, highly sensitive to even the slightest trigger; others are stoic and unchanging, immune to all but the most dramatic event. Finally, people who are feeling strong negative emotions are unlikely to voluntarily take a survey — if someone is feeling anxious or tense, they are unlikely to concentrate very hard on a bunch of abstract survey questions.

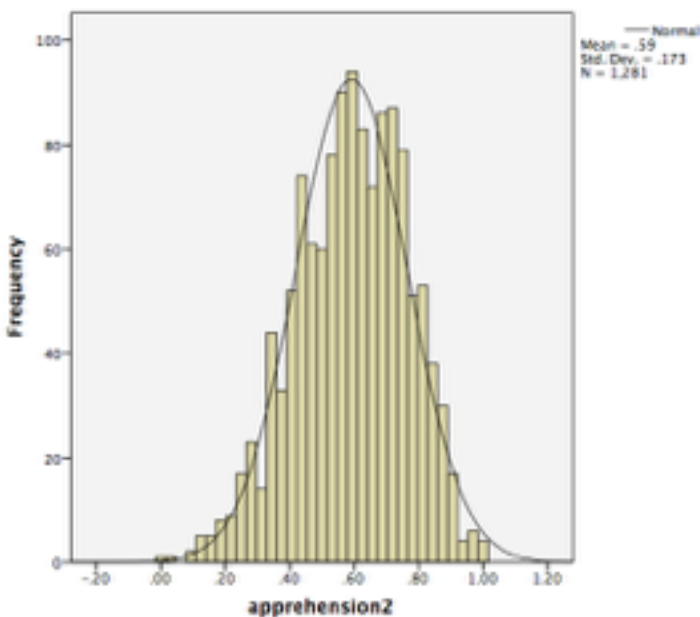
How can we then measure the emotions that underlie magical thinking. Our strategy is to use an indirect approach: we look for *behaviors* that indicate conditions of emotional disequilibrium. In other words, we look for evidence that people who have magical beliefs also regularly *act* in ways that shows higher levels uncertainty or apprehension. Are they overly cautious? Do they worry about disease and death? Do they believe that social disorder, economic collapse, or war are imminent? If so, then we can probably assume they are carrying more emotional distress and might be more susceptible to the emotional palliatives of magical beliefs.



We do this with two scales. This first is what we call the Apprehension scale. It consists of responses to a series of questions about how often people engage in fearful or overly cautious behaviors. These include things like regularly checking locks on doors and windows, tearing up old bills, worrying about getting diseases.

By our measures, Americans show a lot of apprehensive behaviors. Three in four Americans regularly wear seat belts while riding in the back of a car; roughly six in ten Americans often or always intentionally locks their car doors or shreds their bills; about half regularly check their locks or lock their suitcases; and about a quarter often wash after shaking hands with a stranger. All of these behaviors are highly correlated with each other.⁵ In other words, people who regularly lock their bags at the airport also tend to worry about getting cancer and wash their hands.

To get a sense of chronic apprehension, we add all of these items together into what we call our *Apprehension Scale*. Figure 3.1 lists the distribution of our sample across this scale. The mean

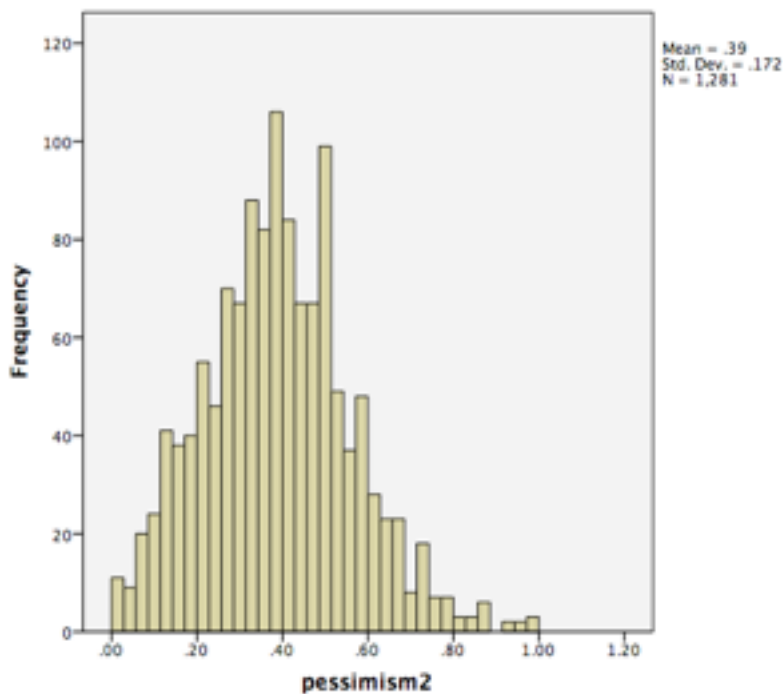


value of the scale is .59, which means that Americans, on average, say they engage in apprehensive behaviors on a pretty regular basis. The scale also has a “normal” bell shaped distribution, meaning that about as many people score low in apprehension as score high.

⁵ These four items are all correlated at a .3 level or higher except shredding bills and checking locks, which only has a correlation coefficient of .2.

The second way we gauge people’s anxiety is to ask them about the future. In our surveys, we asked respondents to rate the chances of a series of negative things that might soon happen to them or America. These include what the odds for a recession or that the U.S. will have an Ebola outbreak or a terrorist attack in the coming year, or that the U.S. will go to war with China or Russia in the next 10 years. By these measures, Americans tend to be pessimistic: on average, they tend to think there is a relatively high chance of a terrorist attack (50 percent) or a recession (49 percent) in the coming year; they believe the chances of war with China or Russia or Ebola are lower.

Once again, these items tend to be highly correlated with each other and, when we add all four together, we can create a *Pessimism Scale*, a general gauge of one’s feeling that bad things are going to happen. As with the apprehension scale, we find the American population shows a normal, bell-shaped distribution on the pessimism scale. Americans think, on average, there is about a 38 percent chance of bad things happening and most people cluster somewhere close to



this number. Indeed, only a third of the population falls below the .3 mark on this scale, meaning that they give a less than one in three probability of something bad happening; about a third of the country thinks there is, on average, more than a fifty-fifty chance that bad things will happen.

Together the Apprehension and Pessimism scales provide two indirect barometers of Americans’ emotional states. But as crude as they may be, they also provide us a window into people’s

emotional lives. People who regularly feel the need to check their locks, tear up their bills, or worry about dying may be prudent, but such behaviors also reveal a high level of concern and anxiety. Vigilance like this belies a greater condition of chronic unease, a state that we suspect would make someone particularly susceptible to a magic belief. A similar emotion is captured with the Pessimism scale. Although none of us can say for certain whether a terrorist strike or war is imminent, people who believe such negative events are more likely are also probably living in a state of greater emotional discomfort. If one really believes the economy is likely to tip into recession or that war with a major power is inevitable, then one must inevitably feel some distress. For this group, magical beliefs would, once again, be very attractive as a route to tranquility.

Symbolic Thinking

The second pillar of magical thinking is an appetite for certain types of symbolic thinking. Before we explain this anymore, it may be useful to first gauge your own sensitivity using our measures. Please try to go through the set of questions as quickly as possible and record your preference next to each.

1. On the whole, would you rather ...
 - A. stick your hands in a bowl of cockroaches?
 - B. stab of photograph of your family 6 times?

2. Would you rather spend the night in ...
 - A. a luxurious house where a family had recently been murdered?
 - B. a grimy bus station?

3. Would you rather ...
 - A. stand in line for 3 hours at the DMV?
 - B. secretly grind your shoe into an unmarked grave?

4. Would you rather ...
 - A. ride in a speeding car without a seatbelt?

B. yell “I hope I die tomorrow” 6 times out loud?

5. Would you rather ...

A. sleep in laundered pajamas once worn by Charles Manson?

B. put a nickel in your mouth that you found on the ground?

6. Suppose you wanted to buy a ticket for a \$500 million lottery. Would you rather buy your ticket from a nearby gas station that had ...

A. never sold a winning ticket but had no lines?

B. sold two winning tickets in the past three years but had a long line?

To code your survey, give yourself a point for each of the following answers: 1A, 2B, 3A, 4A, 5B, 6B. Add your points together. If you scored a 5 or a 6, you probably are very susceptible to holding magical beliefs. Let us explain.

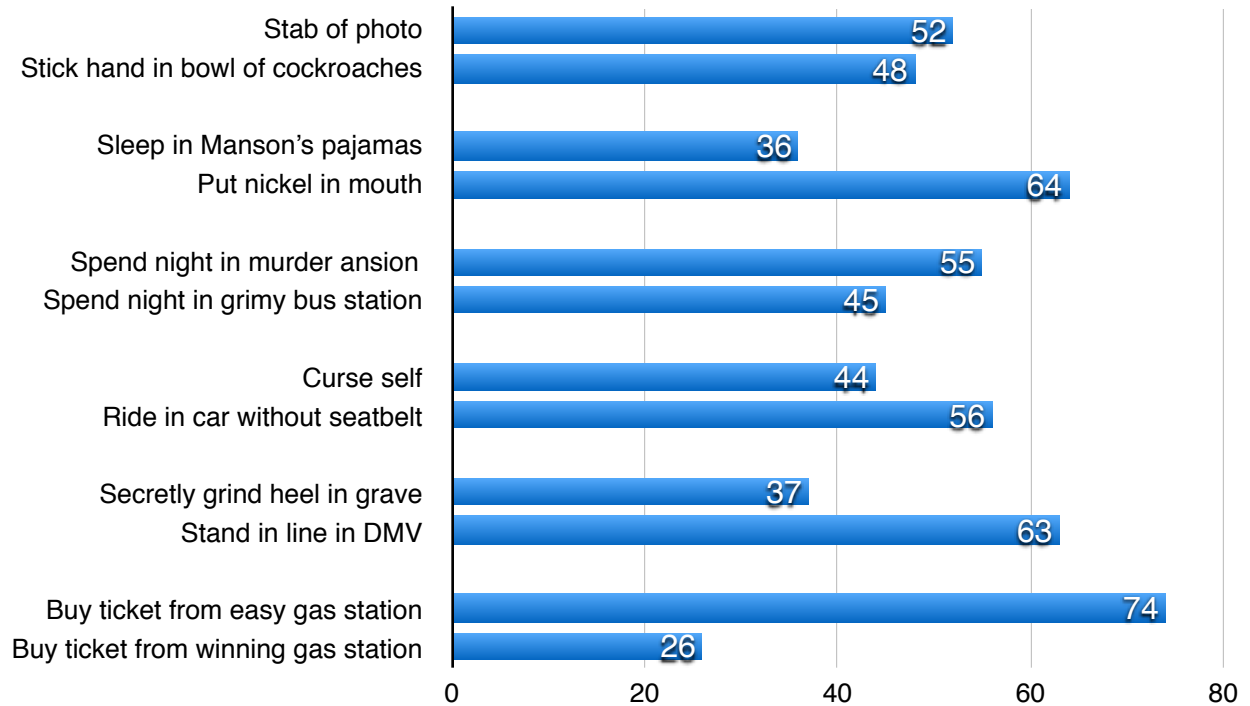
Although these questions may seem quite unusual or even comical, they have a strong logic. They are designed to measure people’s sensitivity to the types of symbols and metaphors common in magical beliefs. In each question we ask people to choose between doing something *symbolic* (such as stabbing a photograph of one’s family or sleeping in laundered pajamas once worn by Charles Manson) versus doing something *tangibly harmful* (e.g., putting a dirty nickel in one’s mouth, riding in a speeding car without a seat belt) or *unpleasant* (e.g. sticking one’s hand in a bowl of slimy worms or standing in a long line).⁶ In this, we don’t mean to imply that

⁶ Our survey questions were inspired by some very innovative experiments by psychologists Paul Rozin and Carol Nemeroff. Drawing on the work of Malinowski and Fraser, they wanted to gauge the sensitivity of ordinary people to cues of homeopathic and contagious magic. In their experiments, they did things like comparing how well subjects rated juices if associated with a sterilized roach, how highly they rated sugar if it was taken from a bottle marked “cyanide” (even though they are explicitly told the powder is sugar), how they rated fudge in the shape of dog feces, or how well can throw darts at pictures of someone they dislike (e.g. Hitler) versus someone they like (e.g. John F. Kennedy). Rozin and Nemeroff found that simple associations with unpleasant factors had a big impact on their subjects evaluations. Subjects, for example, rate fudge less tasty if it came in the shape of dog feces than not or drinks less flavorful if it was sweetened with sugar from a bottle that said cyanide than a bottle that said sugar.

symbolic actions are costless for us—stabbing a photograph of one’s family may make someone feel awful. But magical thinking arises precisely from one’s willingness to imbue a symbol with this emotional significance — to give ordinary objects sacred power is to make them emotionally potent. In this case, a photograph is more valuable than a simple piece of paper, it is a sacred totem of one’s affective bonds.

More importantly, the power of the metaphors in these questions comes from the common heuristics (those unconscious rules of thumb we use to make decisions) that we describe in Chapter 2. Charles Manson’s pajamas or the house where someone has been murdered is a *contagion heuristic*, a perception that objects or places are contaminated by prior associations. Family photos are a *representativeness heuristic*, a view that objects which resemble other important things share their essence. A gas station with a winning track record is an *availability heuristic*, looking for choices based on the most immediate information than the whole set of relevant possibilities. In short, these questions are not simply about gauging someone’s sensitivity to symbols, but their sensitivity to common strategies of judgment that people employ when they face uncertain situations.

When we ask these six questions to national survey samples, one conclusion leaps out: Many Americans routinely would prefer doing something demonstrably unpleasant to bearing the emotional cost of a symbolic action. For instance, two-thirds would rather stand in line at the DMV for three hours than secretly grind their shoe into a unmarked grave. Nearly the same amount would rather put a nickel they found on the ground in their mouth than sleep in laundered pajamas once worn by Charles Manson. Americans nearly split evenly for spending the night in the luxurious house or yelling “I hope I die tomorrow” or between sticking their hands in a bowl of cockroaches versus stabbing a picture of their family. The only item where tangible costs seem to sway people are with buying lottery tickets: only a quarter of the sample would stand in a long line to buy a ticket from a gas station that had recently sold winning tickets versus going to the winless station that had no line.



It is striking how much significance Americans give to these common metaphors and symbols. An unmarked grave is simply a piece of dirt; laundered pajamas are physically no different regardless of whether they were worn by Charles Manson or Brad Pitt; all lottery tickets have an equal chance of winning no matter where they are sold. But that is not how many Americans see them. For them, words, photos, gas stations, and even pieces of dirt clearly have strong emotional significance. Much of this significance, in turn, is due to the things that words, photos, and pieces of dirt are associated with; namely, loved ones, luck, and death.

The power of these associations is evident when compare these responses with slight changes to the wording of the same questions above. In some other survey experiments, we slightly changed the wordings of the questions. Americans have no problems with stabbing photographs of flowers, yelling “Tomorrow is just another day,” or grinding their heels into old shirts (although most people still don’t like wearing someone else’s laundered pajamas). In all of these cases, most people would rather choose these symbolic actions than incur tangible discomforts listed above. They only change their behavior when symbolic actions involve contagions (e.g.,

Charles Manson's pajamas, houses where people had been murdered) or objects that are strongly representative of something else (e.g., photos of family members, old graves).

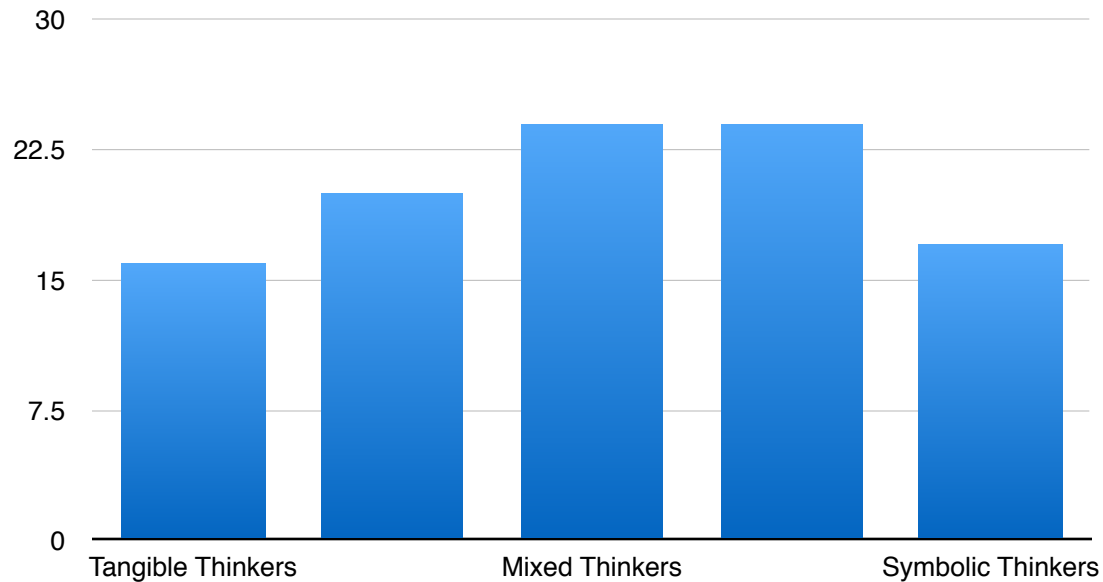
Adding the responses to these items together, we create a *Symbolic Thinking Scale*.⁷ As with the Apprehension and Pessimism scales above, the Symbolic Thinking Scale has a normal distribution across the population. At the bottom end of the scale are about a 17 percent of Americans who we call "tangible" thinkers. This group is consistently impervious to the questions' metaphorical lures. They will always choose the "symbolically costly" activity such as cursing themselves out loud or stabbing a picture of their family rather than doing something demonstrably harmful or uncomfortable. This groups tends to be better educated, has a higher income, and is more male than the national average, something we'll discuss more in Chapter 4.

About 70 percent the population are what we call "mixed thinkers." This group generally splits their answers to the questions above. Sometimes they choose to avoid symbolic costs and sometimes they avoid tangible costs (such as riding in a speeding car without a seatbelt). Interestingly, the symbolic behaviors that semi-magical thinkers avoid most are those that might be considered disrespectful or anti-social: stabbing a photo of family members or grinding their shoes on a grave. This group has fewer problems with cursing themselves or buying lottery tickets from winless gas stations. Mixed thinkers are also generally representative of the American population — there are no big differences in education, age, income, gender or race among this group compared to the nation as a whole.

At the high end of the scale are the roughly 17 percent of Americans who we simply call "symbolic thinkers." This group nearly always chooses to avoid activities with negative symbolic connotations and, instead, will consistently select physical discomfort or danger. If there is one exception, it is with playing the lottery at the winless gas station, but even this activity is objectionable to many symbolic thinkers. Demographically, they are a mirror image to

⁷ In some of our surveys we only have questions on the first five items, in other surveys we have all six items.

the non-magical thinkers: magical thinkers tend to be less educated, have lower incomes, and have more women than the national average.



The symbolic thinking scale is highly correlated with the apprehension and pessimism scales listed above. In other words, symbolic thinkers are also more likely to do things like check their locks or worry about dying than tangible thinkers. Symbolic thinkers also tend to be more pessimistic, believing that recession, war, disease, or terrorist attacks are more likely to occur.

Together, these three scales are a way of gauging the central elements that constitute our magical thinking. For even if we cannot capture the particular anxieties that animate our magical thoughts, we can come up with a pretty reliable estimates of the central tendencies that underlie them: the susceptibility to certain symbols and a high degree of emotional disequilibrium. And while these scales are admittedly crude barometers of highly complex psychological processes, they are nicely distributed across the population and are consistent with each other. Symbolic thinkers tend to be more apprehensive (and vice versa) and both symbolic and apprehensive thinkers are more likely to think that adverse events are likely to happen. For the rest of this

book, we will refer to these three scales collectively as the “magical thinking scales.” Now let’s examine their relationships to some different magical beliefs.

FROM MAGICAL THINKING TO MAGICAL BELIEFS

Let us start with the granddaddy of them all—the meaning of life. All cultures have some type of myth, legend, or theology that explain or justify our existence and the events around us, usually in reference to some kind of supernatural force. In many ways, this is the most primal type of magical thinking. Our tendency to project a larger meaning on our lives coincides with our ability to infer other people’s intentions, what psychologists call our “theory of mind.” Like many cognitive processes, the theory of mind develops in children between ages 4 to 5, roughly the same time they begin to assume events occur for particular reasons. Around this age, children are able to understand stories from the perspective of their characters rather than just their own view point. At the same time that children adopt this “promiscuous teleology,” they begin to think that everything happens for a purpose: rain falls when plants are thirsty, flowers are pretty to make us happy, etc.

Although such Panglossian logic is a hallmark of juvenile development, it carries well into adulthood.⁸ Rather than seeing our existence as a series of random and chance occurrences, we tend to see our lives and the events they contain as occurring for a particular reason, what some call apophenia.⁹ Often this apophenia comes in response to a traumatic or other unusual event. Consider the hypothetical example of Jane. After a long search and many prayers for “Mr. Right,” Jane meets her future husband at traffic court. Rather than seeing this as a chance

⁸ Piaget, Jean. *The origins of intelligence in children*. Vol. 8, no. 5. New York: International Universities Press, 1952.

⁹ Kelemen, Deborah. "The scope of teleological thinking in preschool children." *Cognition* 70, no. 3 (1999): 241-272. Kelemen, Deborah. "Are children “intuitive theists”?" *Reasoning about purpose and design in nature.* *Psychological Science* 15, no. 5 (2004): 295-301.

occurrence, Jane assume this was the consequence of divine intent—in her mind, God orchestrated her speeding ticket as an answer to her prayers.

This way of thinking is pervasive in religion. In fact, *any* religious belief or mythology that suggests a purpose for our lives or for particular events must inevitably assume the intentionality of a supernatural force. To believe that God has a plan for us is to also assume that God has some particular intentions that are apart from our own. This is why certain events can gain so much symbolic potency. If we believe that some larger, invisible force is making all things happen in accordance with some grand plan, then any particular event, no matter how minuscule, can carry cosmic significance.

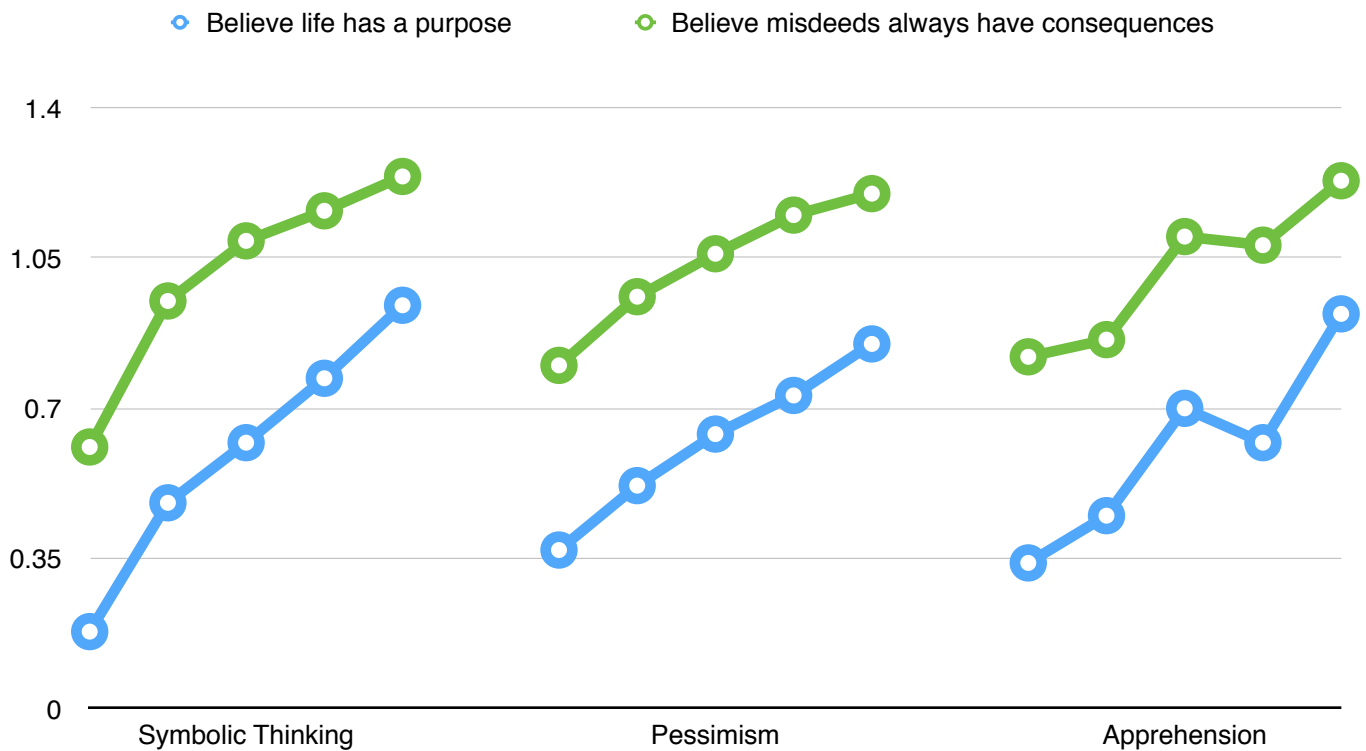
But, by the cold, light of modern science, this way of thinking is quite magical. Few scientists today suggest any cosmic meaning for either our lives or the major events within them. To most physicists, we are arbitrary accumulations of energy and matter. For biologists, we are simply vehicles of genetic replication—to paraphrase Samuel Butler, a person is simply a gene’s way of making another gene. For social scientists, the families we are born into, the schools we attend, the jobs we acquire, and the people we marry are not an indication of divine will or even fate, but the probabilistic outcome of chance, circumstance, and our own efforts.

This, however, is not how most Americans choose to understand their lives. In our surveys, we continually find that most Americans agree with the statement that “Things in my life happen for a particular reason.”¹⁰ These views also vary by where one scores on the magical thinking scales. For example, only half of tangible thinkers belief their “life has a purpose,” but 83

¹⁰ Another version of the question asks which statement about “their existence” they agreed with most: 1) that it “is an accidental and arbitrary byproduct of animal evolution”; or 2) it “is something with a particular purpose.” About 70 percent choose the latter.

percent of the most symbolic thinkers do.¹¹ Similar differences also occur across the Apprehension and Pessimism scales. Only half of the people low in apprehension think that life has a purpose compared to 75 percent at the high end of the scale. People who are less pessimistic about negative events are also more likely to believe in life's purpose, albeit to a smaller degree.

Magical thinkers also have profound notions of cosmic morality. As with questions about the



meaning of life, most people also have a deeply ingrained sense that their actions will come with some kind of costs. According to Jean Piaget, this type of immanent justice reasoning starts early in childhood and continues into adult life.¹² Whether it is karma, divine retribution, or a desire to feel there is innate justice in the world, most cultures have ideas that bad actions will

¹¹ Similar results also occur when we use a different question wording. If we ask respondents how much they agree with the statement, “the things that happen in their life do so for a particular reason”, we find only 40 percent of non-magical thinkers agreeing compared with over 70 percent of magical thinkers.

¹²Piaget, Jean. *The moral judgement of the child*. Simon and Schuster, (1932) 1997.

come with consequences, even if they get away scot-free. Somewhere, someone or something is keeping a list and checking it twice. Not surprisingly, this idea is also embraced by a large percentage of Americans: an overwhelming 84 percent of respondents think they will eventually pay for any bad deeds even if they don't get caught.¹³

However, once again, this varies by one place on the magical thinking scales.¹⁴ Just as magical thinkers are more likely to believe their life has a purpose, they also believe that any misdeeds will come with consequences. For example, only 62 percent of tangible thinkers believe in “karma” compared to 90 percent of symbolic thinkers. Apprehensives and pessimists are also more likely to believe in karma than sanguine folks: the belief in inevitable punishment rises about 18 percentage points across both of these scales.

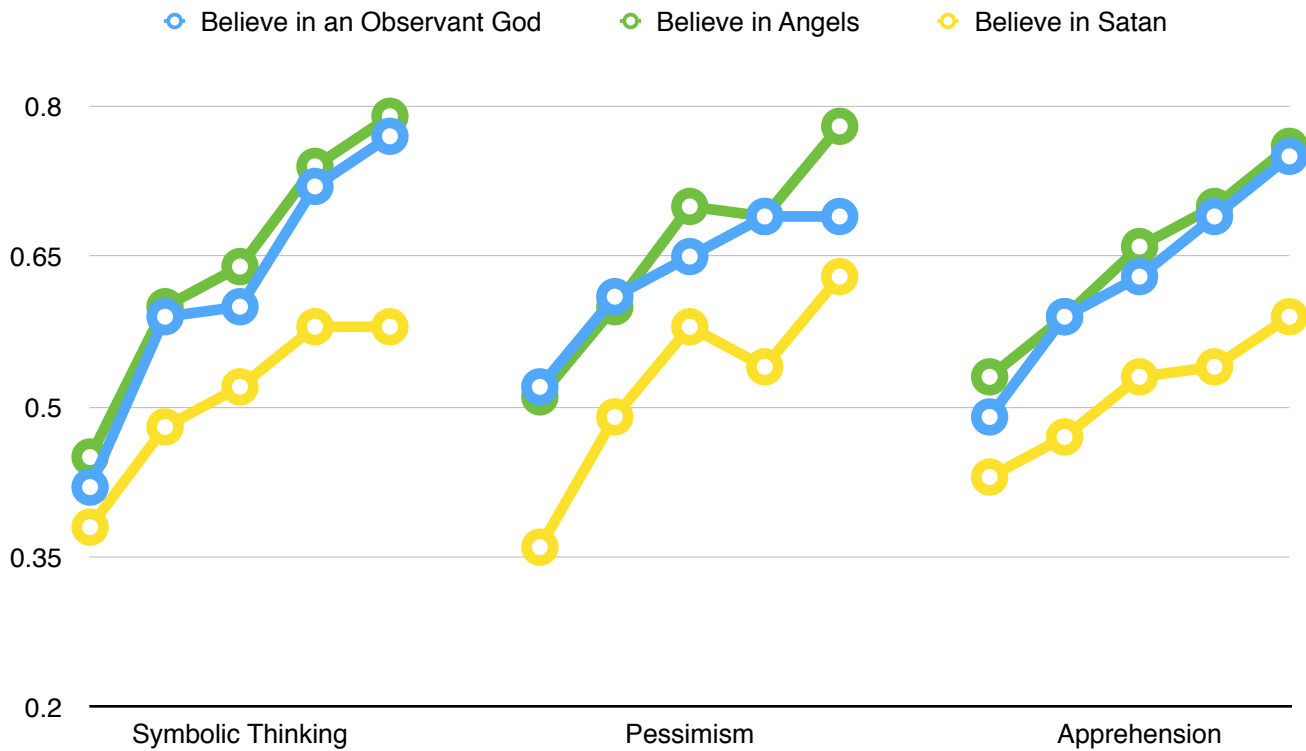
We find very similar patterns regarding other supernatural beliefs. Take the belief in God. About 85 percent of Americans believe in God but, as we noted above, a belief in God is not always magical. Remember, magical thinking is not simply the belief that unobservable forces shape events, but rather it is the belief that these unobservable forces shape events in contrast to explanations that have been empirically verified. There are many instances where a belief in God is not magical simply because we have no other explanation for natural phenomena. No one knows, for instance, what preceded the big bang, why life emerged on Earth 2 billion years ago, or even what comprises our universe. In the absence of empirical explanations, a belief in some superordinate phenomena we could label as God is not a magical explanation, but simply an untested hypothesis.

¹³ We asked our respondents how much they agreed with the statement, “Even if you don't get caught, eventually you'll pay for your bad deeds.”

¹⁴ When we asked respondents why they believe they will eventually pay, we find that magical thinkers are much more likely to think that God would punish them for bad deeds or that they would be haunted by feelings of guilt. Nonmagical thinkers are far less likely to invoke God or guilt as a source of retribution.

But for most Americans, their conception of God involves more than these remote, cosmic initiatives.¹⁵ For them, God is an active, intentional presence in their lives, speaking to them in a variety of ways and shaping events occurring to His (with God usually characterized as male) particular will. God, in other words, is a very human-like entity. This view tends toward a magical conception, particularly when God becomes implicated in more daily activities. God is not simply one who dispassionately put the universe in motion but a being that observes and condemns sinful actions and orchestrates particular events according to His whim. In other words, for most Americans, God is a magical entity.

As we might expect, this vision of God varies significantly by the magical thinking scales. Roughly three-quarters of apprehensives, pessimists, and symbolic thinkers subscribe to the



¹⁵ Although there are innumerable different understandings of God, for the sake of simplicity, we asked respondents about three different versions: that God 1) “is an observant force involved in all our actions,” 2) “is a cosmic force mostly indifferent to our daily lives” or 3) “doesn’t exist.” Across all of our surveys, we find that two-thirds of Americans agree with choice number one, the activist vision of God.

activist, observant view of God, twice the rate of their counterparts at the low in of the scales. Meanwhile, atheism, the belief that God does not exist, changes in the opposite direction. For example, tangible thinkers are seven times more likely to say that God doesn't exist than symbolic ones. Interestingly, across the magical thinking scales, there are not large differences in the percent of Americans seeing God as an indifferent, cosmic force: roughly about a quarter of Americans subscribe to this view no matter their magical thinking tendencies.¹⁶

Similar differences occur with other supernatural beliefs. Here we examine two of the more popular ones: angels (believed in by 63 percent) and Satan (believed in by 56 percent). Although a sizable majority of Americans think these are real, this too depends on where they reside on the three magical thinking scales. As illustrated in Figure 3.3, symbolic thinkers are almost twice as likely to believe in Satan and angels than tangible thinkers. For example, only 45 percent of tangible thinkers believe in angels compared to over 80 percent of symbolic thinkers. Looking across the symbolic thinking scale, the percent of Americans believing in Satan rises from 37 percent to 57 percent, the percent believing in angels grows from 45 to 77 percent. Belief in Satan and angels also changes across the apprehension and pessimism scales: in both cases, pessimistic and apprehensive Americans are over 50 percent more likely to believe in Satan and angels than their sanguine counterparts.

Beyond Satan, angels, and God, the thicket of American religious beliefs also has some other major branches running through them. One of the most prominent is what is popularly called "fundamentalism." Although the religions that fall under these headings encompass a wide variety of views, many of them share what we call a "millennialist" religiosity, a set of highly interrelated views about the role of God in public life, the nature of good and evil, and whether current events are evocative of Biblical prophesy. In our surveys we measure Millennialist

¹⁶ The only

Religiosity with how much respondents agree with five statements¹⁷ (we put the percent agreeing in parentheses):

- 1) “We are living in ‘End Times’ as foretold by Biblical prophesy” (25 percent agree);
- 2) “Many problems can be solved by prayer” (39 percent agree);
- 3) “Men and women have fundamentally different roles to play in society.” (50 percent agree);
- 4) “The Bible is the literal word of God and without error.” (30 percent agree).
- 5) “A person can find the future revealed in places like the Bible if only he or she knows where to look.” (36 percent agree)

Many elements with millennial religiosity are common to other magical beliefs: Apocalyptic expectation, doctrinal inerrancy, moral dualism, sacred words. In fact, it is precisely these magical elements that really differentiates fundamentalism from other religious epistemologies.¹⁸ Therefore, it is not surprising that views on these statements varies tremendously by the magical thinking scales. On average, tangible and mixed thinkers disagree more than agree with four of the millennialist religiosity items: belief in End Times, the power of prayer, Biblical inerrancy, and secret Bible codes. Symbolic thinkers, on the other hand, are more likely to agree. In fact, they are more than twice as likely to agree than tangible thinkers. Symbolic thinkers are also twice as likely to believe in traditional gender roles as well. that we are living in “End Times,” (the prophesied precursor to Armageddon, the “Rapture” and the second coming of Jesus Christ) or that “many problems can be solved by prayer.”

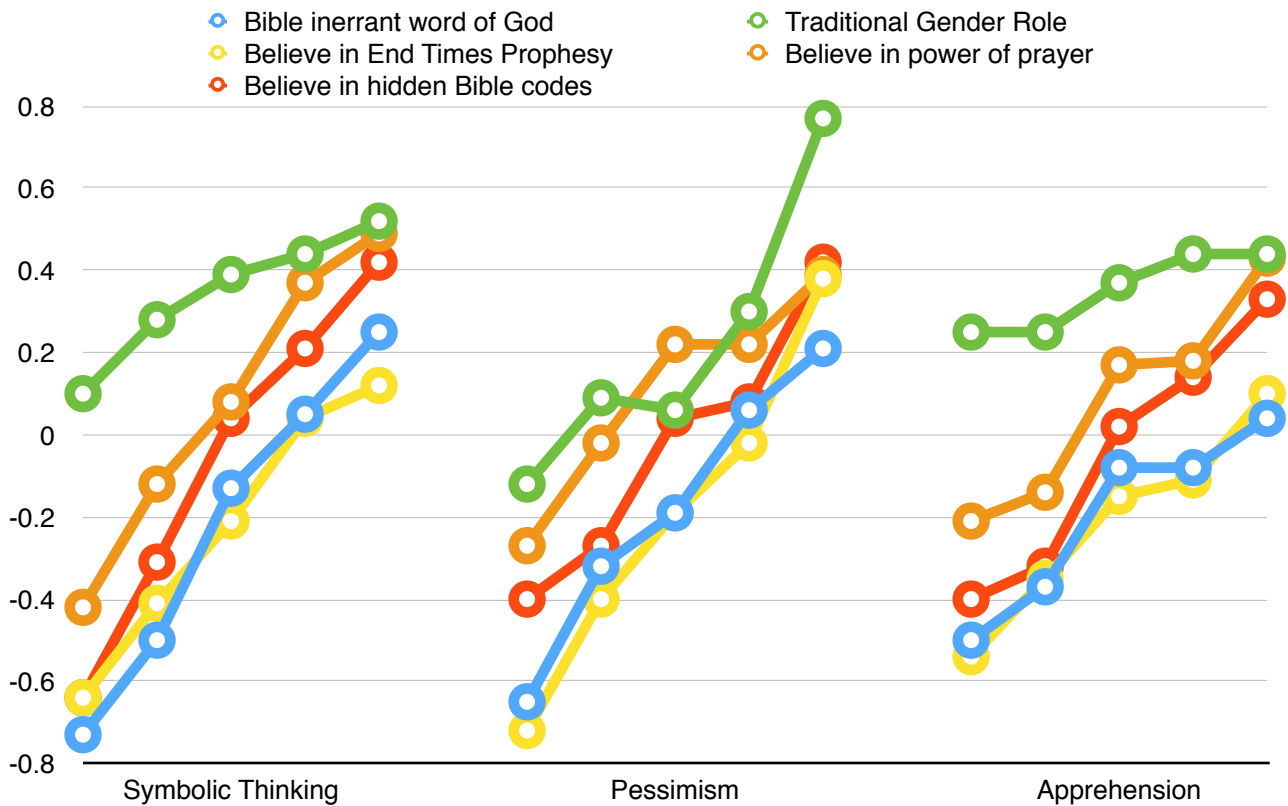
These same large differences occur across the Apprehension and Pessimism scales. In fact, one of the most striking findings *in this entire book* is the depth of pessimism among people with strong Millennialist beliefs: Americans at the top of the Pessimism scale are twice as likely to

¹⁷ In our surveys, respondents were asked on a five point scale how much they agreed or disagreed with each statement. We scaled this to be from -2 (Strongly disagree), -1 (Disagree), 0 (neither agree nor disagree), 1 (Agree), 2 (Strongly agree).

¹⁸ Martin and Appleby.

agree with nearly all the particular Millennialist belief elements. People at the bottom of the pessimism scale uniformly disagree with all of these beliefs. If we looked at just the percent agreeing with these statements, we'd see that nearly half of the pessimists agree that we're living in End Times, that many problems can be solved by prayer, or that the Bible is the inerrant word of God; nearly two-thirds believe in traditional gender roles. Millennialism and the expectancy of imminent negative events go hand in hand.

So too, Americans who engage in apprehensive behaviors are also more likely to adhere to millennialist religiosity beliefs. Here again, people on the bottom half of the apprehension scale



are more likely to disagree with most of the religiosity beliefs (except for gender roles); but as Americans begin to engage in more frequent apprehensive behaviors, their religiosity also grows. Millennialist religiosity strongly correlates with all three of the magical thinking scales.

But it is not just supernatural beliefs that rise with magical thinking, supernatural *experiences* do as well. In our October 2014 survey, we asked respondents to indicate if they had ever felt the distinct presence of a supernatural being (such as God), if they ever felt that God had sent them a particular message or sign, or if they felt they changed the outcome of a particular event through prayer. These supernatural experiences are quite common among Americans: nearly half of Americans report having felt the presence of God, four in ten reported that God had sent them a sign, and three in ten said they had changed something with prayer. And as with their religious beliefs, these supernatural experiences vary a great deal by one's symbolic thinking. Symbolic thinkers are basically twice as likely to report supernatural experiences than tangible thinkers.

Taking this all together, we see a remarkable pattern: the most common American supernatural beliefs are highly correlated with symbolic thinking and pessimistic and apprehensive feelings. It is not just that how one feels about wearing Charles Manson's pajamas or how often one checks the locks also coincides with a person's supernatural beliefs and experiences, but that it does so in a steady, predictable fashion. Tangible thinkers have fewer supernatural beliefs and experiences than mixed thinkers, who have fewer than full-fledged symbolic thinkers; apprehensive more so than the sanguine, pessimists more than the optimists. These results strongly suggest that our subscription to supernatural beliefs is strongly related to our tendency to attach emotional weight to our symbols and chronic feelings of anxiety and dread.

PARANORMAL BELIEFS

But it is not just supernatural beliefs that change along the magical thinking scales, but a wide set of "paranormal" beliefs, i.e., phenomena that go beyond scientific understanding, do as well. Once again, Americans hold a lot of paranormal beliefs. These include: ghosts (42 percent of Americans believing) and past lives (25 percent); special mental powers like ESP (44 percent) or horoscopes (15 percent); the powers of crystals (15 percent), homeopathy (18 percent), and

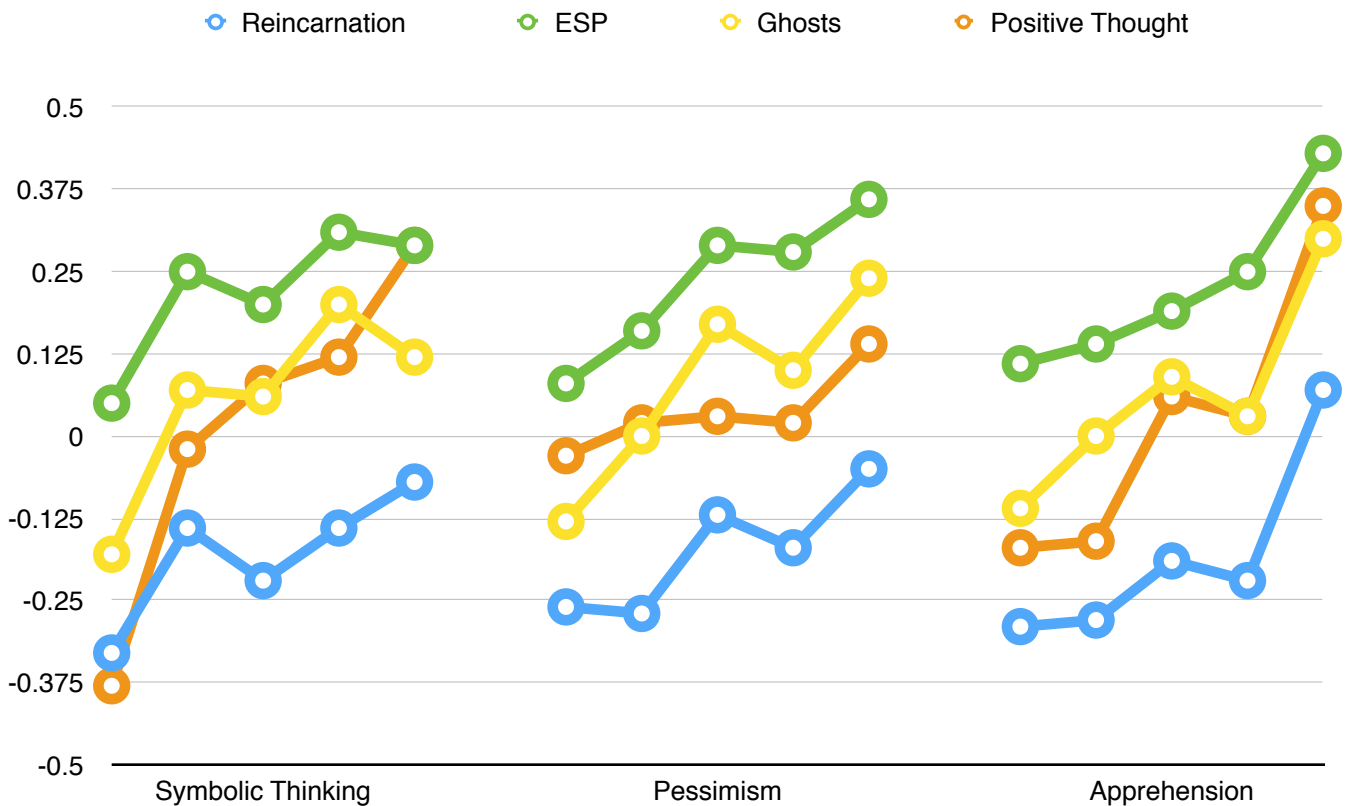
positive thinking (25 percent).¹⁹ And while paranormal and supernatural beliefs both are magical, paranormal beliefs have some distinct characteristics. They don't necessarily invoke an intentional deity nor are they usually the central focus of organized, religious institutions. Most importantly, paranormal beliefs are not central to America's national identity. Few people would say that "America was founded as a *New Age* nation" or "in ESP we trust."

Yet despite these differences, paranormal beliefs correspond with magical thinking in a manner remarkably similar to supernatural ones. Belief in ghosts, ESP, reincarnation, and positive thinking all increase along the three magical thinking scales. For example, roughly a quarter of our least magical thinkers (across all three scales) believes in ghosts compared to half of the most magical thinkers. Belief in ESP generally rises from a third of low magical thinkers to half of the most magical as well. Similarly, the percent of Americans believing in positive thinking and reincarnation also doubles across the three magical thinking scales.

What's remarkable is that the magical thinking items predict paranormal beliefs nearly as well as they predict supernatural ones. Even though Christian beliefs and "New Age" beliefs come from different cultural sources (and are often explicitly at odds with each other), they still relate to the magical thinking scales in the same way. Moreover, all three of the magical thinking scales (symbolic thinking, apprehension, and pessimism) work in the same direction for both paranormal and supernatural beliefs. In other words, if you check your locks a lot, think the economy is about to contract, and also would prefer objective discomfort rather than disrespecting a grave or a family photo, you are much more likely to believe in ghosts, ESP, and horoscopes in the same way that you are more likely to believe in angels, God, or End Times prophesy.

Magical thinkers are also more likely to embrace other types of paranormal sentiments. Take the tendency to anthropomorphize nature, measured with a survey question of whether "Plants and

¹⁹ For positive thinking, respondents were asked if they agreed with the statement "we can help people in need by sending them positive thoughts."



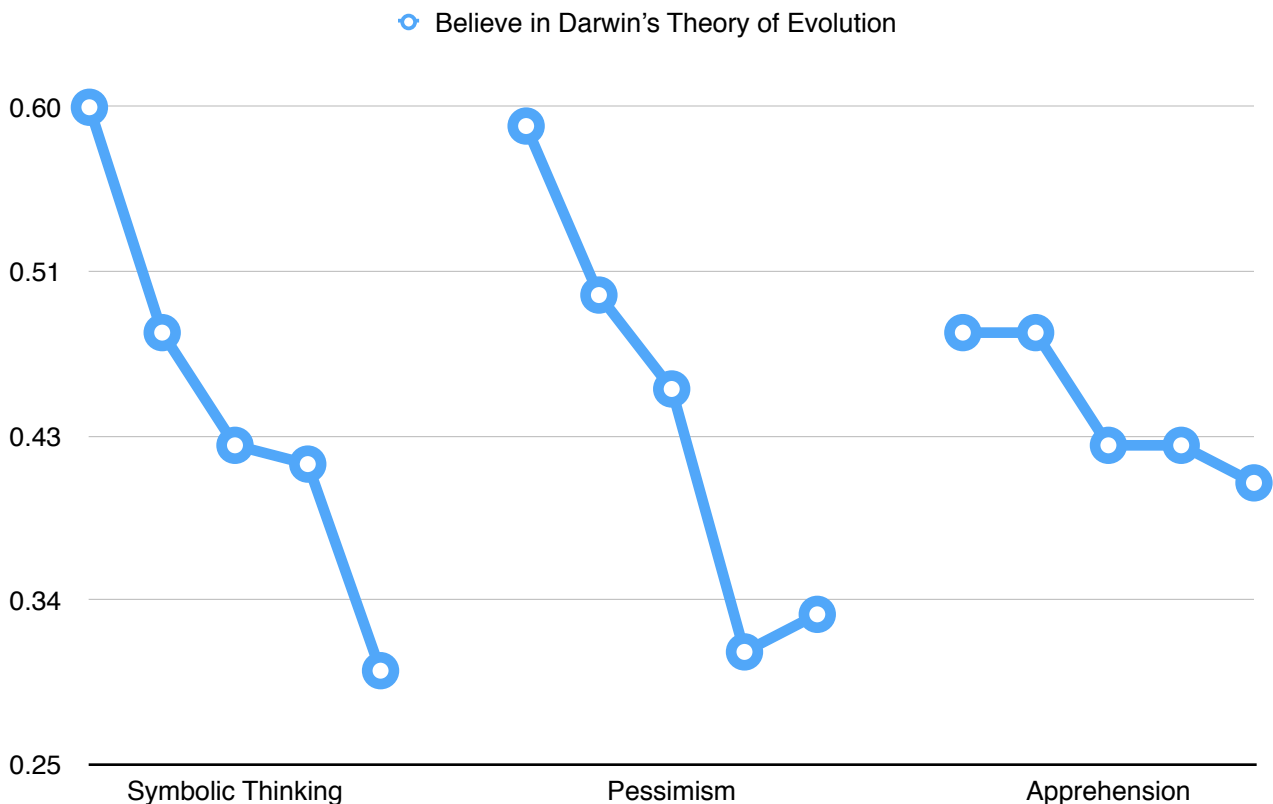
trees can sense what we’re feeling.” This sentiment has no basis in scientific theory—plants don’t have nerve cells or anyway of perceiving our emotional states. Nevertheless, magical thinkers are generally 50 percent more likely to anthropomorphize plant life than no magical ones. Similarly, belief in horoscopes also doubles across all three of the magical thinking scales. For example, only about 8 percent of tangible thinkers believe in horoscopes compared to 20 percent of symbolic thinkers; only 9 percent of optimists believe in horoscopes compared to 19 percent of pessimists. Twenty-five percent of people with the most apprehensive behaviors believe compared to only 10 percent among the sanguine.

And, as with the supernatural, magical thinking relates not only to paranormal beliefs, but to paranormal experiences as well. In the October 2014 survey, we asked respondents if they have either seen a ghost or actually changed the out come of an event by using a lucky item. About 25 percent of Americans report having seen a ghost and about 12 percent say they’ve successfully used a lucky item. These experiences, however, are highly contingent on one’s position on the

magical thinking scale. Magical thinkers are twice as likely as non-magical thinkers to have seen ghosts or changed their luck than non-magical thinkers.

Magical Thinking and Science

Just as magical thinkers are more supportive of supernatural and paranormal beliefs, they are also less inclined toward science. This is evident in both their support of specific scientific beliefs as well as in general patterns of thinking. Consider, perhaps, the most widely endorsed belief in science: Darwin’s theory of evolution by natural selection. According to a Pew study, 97 percent of scientists believe in evolution. But support for evolution is much less common among the public. Depending on how the question is asked, typically only 30 to 40 percent of Americans believe in evolution. In our surveys, we asked people if they believe in “Darwin’s theory of evolution.” We find that only 44 percent say they believe in evolution with 30 percent saying they are not sure and 26 percent saying they don’t believe.



However, these beliefs vary considerably by the magical thinking scales. For example, belief in evolution drops by 10 percentage points across the apprehension scale and by 25 percentage points across the pessimism scale. And an even bigger difference occurs across the symbolic thinking scale: only 30 percent of symbolic thinkers say they believe in Darwin's theory of evolution compared to 70 percent of tangible thinkers. And this is not simply a function of the greater religiosity of magical thinkers. Yes, fundamentalist Christians score much higher, on average, in their magical thinking, but this does not account for why magical thinkers are less likely to believe in evolution. If we look just at people who hold strong fundamentalist beliefs, we actually don't see big differences in magical thinking and evolutionary beliefs: only a quarter of this group believes in evolution no matter what their magical thinking score. Where magical thinking shows the biggest relationship to evolutionary beliefs are among the people who don't hold strong fundamentalist beliefs. Among these secularists, belief in evolutionary theory drops by over 25 percentage points as their magical thinking increases.

We see a similar pattern with regards to other scientific views. For example, many Christians contend that dinosaurs and humans coexisted, a notion that flatly contradicts nearly all scientific evidence. We asked about this in the October 2014 survey and, much to the dismay of evolutionary biologists, we found that roughly four in ten Americans believe this as well. But this conception is highly dependent on their magical thinking. Among tangible thinkers, only 25 percent think cavemen hunted Brontosauri compared to 54 percent of symbolic thinkers. And, it's not just evolution that fades with magical thinking. Belief in the Big Bang Theory about the origins of the universe also drops from 58 percent of tangible thinkers to 28 percent among symbolic ones.

Magical thinkers are also less likely to employ basic scientific principles. As we observed in Chapter 2, many aspects of scientific thought are counter-intuitive. It is not self-evident that microscopic germs make us sick, that time slows as you approach the speed of light, or that free trade boosts overall productivity. Such notions arose through scientific approaches to understanding reality: formulating theories, deducing hypotheses, and testing these hypotheses

with observation or experimentation. Of the many expressions of scientific thought, one of the most common and counter-intuitive is probability theory, the mathematical grappling of randomness. Our minds evolved to seek patterns and make connections between events in the world, not to passively accept haphazard chances. Indeed, this is why magical thinking is so much more common than scientific thinking: it is a natural and intuitive way of understanding the world.

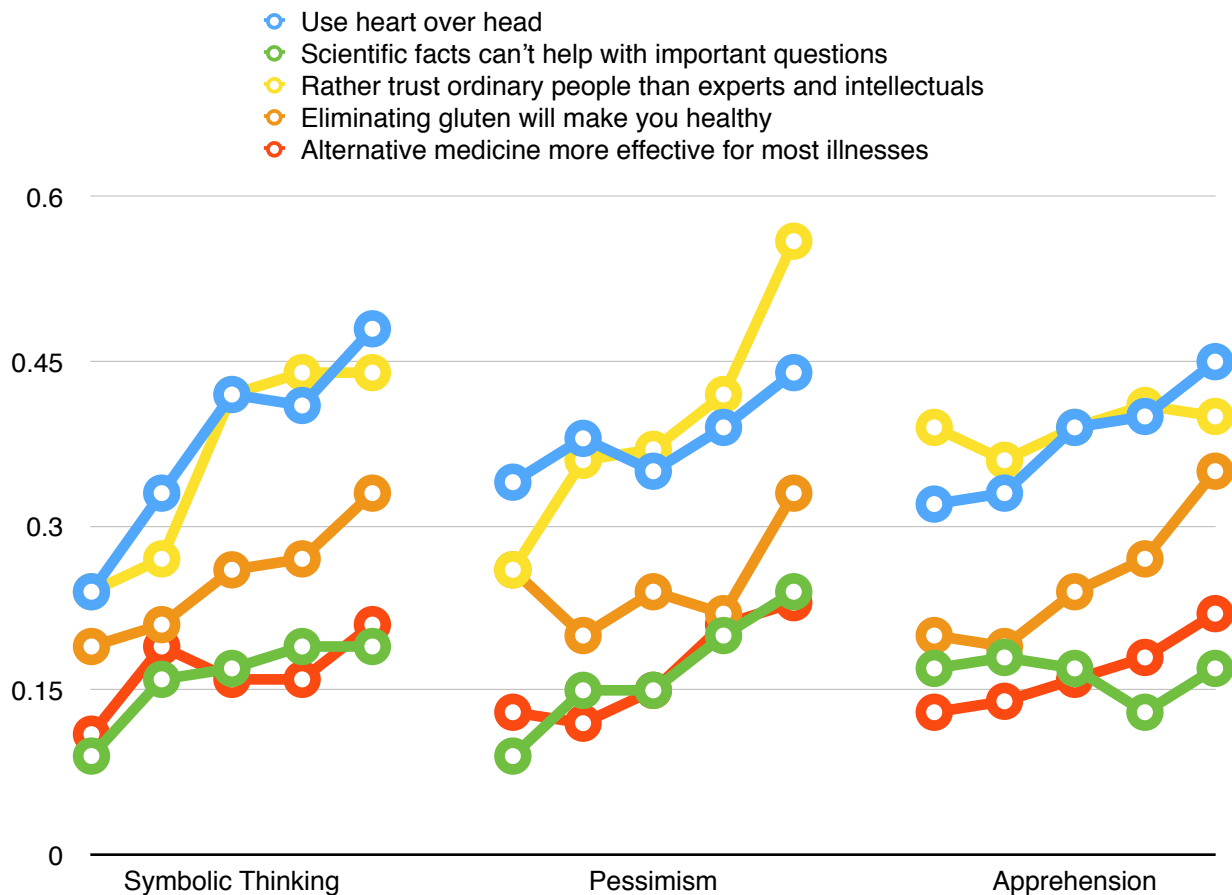
These tendencies are evident in our research. Magical thinkers are also more likely to try a superstitious act to influence something random. Remember in Chapter 2 when we asked respondents whether they would rub their lottery ticket on a dollar bill or paper napkin? Symbolic thinkers are about twice as likely to try rubbing their lottery tickets on anything that might give them good luck, but they are especially susceptible when that thing is the more appropriate symbol of money than just a paper napkin. Tangible thinkers, meanwhile, are less likely to rub their lottery tickets on anything no matter what it is.

These views are also evident in people's general views of science and decision making. When we asked our respondents how they made important decisions, roughly 40 percent of symbolic thinkers said they follow their gut rather than be deliberative. This compares to only about 25 percent of tangible thinkers.²⁰ Similar difference exist in regards general questions about judgment, knowledge and science. In our surveys, we asked about whether people agreed that "the heart was a better guide than the head" (38 percent agree); that "when it comes to important questions, scientific facts don't help that much" (16 percent agree); and 3) whether they'd "rather trust in the wisdom of ordinary people than the opinions of experts and intellectuals" (39 percent agree). In all three instances, we see the same trend. People who are apprehensive, pessimistic, and symbolic thinkers are all more resistant to rational, scientific ways of thinking and more suspicious of expert opinion. Symbolic thinkers, for instance, are twice as likely as tangible thinkers to look to the heart or put their faith in ordinary people. Pessimists were twice as likely to distrust expert opinion or discount the importance of scientific facts. Such differences were

²⁰ The choice was between "follow their gut instincts" or "try to be careful and deliberate".

not as great along the apprehension scale but the results were generally similar: as one gets more apprehensive, one’s trust in the head, science, or expert opinion generally wanes.

The magical thinker’s suspicion of science is also reflected in their beliefs about health and medicine. Magical thinkers are generally more likely to believe in “alternative” medicine. Of course many people adhere to remedies and cures that are not in the canon of western medicine, and not all of these medicines are magical. It is important to also recognize that western medicine itself is a pluralistic and dynamic body of knowledge that is not always correct in its assessments of health. Nevertheless, there are some types of health beliefs that have no empirical basis of support and that actually contradict scientific models of health. These include belief in the healing powers of crystals and homeopathy. And these are highly correlated with the magical thinking scales. For example, we see belief in the “healing powers of crystals” and “homeopathy” dramatically increase across the symbolic thinking scale. Symbolic thinkers are



twice as likely to believe in crystals and over 60 percent more likely to believe in homeopathy than tangible thinkers.

Magical thinkers have other types of “transgressive” health beliefs as well, such as the belief that “our own intuitions are as important as what doctors say” (78 percent agree), that “alternative medicine” is more effective than traditional medicine (17 percent agree), and that eliminating gluten one’s diet will automatically make anyone healthier (25 percent agree). In all these instances, we typically see a strong difference of opinion across the three magical thinking scales. Pessimists, apprehensive, and symbolic thinkers are all about 10 to 20 percent more likely to agree with these notions than people at the low end of the scales.

And its not just in their attitudes about science and medicine that magical thinkers differ, they act differently as well. We asked respondents how often they engage in a number of health related activities such as using herbal remedies or sunscreen, getting flu shots, and taking vitamins. Magical thinkers tend to engage in these activities in inverse proportion to their scientific effectiveness. For example, only sunscreens and flu shots are scientifically linked to better health; yet both of these activities are no different across the symbolic thinking and pessimism scales. Not surprisingly, apprehensives tend to engage in all health activities more frequently. However, the two health behaviors with little scientific founding (vitamins and herbal remedies) are much common among symbolic thinkers and pessimists. In short, magical thinkers aren’t neglecting their health, they just tend to favor health remedies that are not condoned by science.

Conspiracy Theories

Another common set of magical beliefs in the United States are conspiracy theories. Now some may immediately object to the characterization of conspiracy theories as a magical belief. After all, people in positions of power often conspire in secret to hatch nefarious plans. And sometimes they succeed. But while conspiracies do happen, most of the common conspiracy theories that fill popular discourse are closer to magical beliefs. They typically implicate some

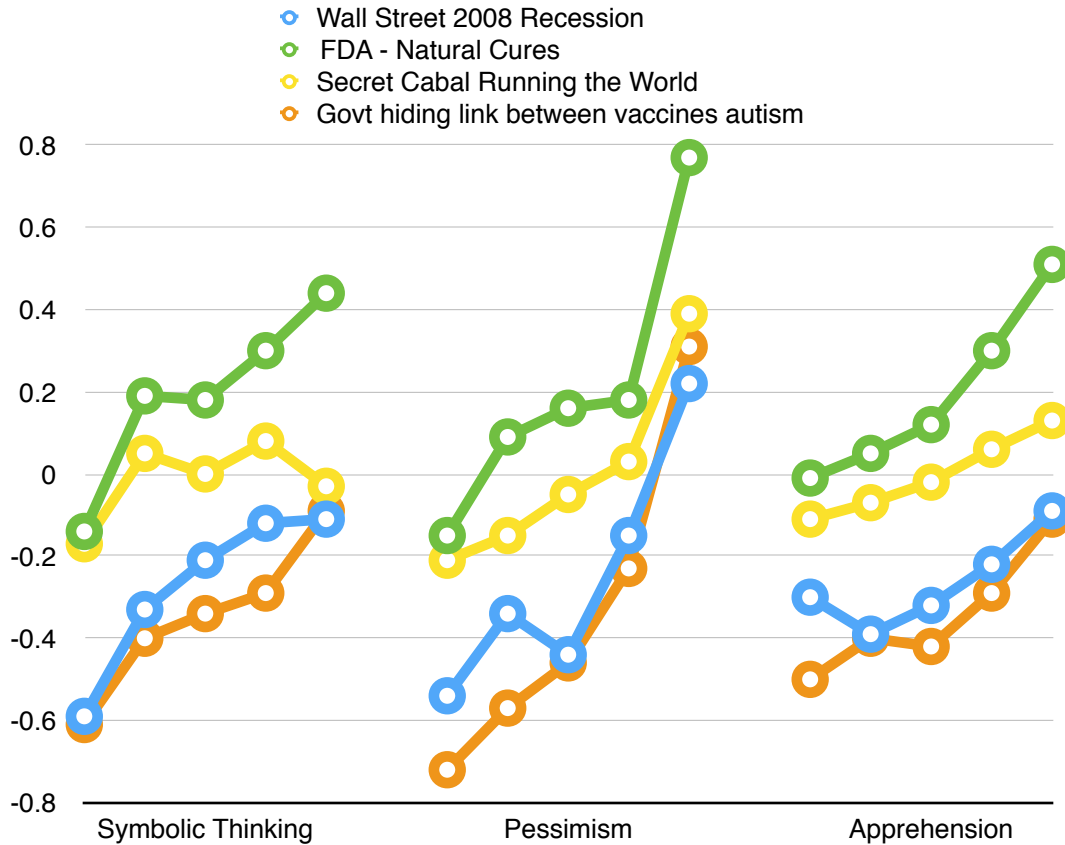
hidden force (i.e., the Illuminati or the Tri-lateral Commission) with superordinate powers that manages to orchestrate elaborate schemes and catastrophes while leaving behind only few clues that the conspiracy theorists are able to detect. Most importantly, the accounts of conspiracy theories are nearly all transgressive in that they defy official explanations for the same events. No matter whether its Barack Obama's birth certificate, the Warren Commission report on the assassination of JFK, or the idea the health officials are deliberately withholding data linking vaccines with autism, conspiracy theories all offer a counter narrative to prominent public events or concerns. In this regard they share a lot with other magical beliefs.

Not surprisingly, we also find that magical thinking is a big predictor of whether or not people believe in conspiracy theories. In various parts of the January 2015 survey, respondents were asked how much they agreed with the following four "conspiracy theories":

- 1) "Much of what happens in the world is determined by a small and secretive group of individuals." (37 percent agree)
- 2) "Public health officials are deliberately withholding data that show vaccines and many other medications cause autism and other psychological disorders." (21 percent agree)
- 3) "The 2008 recession was deliberately orchestrated by a small group of Wall street bankers in order to further the power of the Federal Reserve over the world economy." (22 percent agree).
- 4) "The Food and Drug Administration is deliberately withholding approval of natural cures for cancer because of secret pressure from pharmaceutical companies." (44 percent agree)

We chose these particular conspiracy theories because, unlike the "Truther" or "Birther" conspiracy theories, they are relatively free from ideological connotations.²¹ Once again, the responses to these questions were scaled from -2 (strongly disagree) to 2 (strongly agree) with the average score presented across five increments of the magical thinking scales.

²¹ See Oliver and Wood 2014.



As with the other magical beliefs, agreement with conspiracy theories generally increases across all three magical thinking scales. The strongest differences are with pessimism. Respondents scoring lowest in pessimism are all, on average, in disagreement with the conspiracy theories; those who are most pessimistic, however, all agree with the conspiracy theories. Smaller differences in the same direction are also evident across the symbolic thinking and apprehension scales.

What's remarkable about these findings is that, on their surface, the conspiracy theories would seem to have little in common with either supernatural or paranormal beliefs. There is nothing to suggest that a belief in the power of prayer or ghosts would be related to ideas about secret conspiracies at the Food and Drug Administration or on Wall Street. Yet, underlying all of these beliefs are a similar set of psychological propensities: a penchant for symbolic thinking, pessimism about the future, and a greater set of apprehensive behaviors.

Correlations versus Causation

Now one immediate concern with all of these findings is an issue of what social scientists call “endogeneity” or what ordinary people might call reverse causality. Perhaps magical thinkers score high in supernatural and paranormal beliefs because the religions themselves stress the importance of respecting one’s family or revering graves. Perhaps the prognosticators of supernatural beliefs (priests, ministers, etc.) promote greater apprehension and anxiety in their followers. Perhaps believing ghosts and ESP makes one more pessimistic or apprehensive. These are valid concerns. Endogeneity is a common problem in survey research, and ours is no exception. With our limited survey data, we have no way of knowing when or in what order people acquired their beliefs.

Nevertheless, we think the three magical thinking scales are measuring something distinct from these supernatural, paranormal, and anti-science beliefs. Few religions, for example, have precepts against wearing the clothes of mass murderers, buying lottery tickets from winning gas stations, or even sleeping in homes where someone had previously died. Few New Age prognosticators make predictions about Ebola, recessions, or war with China. Science has little to say about regularly checking one’s locks, shredding one’s bills or grinding one’s heels in unmarked graves.

However, what most magical belief systems do (and science does not) is take symbols, words, and metaphors very seriously. For many Catholics, the communal wafer is the body of Christ, for many Fundamentalist Christians, the Bible is the literal word of God. People who believe in ghosts often report supernatural experiences. The power of our magical beliefs lies in the willingness of the believers to steep these words and symbols with emotional significance. Crucifixes, the Torah, crystals, images, and even incantations are important to magical thinkers precisely because of their emotional significance. And it is this willingness to endow any kind of symbol or image with emotional power that is one of the hallmarks of magical thinking.

The other thing our magical beliefs do is provide us emotional comfort. For people who think wars, plagues, and recession are likely or who feel the need to continually guard their safety, life is something arduous. Magical beliefs, by offering the vision of protective angels or healing crystals, can assuage the discomfort of mortality, disease, and misfortune. If you suffer from acute or chronic anxiety, magic can be a welcome palliative. The reason that we find our apprehensives and pessimists scoring so much higher in magical beliefs is precisely because of the emotional attractiveness such beliefs hold.

Which takes us to the central point of this chapter: magical thinking arises from anxiety that comes with uncertainty and the types of heuristics we are drawn to when feeling this apprehension. Here we have offered measures of both this apprehension and the contagion and representativeness heuristics. Admittedly, these measures are quite crude. SAY MORE HERE.

And not only do we find them to be consistent predictors of a wide array of magical beliefs, we also find them to be negatively related to scientific thinking. In Appendix 3, we present a wide array of findings that show these differences are not the result of education, age, income, or other common covariates. Apprehension, pessimism, and symbolic thinking are consistently the most robust predictors of supernatural, paranormal, and non-scientific belief.

We think such findings are important not only for validating our theories of magical thinking, but for laying bare the operational “grammar” that underlies symbolic thinking about political and social concerns as a whole. Rather than basing their orientation towards the world on abstract principles, magical thinkers are driven by intuitions, which are themselves driven by emotions and cognitive heuristics. Instead of making their judgments from reasoned deductions of abstract principles, magical thinkers make theirs from emotions responses to common mental shortcuts, such as representativeness and contagion heuristics.

SAY MORE HERE?