

## ANNALS OF THE NEW YORK ACADEMY OF SCIENCES

Issue: *From Knowledge to Wisdom: Science and the Good Life***The moral animal: virtue, vice, and human nature**Steve Paulson,<sup>1</sup> Heather A. Berlin,<sup>2</sup> Christian B. Miller,<sup>3</sup> and Michael Shermer<sup>4,5</sup><sup>1</sup>Wisconsin Public Radio, Madison, Wisconsin. <sup>2</sup>Icahn School of Medicine at Mount Sinai, New York, New York. <sup>3</sup>Wake Forest University, Winston-Salem, North Carolina. <sup>4</sup>*Skeptic* Magazine, Altadena, California. <sup>5</sup>Chapman University, Orange, California

In Leo Tolstoy's famous novella, *The Death of Ivan Ilyich*, a rich and meaningful inner life is sacrificed in pursuit of material rewards and social status. How can we cultivate something intrinsic that transcends our worldly accomplishments? Assuming that a basic model or map of human nature is needed to navigate the road to the good life, what desires, tendencies, and aversions constitute our core nature? How has our evolutionary history shaped our moral impulses? Are we inherently good or fundamentally flawed? Steve Paulson, executive producer and host of *To the Best of Our Knowledge*, moderated a discussion with philosopher Christian Miller, neuroscientist Heather Berlin, and historian of science Michael Shermer to examine our moral ecology and its influence on our underlying assumptions about human nature.

**Keywords:** morality; virtue; character; the good life; free will; honesty; neuroscience; philosophy

**Steve Paulson:** Do you ever get a pang of conscience after you have done something kind of crappy or have just made a cutting remark? Or maybe you look around at what's happening in the world—you've seen the latest news about a recent atrocity—and you think maybe the human species is not all that it's cracked up to be? Maybe you have the opposite reaction—you're pleasantly startled by acts of generosity, courage, and self-sacrifice.

Today we are going to take the moral temperature of our fellow human beings and of ourselves, and we're going to talk about some old-fashioned ideas like *virtue* and *character*, and what they mean for our own lives. For centuries, philosophers and religious leaders were the go-to authorities on morality, but more recently, science has gotten into the act. There are evolutionary explanations for all kinds of moral behaviors, and there's a whole new wing of neuroscience that looks at how particular parts of our brain seem to trigger behaviors that have a moral component—from compassion and sociability to impulsivity and violence. How much can science tell us about morality? And even if it can point to the roots of certain behaviors, does this knowledge actually make us better people? To put it another way, if we're looking for virtue, are we better off talking to scientists or philosophers? We have both on our panel this evening, so you can be the judge.

We're going to dig into the science of morality, and also concepts like *character* and the *good life* and what they mean for our lives. We have a wonderful panel; let me introduce our speakers.

Heather Berlin is a cognitive neuroscientist and assistant professor of psychiatry at the Icahn School of Medicine at Mount Sinai in New York. She received her PhD from the University of Oxford and MPH from Harvard University. She studies the complex interactions of the human brain and mind, with the goal of developing better treatment and prevention of impulsive and compulsive psychiatric and neurological disorders. She's also interested in the neuronal basis of consciousness and dynamic unconscious processes, and is a visiting scholar at the New York Psychoanalytic Society and Institute.

Christian Miller is professor of philosophy at Wake Forest University. He holds a BA in philosophy from Princeton University and a PhD from the University of Notre Dame. His main areas of research are metaethics, moral psychology, moral character, action theory, and philosophy of religion. He is the director of the Character Project ([www.thecharacterproject.com](http://www.thecharacterproject.com)) and the author of *Moral Character: An Empirical Theory*, and *Character and Moral Psychology*, which together articulate a novel framework for thinking about character that is empirically supported by research in psychology.

Michael Shermer is the founding publisher of *Skeptic* magazine, a monthly columnist for *Scientific American*, and a presidential fellow at Chapman University. He received his BA in psychology from Pepperdine University, his MA in experimental psychology from California State University, Fullerton, and his PhD in the history of science from Claremont Graduate University. His most recent book is *The Moral Arc: How Science and Reason Lead Humanity toward Truth, Justice, and Freedom*. His other books include *Why Darwin Matters* and *The Science of Good and Evil*. Thank you and welcome.

Christian, I want to start with you. I came across an essay you wrote for *Slate* about your three-year-old son. He was peppering you with all those “why” questions like, “Daddy, why should I be a good boy?” In writing about this, you said the question of why being good is important is because “most of us, myself included, are simply not good, morally speaking. We do not have a virtuous or good character.” Why do you say that?

**Christian Miller:** Sorry to be a downer right at the beginning. There might be several reasons to say that. I might look at my own introspective character and think about what I am like. I might read the news and see all kinds of depressing events that are going on today. I might look throughout human history and see the chronic atrocities that people have committed throughout the world. But the real reason I come to that conclusion is based on scientific research. Specifically, the scientific research that I focused on is psychological research done in the last 50 years. When I look at very carefully done psychological experiments that have some moral implications, I ask myself if this is the kind of behavior that I would expect of a good person, of a virtuous person. Time and time again, I do not find that borne out in the studies.

**Paulson:** Give me an example of that.

**Miller:** Here is a dramatic example, namely the familiar Milgram experiments from the 1960s. I presume most of you are familiar with this famous research in which ordinary people could be brought into a lab and, in about 20 or 30 minutes, you could get them to voluntarily kill an innocent person. Let me say a little bit more about that. What happened is you would bring a person into the lab and say, “I want you to administer a test to someone who is in the next room. For every wrong answer that this person gets, I want you to turn this dial up a little bit more; the dial is going to give a little shock every time there is a wrong answer. The more wrong answers, the more you have to turn the dial up, and the more shocked this person is going to get.” Of course it is all rigged—this is all staged. There really is no actual shocking. The person in the other room is an actor, but the participant doesn’t know that. They think it is real; as time goes on, there are more and more wrong answers, and there’s more and more pressure to turn the dial up.

The dial has numbers on it and the final reading is XXX, the lethal dosage of shock. Let me add another wrinkle to the study. There were the participants, there was the person in the other room, and then there was a scientific-looking individual in a lab coat who was in the room with the participant. Anytime there was any squeamishness or objection, this scientific-looking person would say, “Please continue, you must go on, we need these results.” The upshot was that 66% typically would end up turning the dial all the way to the XXX level and killing, so they thought, this test taker in the other room. Despite the test taker screaming in pain, pounding on the walls, and saying that he had a heart condition, it didn’t matter; the dial was turned up all the way to the XXX level.

The underlying idea is that the powerful impetus to obey an authority figure led these ordinary participants to voluntarily kill an innocent person. I don’t know what you think about that. That does not sound too good to me.

**Paulson:** Heather, what do you think?

**Heather Berlin:** The study was looking at obedience to authority; there are a couple of points here: not everybody did it—65% of the participants administered the final 450-volt shock, and many of them were very uncomfortable about doing that. There are many psychological aspects to when and when not to obey

authority. There are people who have varying degrees in which they obey. I don't think that this study, in particular, is a great example of saying that we are innately immoral. I think that some of us are more vulnerable to authority than others. To counterargue that, there are the studies by Karen Wynn at Yale, with very young children and babies who have to make moral decisions—they're looking at puppets and one puppet is a bad puppet that doesn't help the puppet in the middle, and the other one is a good one that does help him out. Afterwards, they can choose which stuffed animal they want to play with; 90% of the time they go with the good one. When they're offered cookies by the good and the bad one, and the bad one has more cookies than the good one, they'll still take the one cookie from the good one. If you talk about *innate* morality at such a young age—as early as three months old, they are making these morally good decisions. This is a counter argument.

**Michael Shermer:** I like the one where the baby slapped the bad puppet . . . [*panelist laughter*]

**Paulson:** Michael, do you want to weigh in here? Are we more innately good at that?

**Shermer:** I did a replication of Milgram's experiments here in New York. Chris Hansen and I did this for Dateline NBC. We had seven subjects one day in a rented studio; it was a faux reality television show we called "What a Pain"—it's really easy to get people in New York to participate in what they think is going to be on TV . . .

We built an exact replica of Milgram's shock box with the toggle switches, 15 volts, which we told people they were going to deliver to another person one at a time. Our first subject, a woman, said, "You're going to do what? I'm out of here." The other six went varying degrees up the shock scale, with three going all the way to 450 volts! But they were really not happy about this. They were anxious about it, you could tell—their heart rates were elevated, and they were struggling all the way, protesting "Are you sure? I really don't want to do this. I'm really uncomfortable with this. Can we go check on him?" You could see that they had a moral sense and were uneasy with the idea of shocking another human being—all of them. Another way to rephrase it is that we all have a good nature that you can twist and make go in a different direction under certain conditions, such as obedience to authority.

**Paulson:** It also makes me wonder if you did this experiment recently—what year was the Milgram?

**Miller:** 1960s . . .

**Paulson:** . . . maybe we have become a lot more skeptical regarding authority since the 1960s.

**Shermer:** We got to replicate it legally because we didn't have to get approval from a research board; we just needed the approval of the NBC lawyers to say we wouldn't get sued, and had the subjects sign waivers.

Jerry Burger from Santa Clara University did it up to 150 V, which was the point at which, in Milgram's original experiments, the subjects would choose to either bail out or go all the way. He found a significant, but lower percentage, of participants that went that far. So maybe that's a little bit of the bending of the moral arc. Frankly, I was amazed at the subjects who hadn't heard of the Milgram experiment; they were younger so maybe they hadn't had that class yet . . .

Instead of phrasing it as Is it nature/nurture? or Are we good or evil?, one could say, we're both; we have a great range of capacity. How you tweak the variables, the dials of the social conditions in which you put somebody, you can get them to do bad or good. There are studies of the Nazi *Einsatzgruppen*—these special action forces in the East after the *Wehrmacht* went through on the invasion of the Soviet Union. Their job, the special action forces, was to kill all the Jews in every one of these towns. It turns out this was not an easy task for the leaders to get the soldiers to do. They had to introduce them at long range—then close range. Many of the men got sick—violently ill. Most of them didn't want to do it, and the leaders had to impose a lot of conditions to get them to go all the way. Of course, there were some who enthusiastically did it, but

most were uncomfortable doing it. They had that sense of “I shouldn’t be doing this, but here’s a bunch of conditions that say it’s okay,” and then with habituation, you could get them to do it a lot more.

**Berlin:** That’s rationalization. I think the Nazi leaders who were killing people willingly believed in what they were doing. If you look at the terrorists now, most of them have a conviction that they’re doing the right thing . . .

**Shermer:** That’s right. They think they’re being moral—not immoral. The moral impulse is very strong in human nature.

**Berlin:** Yes, exactly.

**Paulson:** Christian, do you want to jump in here?

**Miller:** I threw out something provocative; let me now backtrack a little bit—so that you don’t think of me as someone who comes to a conclusion based on just one study. Let me give you a little bit more nuanced picture of what I am thinking.

A couple of quick side notes first: In a recent replication of Milgram that we funded through the Character Project, we used a virtual reality simulation of the Milgram study, so that we could re-create the whole thing, but with a virtual-reality avatar as a test-taker, as opposed to a real person. We found the same kind of pattern of results—very interesting research. We also funded research on young children, finding the same kinds of fairness dispositions and tendencies—wanting to play with fair people as opposed to unfair people, even at 9 months old—so I agree with that too.

My overall view is *not* that because we are typically not good people, it follows that we are wretched, vicious, or horrendous people. Don’t jump to that conclusion. I agree with what has been said here—it is much more of a balanced picture. So I don’t think that the Milgram experiments, for example, show that we are vicious. Why? Here is one reason. A vicious person, according to Aristotle, is someone who is wholehearted and single-minded in pursuing something. But as this particular study showed, people were of two minds about it. They were conflicted and torn, and they felt a lot of guilt about it. So that’s one reason.

A second reason is that there are powerful studies pointing in the *opposite* direction. That is, we have good reason to think that people are, in other situations, quite disposed to do morally tremendous things—powerful things—and for admirable motives, too, because motivation is important to the evaluation of a person’s character; it is not just their actions. I find very convincing research on empathy done by Dan Batson and others showing that, in addition to our aggressive capacities and other problematic capacities, we also have empathetic capacities to help others for selfless altruistic reasons.

**Paulson:** I want to back up for a moment. Where do our moral inclinations come from? Is this hardwired into our evolutionary history?

**Shermer:** Yeah, absolutely.

**Paulson:** How so?

**Shermer:** Let’s take the *selfish gene* model, according to which we would maximize utility and selfishly hoard all resources. If I do that, and you have the same motive, we’re going to have conflict. It’s actually better for me if I don’t do that—if I actually am nice to you and you are nice to me, and we both benefit.

**Paulson:** There’s reciprocity.

**Shermer:** Yes, there’s reciprocity. Bob Trivers and others worked this out in the 60s and 70s—the mathematics of kin selection and reciprocal altruism. We spend a lot of time with our kin and are nice to people

who are either genetically related to us or who are part of our clan, because there's going to be pay back. The idea is, we evolve these emotions; emotions are proxies to drive behavior. The emotion of lust drives us to have sex to propagate the species; love leads to pair-bonding—reinforced by the neurohormones oxytocin and dopamine—so that we have a longer-term commitment to raise slow-growing offspring. There is jealousy for mate guarding. We have anger so that if somebody tries to exploit us, we can defend ourselves and fight back. And then revenge—the idea of revenge is important so that we're not exploited, because we have to deal with bullies by being tough in response.

**Paulson:** Basically you're saying that morality, our moral instincts, are emotional responses. They probably are originating at some unconscious level. It's not a matter of trying to reason this out—is this the right thing, or is that the right thing? Are you saying that's usually not the way we make moral decisions?

**Shermer:** It's layered. The moral emotion, the sentiments—what we are born with; what we get starts at three months old. That comes with the package of human nature. The moralization sense is certainly one of the most important characteristics of being human. If you look at police blotters, 90% of homicides are *moralistic* in nature. That guy scratched my car, insulted me in front my girlfriend—that kind of thing. With ISIS, the West is evil, and we have to strike back—these emotions are moralistic in nature. Very few homicides are *instrumental*. When a burglar burgles your home, the burglar doesn't want you to be home; they'd rather you weren't home because they don't want to fight; they want to maximize their utility by getting your stuff with the least amount of violence possible. It's why pirates flew the Jolly Roger skull and crossbones flag; it's a costly signal that implies the pirates are to be avoided; they're coming to take your stuff, and they would prefer that you just give it to them without a fight.

**Paulson:** Heather, how much do you think science can explain our moral inclinations?

**Berlin:** There are many great explanations about why we behave the way we do because of evolution. There are individual differences, however. We have innate impulses—these innate desires to, let's say, go for immediate pleasure, immediate reward. There are structures deep in our brains—evolutionarily older structures that drive these impulses. For example, to procreate, at a most primitive level, might be expressed as raping another person; but our more recently developed prefrontal cortex thinks about future consequences of actions—it says that rape is not a good idea. Among other things, *reputation management* comes into play here—people will behave more immorally when nobody is watching than if they think they are going to be talked about. That's why these things like Facebook and social media force people to behave more morally, because people are going to talk about them and they want to be liked.

There are individual differences as to how much a person has the capacity to control those innate drives for immediate pleasure or avoidance of pain. When you're following those, what Freud would call *id* impulses, a person would not necessarily behave in the most moral way. That's why teenagers, for example, whose prefrontal cortex—the brake system that thinks about future consequences of actions, and is not fully developed until about the age of 25—have much more difficulty not acting on impulse, not acting on those drives. Some people have a certain variation in a gene that codes for serotonin receptors in the brain—if they have a shorter allele for the serotonin receptor they have a tendency to act out more impulsively and aggressively.

If we're talking about making moral decisions, this all plays into it—it's not just about how we've evolved as a species. There are individual differences regarding a person's capacity to make moral decisions: it's not simply that they're overwhelmed by their emotions or lack of emotions.

**Paulson:** Are there certain aspects of our morality that science simply cannot explain? Christian?

**Miller:** I guess I'll be provocative tonight. I don't think, strictly speaking, that science can explain *any* aspect of morality.

**Shermer:** You didn't read my book yet . . . [*panelist laughter*].

**Miller:** I'm sorry—oh no, I'm in trouble now [*laughter*].

I say that very carefully. Sure, science can give us lots of insights into explaining why certain people are capable of one action as opposed to another action. But when I think about *morality*, I am thinking about the *prescriptive*, the *ethical*, the *normative*. I am thinking about do not lie—with some exceptions; do not cheat; do not steal; help others in need. These are principles, rules, or guidelines that tell us what we ought to do or what we should do. To my simpleminded mind, that's not something that I am going to be able to learn directly from scientific investigation.

**Berlin:** There's moral relativism . . . , I don't know if there's a hard and fast rule about these moral things that exists out there . . . .

**Miller:** Sure, sure.

First of all, in the philosophical world, moral relativism is only one view; it's very controversial still. Surprisingly, most philosophers reject moral relativism. This is an interesting sociological observation about philosophy—philosophers reject moral relativism either because they think morality is grounded in a higher divine being, or because they are quite comfortable talking about morality being objective and existing on its own without a creator—as an objective feature of reality just like the laws of physics or laws of nature, in general.

We can get into that debate about whether morality is objective or relative, but even if you think about morality in a more relative way, presumably you think, according to your moral code, that certain things are right, certain things are wrong, and certain things are good or bad. Whatever that happens to be, those moral principles relative to your moral code are not going to be such that you can read them off the scientific results either.

**Paulson:** Are you saying that the basis of that moral code is cultural? . . . is personal? Is it merely something that each of us comes up with?

**Miller:** At the end of the day, each of us has to make a personal decision as to what moral code each of us is going to hold. But there is a further question of where morality comes from, *as a matter of fact*. Some people think morality comes from a divine being—a divine being lays out a moral code for us to follow. In fact, that is probably the predominant view in the West; throughout our history many have subscribed to a kind of divine command theory, where God is in charge of morality. Others think that the deeper truth about morality is that there is a natural law or a set of moral truths that we are able to tap into using either a conscience or our reason, and that we can judge our moral opinions as true or false in light of that more basic code. There is also a more cultural view that says morality is a product of the particular culture we live in. There is an American morality, an ISIS morality—many different moralities—and there is no one true morality or correct morality beyond just what different cultures subscribe to.

**Paulson:** Okay, good. Michael, I want you to jump in here.

**Shermer:** I was going to ask which one you believe [*looking at Miller*]?

**Miller:** When I teach introduction to philosophy, I never share my own views. I always try to be as neutral as possible and present different positions.

**Shermer:** We're a graduate class here . . . [*laughter*].

**Miller:** I promised my intro class I would not tell my views, and they are taking the final exam this week. Maybe I should stick to my policy.

No—my own view is the divine view; I think morality is objective in virtue of being created by a divine being.

**Shermer:** Which divine being?

**Miller:** I don't know how much we want to go down this path, but I am perfectly comfortable doing so . . .

**Shermer:** Would you say, objectively speaking, that a culture that grants women equal rights is a better culture than a culture that suppresses women's rights, doesn't let them drive, forces them to wear a veil, and practices female genital mutilation? Would you say that they're objectively *really* better?

**Miller:** Yes.

**Shermer:** Where is that in any holy book?

**Miller:** Why don't we have a two-part discussion. First, I think that kind of question leads us toward an objective morality.

**Shermer:** That's the whole idea.

**Miller:** We are on the same page here. Moral relativism is problematic for precisely these kinds of reasons. One culture has a kind of moral code; another culture has a very, very different code, and I have a hard time thinking that those two codes are equally valid—that there is no better moral code when it comes to examples like that.

**Paulson:** This is fascinating because it sounds like you're ending up in the same place, although you commented from totally different perspectives.

**Shermer:** Where are you getting this idea [*to Miller*]? You're not getting this from any holy book that I know of—unless you're getting it from divine inspiration or something. I think you're getting it from Western culture and the rights revolutions—from the Enlightenment all the way to last week.

**Miller:** I am not dodging your question. I will answer directly in a moment, but I want to first back up to the early points. This kind of discussion we are having, this kind of debate, I don't think you can read this off of science, first of all. Second, there is good reason to go from a relativist view to an objectivist view, so it looks like we have some common ground here. Third, where then can we *ground* our objective view? That takes us into a discussion of philosophy, religion, and questions like that.

In my own view, principles like love your neighbor as yourself—where your neighbor extends to all human beings—could take us in the direction of ascribing equal rights to men and women.

**Paulson:** Michael, I want to come back to you because you are saying that science, evolution in particular, can explain a lot about our moral impulses. But if we want to talk about rights, if we want to talk about the emergence of all these rights that we've particularly seen in the last couple of centuries, does science really explain that? That seems to be something that's happened culturally. It's not about science.

**Shermer:** Basically, this is my question: How do we structure a society, with rules and laws and economic systems and political systems, in a way that suppresses the inner demons and brings out the better angels?—that tweaks the Milgram experiment a little bit? For example, if Milgram had had somebody else in the room that refused to go on, then the real subject would have also been more likely to refuse to go on. We know that if we structure society in a way that people are more connected, then they have more

participation in society through a democracy rather than an autocracy. These are the kinds of things that society has discovered empirically by running experiments for 200 years.

Now maybe you [*to Miller*] don't call that science; I call it science—social science.

**Miller:** Yes, I call that science.

**Shermer:** Empirically, you ask people, “What would you like? Would you prefer to live in a dictatorship? Would you prefer to live in North Korea or South Korea?” I consider that science—empirical data; this is the kind of *bending of the arc* over centuries that we've been doing without even realizing it. We've been running these experiments—democracy is an experiment. Variables are tweaked and the experiment runs again for a few years, and then they are tweaked again. It's a never-ending process—I call that science.

**Paulson:** Heather?

**Berlin:** Hmm, there are so many things here. . . . First, in a sense it's hard for me to understand the question. It depends on how science is defined. We're looking at evidence—if you say *morality* just exists out there, it's God who creates these rules, then we can't touch it, because, so far, science hasn't even been able to find any evidence for God, much less what he thinks and his moral rules. But if you're looking at morality as *what kinds of decisions people make*—how, for example, people behave in different situations when there's a moral dilemma, the trolley experiment, or the footbridge experiment of whether I should sacrifice this one person to save these five—then, if you're looking at moral decisions and how humans behave, of course, we can look at that by way of science. We can look at how the brain works; we can look at psychology; we can look at human behavior in a variety of different contexts. If everybody were behaving perfectly, depending on what your moral code would be, we wouldn't need laws, rules, or police.

It's hard to say whether we're fundamentally good or bad; we're both—it's a mix, but obviously if there were a perfect way to be and we were all born that way, we wouldn't need laws and rules. And religion—if you look at how religion has evolved over time, it started with people in small tribes; they performed rituals; as populations grew, they needed a sky god, for instance, to look down upon them; then, there were too many people to control. . . , so one can see how religion may have evolved—to help modify human behavior against innate impulses, so that people could all get along as a society.

**Miller:** Let me be clear. Certainly science can contribute lots of valuable things. It can help us understand why people made certain decisions as opposed to others or why they are inclined in this direction as opposed to that direction. That doesn't sound to me like morality. Morality sounds to me like these questions I have: *Should* I make a donation to charity or spend the money going to the movies? *Should* I break a promise I made to my friends? Is honesty a good thing?

**Berlin:** Wait—I see all these things that you're saying as decisions that need to be made; we can look at what's happening in your brain when you're making these decisions. I can manipulate people in the lab and make them decide one way or the other based on subliminal information I'm giving them. Why are your decisions, even though they're moral decisions, outside the realm of science?

**Miller:** I think we're talking past each other. Absolutely, you can do all those things, but I want to know the right answer.

**Shermer:** The right answer might be to ask, for example, What's your goal? If your goal is to increase your deeper long-term happiness, then the donation to charity will more likely produce that more than buying a candy bar. If you don't care about long-term happiness, then buy the Snickers bar. That's a slightly different question than what we're talking about here—how to structure society; what's the best society; what's the most moral society in terms of expanding moral rights to include more people? Is that better than restricting some of the rights of people?

**Miller:** I would still say the same thing.

**Shermer:** And we are reading it off the empirical data, in a sense—polls and surveys, what do people want?

**Miller:** That implicitly assumes that what people want is the guide to the moral truth. We do an opinion survey, we see what people want, and therefore that tells us what the moral truth is. But note that that assumption itself is not something that science can give us.

**Berlin:** But you're assuming that there are moral truths that exist out there. I don't know that everybody necessarily is on the same page with that. Your conviction is that there are absolutes—right and wrong. You want to know what's the right thing to do, but how do you support that conviction?

**Miller:** Let me say a couple things. First of all, I can give you lots of examples where it seems to me clear that there are such truths. Torturing innocent children merely for fun—that's wrong. That seems to me as clear of a truth as any truth there is. Setting a cat on fire for amusement. Nope—doesn't strike me as acceptable. These are the kinds of claims where I think we can find agreement—it's very hard to be a relativist about claims like that. What the Nazis did to the Jews is wrong, period.

These are convictions I have, yes; in my mind, they are objective truths, so that even though the Nazis thought otherwise, *they were mistaken*. I think we may agree about that.

**Paulson:** I want to shift the discussion a bit and come back to neuroscience. I know, Heather, you've been looking at particular parts of the brain that seem to trigger, I guess what we would consider, moral responses. I want to figure out what brain science tells us so far? Can we look at a particular part of the brain and say that it seems to generate feelings of empathy, for instance?

**Berlin:** I'm more looking at immoral responses, but, conversely, the research that's looking at moral responses coincides nicely with what I'm finding.

We can see a unique circuit in the brain light up when people are experiencing empathy. Another really interesting study is with olfaction, which is a very basic sense. We built an olfactometer, so we could give people different scents in the scanner (or fMRI) and look at what is happening in their brains. I'm going to talk about a study that we didn't do ourselves but is an interesting study involving olfaction. Sweat was collected from people who were about to go to the gym—so “neutral” sweat. Sweat was collected from other people who were in an anxious situation—they were about to jump out of a plane or they were about to take a hard exam—so “anxious” sweat. Using the scanner, then, people were given either anxious or neutral sweat and asked if they were different; they claimed to not be able to tell the difference between the two, but the “empathy network” in the brain would light up when they smelled the anxiety sweat. So even in odor, people can pick up differences.

Making moral decisions is interesting, but there is not just one part of the brain affected. There are different parts that are involved in different aspects of making moral decisions. On the one side, patients who have a lesion to a part of the brain called the orbital prefrontal cortex—it's part of the prefrontal cortex—have difficulty holding back impulses; they'll do things that have very negative consequences for the future; they cannot seem to control themselves.

Take the example of pedophilia, there is a modern-day Phineas Gage example of a man in his 40s who developed pedophilia symptoms. He was going to be put in jail but started to get headaches. They did an MRI and saw a tumor in his right orbital prefrontal cortex. The tumor was removed and the symptoms went away. He was allowed to return home where he had a young daughter. About a year later, the symptoms came back, and sure enough the tumor had grown back. This is an example at getting at causation rather than just correlation between the brain and behavior.

**Paulson:** That's a fascinating example, which obviously raises some profound philosophical questions. Does this example suggest that this particular guy is off the hook—he's not responsible because he's got the brain tumor?

**Berlin:** That leads to the question of exactly how much we hold people responsible. . . .

**Paulson:** It's a slippery slope, because you could carry that argument, in theory, to everything that we do is a product of something going on in our brains. It might not be a brain tumor, but it might be something else that would push us in one direction. Are we saying that, ultimately, free will goes out the window?

**Berlin:** To finish up that story, when people are making moral decisions, that specific part of the brain, the ventromedial prefrontal cortex, lights up, so we know it's involved in making moral decisions. Then the question becomes, if you have a lesion there, if you have underactivation, or maybe a subtle abnormality or neurochemical imbalance, what does that mean?

As a neuroscientist, I think much of the evidence suggests that free will is an illusion—the brain is making decisions unconsciously all the time. Our conscious perception of having freely decided comes a little bit after the fact. There were some studies done in the 1980s by Benjamin Libet and also more modern studies that show you can predict which way a person is going to decide by looking at brain activation up to 10 seconds before they're consciously aware of their intention. The brain gears up to make a decision and then, at some point, the conscious intention to take an action occurs and then behavior happens; but there's a "buildup" before the conscious intention. But if you tell people that free will is an illusion, some psychology studies show that they tend to act out more unethically and immorally.

**Paulson:** What do you do with that? Is this an argument for the notion that we ultimately don't have moral responsibilities?

**Shermer:** No, of course not, because you also have "free won't." You can simply override those urges. . . .

**Berlin:** . . . . no wait, that was Benjamin Libet's argument. But a recent study from 2013 by Patrick Haggard's group at University College London looked at "free won't." At any point, people were able to inhibit responding, but there was still a neural precursor to the conscious intention to inhibit responding.

**Shermer:** . . . . that's okay, but it's still the brain making the choice.

**Berlin:** I would say we have unconscious free will—that consciousness comes after.

**Shermer:** Wherever it comes from, we're still making the choice, so we're morally culpable for our actions. On a sliding scale of degrees of freedom, most of us, most of the time, and in most circumstances, are culpable and make decisions that we should be held responsible for. Yes, the guy with a brain tumor or somebody with a horrific background, drug addiction—the extreme cases, yes, of course—their degrees of freedom are fewer than ours, simply by physical constraints on their brain. The legal system already deals with this—such mitigating circumstances as crimes of passion, addictions, tumors, and horrific backgrounds—we tend not to hold them quite as responsible; we give them different kinds of punishments. The law has been adjusting itself according to the way science understands the workings of the brain, while still holding us morally responsible most of the time—otherwise we wouldn't have a civil society.

**Berlin:** I would argue that, yes, people still have to be held responsible for their actions, but for a slightly different reason—not because they have free will in the classic way we define free will—you could've done otherwise in the same exact situation if everything had been exactly the same—but in the sense that we have evolved the capacity to have self-control. Fully developed people are held responsible in the law. Children

aren't held responsible if they commit crimes, because they don't have a fully formed prefrontal cortex. They don't have the capacity to have self-control—same with a person with brain damage in the prefrontal cortex, or a psychiatric patient who simply doesn't have control. The brain has evolved to have self-control, so we hold people responsible for their actions to the extent that they have the capacity to have self-control, which is a slightly different thing than the classic Cartesian definition of free will—which, according to neuroscience, we don't really have.

**Paulson:** Christian, do you want to jump in here?

**Miller:** Lots to be said here [*laughter*]. I tend to side with those who believe in moral responsibility and free will as well. In the philosophical world these days, that's the majority view. Philosophers are quite well informed about this empirical research and are still holding on to both free will and moral responsibility.

**Shermer:** Really? Most philosophers believe in free will?

**Miller:** Yes . . .

**Shermer:** They can't help it—I mean, they're philosophers [*panelist and audience laughter*] . . .

**Miller:** But, there are different kinds of positions in the free will debates. There is Descartes' position—philosophers call it the libertarian position (which has nothing to do with politics, we're not going to get into that)—where ultimate responsibility rests with the agent and there are free actions that are not determined. There's another position, called *compatibilism*, which says that *determinism* and *free will* can exist side by side—hence the name *compatibilism*—they're compatible with each other. You can have determinism at the neural level, and you can have free will and moral responsibility, too. Sociologically speaking, most philosophers are okay with one or the other of those positions. Very few are willing to go down the path of hard determinism, which wipes away moral responsibility and free will altogether.

I think we have some agreement here among the three of us. The very tricky thing to know, though, is where to draw the line between the tumor case and the normal case. What is it specifically about self-control that grounds moral responsibility in a way that the tumor doesn't? After all, if this is just another set of processes going on the brain, why is it a privileged set of processes as opposed to some other set of processes that are not privileged and that take away moral responsibility? That still needs to be sorted out.

**Paulson:** Isn't the scenario we'll be facing 100 years from now—200 years from now—the fact that we're going to know a whole lot more about how the brain works, about what is generating these various impulses that we have to do either good or bad. Where is that going to lead us?

**Shermer:** The law would then make adjustments, as it has been doing all along. I'll tell you a funny story. I've been testifying in this court case on tax fraud. I know a lot about people who say we don't have to pay income tax because the 16th amendment was never properly ratified or the wording of the tax code. If you look at the tax code, it says that paying your taxes is dependent on "voluntary compliance"—that's the actual phrase that the IRS uses. Many folks who don't want to pay taxes say that, according to Webster's dictionary, *voluntary* means "I don't have to pay if I don't want to." They actually send a letter to the IRS saying, "I volunteer not to comply." You can imagine how many of these cases have been successful—zero. The state has figured out that people have choices: the state really wants you to do something and you really had better do it or the state will impose a set of punishments, from penalty and interest to jail.

This presumes that people have a degree of freedom in making choices; and yet if people are given complete freedom, they will do what they want for selfish reasons. So to get a certain type of response, often punishments have to be piled on, which is a kind of determinism. There's a balance there.

**Berlin:** The brain is taking in information all the time from the environment, and it's making calculations. Much of this is happening outside our awareness. From the perspective of behaviorism, we can take an animal, including humans, and, with some reward and punishment, can modify their behavior accordingly. Often, people will come up with a post hoc explanation about why they are doing something: "I'm stopping at that stop light because I don't want to get killed by an oncoming car." But maybe they are really stopping because they're afraid of getting a ticket. We don't always have such great insight into what's motivating our behavior. There's no little man inside our head who's consciously making all these decisions. The brain is constantly making new calculations. We're born with certain predispositions; people are more sensitive to rewards or punishments. Within those biological constraints and our innate predispositions, the brain is making calculations all the time—also based on what one is exposed to and the way the brain has developed over the course of time, and experiences as well. All of that is feeding into the picture.

Regarding the idea that there's this other *me* inside that can remove myself from all of that and make another decision that my brain wouldn't have otherwise made in the same exact circumstances, I find very difficult to justify, and the evidence doesn't suggest it. To clarify what the Cartesian definition of free will is: it says that if everything is exactly the same—that means everything in the environment and every neuron firing in your brain was firing exactly the same way—you could have done otherwise, which implies that there's something else, a ghost in the machine, that could influence our decisions.

Most neuroscientists think free will is an illusion, but I guess we differ from philosophers.

**Shermer:** Can I go back to the cat burning example?

**Paulson:** Yes—just briefly . . .

**Shermer:** Well, if we had been on this stage, say 200 to 300 years ago, that example wouldn't likely have been used. Why? Because people burned cats at one time for fun. Also bearbaiting, cockfighting, and dogfighting. Some of these things still go on. Why do most of us not do these things anymore? Two hundred years ago I doubt that people would have said, "We know cat burning is wrong." Rather, they might say, "Are you kidding me? It's great fun; I just did it last week" . . .

**Miller:** So I would say similar things about slavery.

**Shermer:** Yes, how do you know it's wrong now if you wouldn't have known it then?

**Miller:** The general story would be that we have made moral progress; I think that we would agree on that.

**Shermer:** Where did that come from?

**Miller:** That's a separate question.

**Shermer:** I'm asking it [*laughter*].

**Miller:** It could come from a variety of directions. It could come from religious discussions. It could come from realizing the consequences of what we've done and the harm that we were doing with these actions. It could come from conscience—we could speculate about a lot of different sources.

But the key idea is that just because in the past it was considered okay does not make it okay. As human beings, in some areas, we have made significant moral progress—where we now come to realize something that was done in the past is not okay. Slavery is a paradigm of that—I think animal rights is another.

**Shermer:** You use the example of divine command theory, but there's nothing about this from any holy book that I know. There have been no new revelations from on high that could explain our moral progress.

I'm arguing that it just came from the bottom up without any divine inspiration or holy book reinterpretation.

**Miller:** Do we want to make this a theological discussion? [*laughter*]

**Paulson:** I think we've already been here in this discussion.

I want to shift the discussion a bit and come back to you, Christian, asking you to put on your philosophical hat again. You work on something called the Character Project. You have talked about *virtue*, which seems like a very old-fashioned word. Do we need to bring back these concepts of virtue and character? Are these meaningful in our society today?

**Miller:** This is a big one. I think the answer is *yes*; and they have not gone away. Contrary to the assumption of your question, I think things have actually unfolded differently. Throughout much of the 20th century, character and virtue were cast aside in philosophical and scientific discussions, if not the culture at large. The reasons for that are multiple, one of which was the dominance of logical positivism, with its strong emphasis on empirical research and suspicion of ethical topics in general. Then there was a big shift, philosophically speaking, in the 1980s, with the work of Alasdair MacIntyre and others, bringing back the concepts of virtue and character into philosophical, theological, and humanities discussions. A transformative shift happened with intellectual discussions of character, to the point now where philosophers are talking about virtue and character all the time—and not just philosophers, but also academics in many other disciplines.

Moving outside of philosophy to the broader society, I see this happening quite a bit as well. Leave aside for the moment the broad category of virtue, which might sound highfalutin and overly intellectual; note that we talk all the time about whether someone is honest or dishonest, loving or not, forgiving or not, grateful or not, compassionate or not. That is familiar to us in our discourse, and it's something we seem to really care about. I want to be with someone who is trustworthy, honest, loving, and caring. When I say that, I'm talking about character. I want to be with someone who's going to be loyal to me and not betray me. I'm talking about the character traits of someone else. If I am an employer, I want to hire people with good character traits, and I want to devise a test to discern whose character traits are better than others, so I can hire the best people with respect to integrity, honesty, trustworthiness, and loyalty.

Far from jettisoning these concepts, I think we actually use them all the time, and we should continue to use them—they're, in fact, extremely valuable. They're also correlated with all kinds of other things we care about as well, including life span, health, education, and academic performance—the list goes on. I'm a big fan of character.

**Paulson:** Agreement, disagreement?

**Shermer:** What these character traits are doing is training the brain to suppress the impulses bubbling up from within, so that your *free won't* is better—or at least at some higher level. That's what we've been doing for centuries, that is, developing customs and mores by which people suppress their nastier urges—that has driven down rates of violence. Steven Pinker's great book *The Better Angels of Our Nature* discusses this. He resurrected Norbert Elias's *The Civilizing Process*—part of Elias's database includes books of customs and table manners from the Middle Ages. Basically people were gross back then. They used to stick their hands in food, taste the meat, and put it back on the platter. Why do we need to be told that? We have to learn to suppress those urges—those are virtues that can be generalized to other forms of self-control, such as violence.

**Berlin:** We're each born with different temperaments or personality traits. How does a person tend to behave across different situations and contexts? And if a person, in general, behaves in an impulsive way, we say that that's part of their personality. Personality is very difficult to change; it's usually constant throughout a lifetime; you can take a baby and look at its temperament and predict what personality traits

they'll have later on. That's why personality disorders are so hard to treat. If you label somebody who has the virtue of honesty, it's how they happen to behave across different situations.

Do other species have these traits, and what about children? What do you do if somebody is born with a certain predisposition and they can't change? Are they less virtuous? Do we look at them as lesser people? Michael had said that, through evolution, there are certain traits that are more valued, or personality characteristics that have been nurtured—and those people have survived. For example, if you're agreeable and get along, and you display signs of empathy and trustworthiness, you can get along socially in a group—you're not going to be an outcast. Back in the day, you'd be more able to survive. We've bred these traits, but I don't think we should hold people up to this virtuous standard if they weren't born with that predisposition. I find that that expectation might cause a lot of torment in certain people.

**Paulson:** I want to open the discussion to the audience in a few minutes, but I have one final question for each of you.

You've all studied morality in one way or another. I'm wondering if this has hit home for you in a personal way. Given what you've studied, has it changed anything in your own life? Michael, you just wrote a whole book about this.

**Shermer:** My view is the correct one [*audience laughter*]. I've discovered that I'm the only one I know who has free will [*more laughter*]. I guess it's made me reflect more—and probably less personal and more political, social, and ideological. I think about what direction society is going in—which direction it should be going in, and looking at those bigger issues from a bottom-up scientific perspective. I haven't really studied morality like Christian has, in terms of whether I should be honest—I've figured that one out a while ago for the most part; I think we're born with most of that. For me it's more social/political.

**Paulson:** Christian, has this hit home for you personally?

**Miller:** Yes, in several respects. I am a father of two wonderful boys who I miss a lot right now. I'm thinking a lot about moral education and character development. I take a slightly different view from Heather; I think character traits are malleable and that they can be shaped over time—there's good empirical evidence of that. Work on personality traits shows that there can be change in personality traits over time, so I'm trying to think of strategies that might cultivate good traits in my children and emulate them in myself.

Going back to the very beginning of our discussion, I have been struck by the *obstacles* to becoming a good person. There are the obvious ones—temptations that we know of in our lives, but there are also subtle factors that can derail us and keep us from being at our best in different circumstances. Being in a group—the bystander effect—can prevent me from helping someone. I didn't appreciate that until I started digging into the empirical evidence, and I'm trying to be much more cognizant of these subtle influences that can keep me from being the kind of person I aspire to be. I do aspire to be a virtuous person, an honest person, and a compassionate person, but I recognize even more so than I already had thought, that I have a long way to go; I'm certainly not anywhere close to that right now.

**Shermer:** You know your boys are tearing up your house while you're here [*laughter*] . . .

**Miller:** I hope they're asleep and not tearing up the house [*laughter*] . . .

**Paulson:** Heather?

**Berlin:** I obviously think we all have the capacity to change—within certain limits. If you take someone who happens to be a very highly anxious person and you want to help them become less anxious, you can; they can decrease their emotional reactions to their phobias, let's say, but they're never going to be the most chilled-out person ever. I think within biological constraints, you can certainly strive to be the best that you can be. What I have learned is that a lot of what's motivating me and driving me is happening

outside of consciousness. We think we have so much conscious control over everything we do, but we really don't. Given that, what can I do about this? The advice I give to people, especially people who are dealing with impulses they wish they could control—their compulsive behavior, addictions—is that the more they are in tune with their unconscious motivations and desires, and the more they can look inward and bring those to the surface, the more they will be able to structure their lives to work around their predilections and avoid negative ones. If you have a sweet tooth, just know not to put sweet things in the house—don't tempt yourself. If you're someone who tends to be unfaithful or a cheater, don't put yourself in situations where you know there's going to be temptation. It's harder to change the impulses, but what we can change is how we respond to them, to a certain extent. If you tend to like alcohol, let's say, and you know that maybe you drink too much, don't put yourself in certain situations. So while the urge to drink might still be there, you might not be able to change that, but you can perhaps change how you behave. Through science I've come to the understanding that in some sense it may be better to accept these innate impulses, and not necessarily try to change them, but to change the environment and ultimately how you behave in response to your unconscious drives.

**Paulson:** Okay, I'm willing to bet that we have a few questions or comments from the audience.

**Audience member 1:** Is it useful to try to make a distinction between a *good* person and a *nice* person? I'm referring to nice people in the workplace who are not always ethical.

**Miller:** I think it is. Here's how I see it at the abstract level as a philosopher; maybe others can make it more tangible and practical.

Aristotle is the go-to person for a discussion of character and what's good. He said that a good person performs the right actions reliably, consistently, but also from the appropriate motivation, from virtuous motivation, so that being a good person involves action that is virtuous and motivation that is virtuous. The concept of a "nice person" gives rise to questions about both action and motivation. I can imagine a nice person who does lots of wrong actions—in your example, it sounds like someone was willing to go along with some bad or wrong actions. But I can also imagine a nice person who does lots of good things but not necessarily from the best of motives—maybe does them for more self-interested, self-seeking reasons, as opposed to altruistic or more virtuous kinds of reasons. That's how I would understand a good person—someone who has character that is both virtuous in motivation and virtuous in action. A nice person doesn't necessarily have either. That's a philosopher's answer.

**Audience member 2:** I'd like to talk about the difference between natural morality and cultural morality, when they coincide, and when they conflict—particularly the example of monogamy. There's a debate in paleoanthropology about when monogamy really began. Was there shared paternity? Is it really natural? At what point does natural morality fail in a complex society?

**Shermer:** Ask your spouse (*laughter*)—seriously! You'll find out what the answer is right away. There's more polygamy than the opposite. Still, in terms of making the shift from evolutionary origins of polygamy to what's actually right or wrong, you can find out by just asking the potentially affected person how they feel about it before you do it.

**Paulson:** I think this is more of a historical question. Can we pinpoint when these urges became more cultural and our ancestors were not so driven just by that evolutionary impulse?

**Berlin:** You can look at it from a Freudian perspective—*superego* versus the *id*. The superego is the cultural mores and what you're supposed to do, and then you have your *id*, your inner natural morality that's telling you this is what you want to do. They're often at odds—but not always. The reason a lot of these cultural

morals, but not all, have come into existence was to counteract some of those more natural instincts that we have.

**Audience member 3:** It was mentioned that most neuroscientists seem to believe that the brain is really the origin of all our decisions and that free will is an illusion. I'm also a scientist, though not a neuroscientist, but I am having trouble understanding why some scientists believe that there's a contradiction between science and actually assuming that there are things that we cannot yet prove with science. For example, you mentioned that there's intention before somebody is really aware of the intention. We can measure electricity in the brain, but where is that coming from? Where is that original electrical activity coming from? What really contradicts the existence of, let's say, a higher dimension of the human being?

**Berlin:** Science can't prove a negative. Certainly we don't have all the answers, and there's much that we don't understand. There's the philosophy of the *God of the Gaps*—what we don't understand is where we place God. As science started to explain it, then God would shift over to the other part that we couldn't explain. With neuroscience, there's a whole area where people are saying it's at the quantum level—that's where free will fits in. We can't ever prove that a higher dimension doesn't exist, but there's been no evidence to show that it does, but there's always the possibility. I can never say with certainty that there is no God. I don't know. I would love there to be an afterlife and to live in eternity—I think that would be great. I would go for it [*laughter*], but I still haven't seen any evidence. As a scientist with my scientific mind on, I'm looking at what the evidence has shown so far. Anything is possible, or course.

**Shermer:** One thing I think she might be asking—with the Benjamin Libet experiment, this part of your brain says, "I'm now aware of it," and here are the motor neurons that fired three seconds before. What she's asking is, "What's below that—*turtles all the way down*, or what?" [*laughter*]

**Berlin:** This is how it works. Without getting too "neurosciencey," stimuli comes into the brain via the sense organs, and it's setting these neurons off and they're firing. At a certain point, they're all communicating with each other. With the Libet experiment, the experimenter says, "Lift up your finger whenever you feel like it, whenever you get the urge. Let me know when you get the urge." So the subject already has an idea implanted in their brain that they should at some point decide to lift up their finger. The brain is in a ready state, and then the neurons hit a tipping point and create an intention to move. The early neural activity before the intention to move becomes conscious is called the *readiness potential*. It's edging up and hits a tipping point and then makes a decision to move. Then there's a whole coordinated response that leads the action. It doesn't come completely out of nowhere—there's input. There's also internal information that's coming in, and at some point, it reaches a tipping point and it pushes you to go in one direction or another. The conscious feeling of "I'm intending that," comes just a little bit after—300 milliseconds—the brain has already started to decide to go in that direction.

**Audience member 4:** What is the purpose of morality? Is our purpose for pursuing morality subject to change?

**Shermer:** We are a social primate species. To get along, we have some rules, guidelines, and moral emotions that help you interact in a reasonably frictionless way that doesn't lead to complete collapse of the group. That's what the moral emotions are for. Now we don't *have* to continue to expand the moral sphere to include everybody. It's not inevitable. It is the direction we've been going, and this is fortunate; it's not likely to go backwards, but it could. There's nothing teleological about it—we're not endlessly going to expand until we reach perfection. But still, it's a worthy goal, and one of the things we've all grasped—back to the cat burning example—is that that wouldn't feel good if it happened to me. We've expanded our empathy circuits a bit. Empathy is not perfect, but it's a way of getting us to put our minds into somebody else's head and mind-read them. We're better at that—literature, film—all kinds of ways that trick the brain into

caring about somebody else. I call this the *Ndougou effect*, from that wonderful Jack Nicholson film *About Schmidt*, wherein he adopts the little African kid named Ndougou when he's channel surfing late one night. There's a real effect there: NGOs and nonprofits know that if you show pictures of 10,000 starving kids, you'll get X number of donation dollars. If you show one kid with a name, you'll get three or four times the number of donations, because it tricks the brain into making little Ndougou an honorary member of my family and friends that I should care about. That's what we've been doing. That's the goal—if there's a goal.

**Audience question 5:** Do animal studies have any relevance to our own sense of morality?

**Berlin:** It's really important. I was going to bring up animals, as well, because there are a lot of similarities and differences. Scientific evidence suggests that other animals have consciousness—so they have feelings. They can feel pleasure and pain. They might not have language, but you don't need language or even self-awareness to have basic subjective experiences like sensation. Once you say the cat can't feel pain, consciously, then what does it really matter if we burn it? We could start thinking about artificial intelligence—let's say we get a human, like in the recent movie *Ex Machina*. There's a humanoid person who acts and looks as if she's feeling. Is it okay to punch her in the head? It only matters if she consciously feels pain—that's where we draw the moral line. With animals, you can take the premise that animals can feel pain.

There have also been studies with monkeys, where they look at fairness. One monkey does a task, they give the experimenter a rock, and the monkey gets a cucumber. Another monkey—they can see each other—does the same task, but that monkey gets a grape, which is way better than a cucumber. The next monkey, the cucumber monkey, does his thing again—now he gets a cucumber, but he throws it back. He wants the grape. They get the concept of fairness, but can they act in more virtuous ways? No; we don't hold them responsible—same thing with children. Can they withhold an immediate pleasure to do something that's going to help somebody else—and if they can't, are they less moral? Or is it just that they don't have the capacity to do that?

**Audience member 6:** Have there been any experiments like Libet's that examine brain activity and free will when someone is making a moral decision?

**Berlin:** There have certainly been studies looking at what happens in the brain when people are making moral decisions—Joshua Greene at Princeton. He did trolley experiments with five people in a trolley; it's going on a track and it's going to crash. You can pull a lever and change its course and save the five people, but then there's some other workman on the track and you're going to kill him. What's the moral decision? Most people would pull the lever and kill the one person and save the five; however, what would someone do if there's something that's emotionally salient? Let's say you're on a footbridge and there's a big hefty guy there and you can physically push him down to stop the trolley from crashing. Again, you're still killing one person and saving the five. Most people wouldn't do that, because it's the same calculation, but there's an emotional reaction—and the experimenters are looking at what happens in the brain when people are making these kinds of moral decisions. You get ventromedial prefrontal activation, some amygdala activation, and some activation in other areas as well. This is different from free will or making a decision whether to lift a finger or not. Making a moral decision is more complex and involves more widely distributed areas of the brain. It's not like there's just one place in the brain that you can look and ask, "What's the timing of those particular neurons?" and "When do they fire?" in order understand the full complexity of moral decision making.

**Paulson:** Here's the question: Is there a free will dimension to this question?

**Berlin:** The brain is making calculations, and research has shown that if there's an emotional aspect, if you start activating emotional centers of the brain, the brain will make a different kind of rational decision—both those decisions were rationally the same—save five people, kill one—but the brain calculates it differently, depending on the input it's getting from the amygdala. The more connectivity there is between the amygdala and the prefrontal cortex, the more the emotional aspect of the decision. For example, a psychopath, who lacks emotion, will make the more rational decision in certain circumstances. They would push that one person and save the five, because they wouldn't be motivated by their emotions that can get in the way sometimes. But studies show that, in general, people tend to make better decisions when they are informed by their emotions.

**Paulson:** We could go on, but we are out of time. Thank you all for coming, and thank you to our panelists.

## Acknowledgments

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