

John Templeton Foundation  
Darwin 200: Evolution and the Ethical Brain

Gary Rosen: . . . Good evening. If you would please take your seats. We're delighted you could join us this evening for "Darwin 200: Evolution and the Ethical Brain." My name is Gary Rosen, and I'm the chief external affairs officer at the Templeton Foundation. Tonight's event is just the first of many activities that we have planned to mark and celebrate the great Darwin anniversary year. In April, we will hold a conference in Istanbul to consider how evolutionary theory can best be presented in the Islamic world, where (as in the U.S.) it is often fiercely resisted. In May, we will launch an advertorial campaign online and in print asking how well evolution explains human nature, with essays by a dozen prominent scientists. In the UK, our partners at the Darwin Correspondence Project are continuing their ambitious program of online publication, making Darwin's thousands of letters available to the world. And our friends at the Faraday Institute at Cambridge University will play a key role in the Darwin festivities that will be held there this summer. Finally, in the fall we look forward to announcing what will be one of the largest grants in the Foundation's history for a multi-year program of research on the deepest questions in evolutionary biology. Tonight's discussion is our starting point and it is an excellent entryway into Darwin's legacy. For much of the past century, Darwin's ideas were thought to illuminate only the darker side of human nature, our most violent and self-serving impulses, but over the last several generations, the best evolutionary thinking has turned in a different direction, toward more attractive and socially constructive qualities that are a no less abiding part of our evolved natures. The long story of our genetic and cultural development points, it would seem, not just to our familiar brutishness, but also to altruism and cooperation, even to a sense of justice and transcendence, but how did this happen and why and to what end? And if evolution has somehow given us this ethical potential, how might we best use and develop it? These are the questions for our distinguished panel tonight and for our moderator, David Brooks. Introducing David is a daunting task, but not for the reasons you might think. There are, of course, his many accomplishments as a writer and commentator, he is smart and funny, sharp without being cruel, principled without being preachy or polemical. He manages to pull off the neat trick of being both supremely self-assured and disarmingly modest, even self-effacing. Most impressive of all--this is rare in his line of work--you cannot always predict where David will come down on an issue. Readers sometimes have no choice but to conclude that he is actually trying to think things through. Among the Jewish grandmothers who are regular viewers of the News Hour on PBS, David is universally considered a very nice boy and he is, by consensus, the most talented of the New York Times columnists on the right and the center right and in the mushy middle. Why then is introducing David so daunting? Because he is watching us and he is taking notes. He looks at American society and sees tribes and status networks, taboos and totems. He is an amateur anthropologist, a comic sociologist, an evolutionary biologist with attitude and a press pass. David is an especially unsparing observer of people like us and like himself. He knows our peculiar folkways. He rummages through our pantries and closets and offices and finds little clues about our anxieties and mental habits. He understands the ritual and liturgy of the health club, the seminar room, the suburban backyard and the Sunday brunch table, with its recitations from sacred texts like The Week in Review and the Sunday Magazine. And he has studied us in certain crucial micro-environments. A few years ago, in fact, in reviewing a book about the world of public intellectuals, he even wrote about an event just like this, describing what he called,

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and I quote, "the serial posturing of your average panel discussion." Posturings. "These included," David went on to say and I quote again, "the flattering references of the panelists to one another's work, the pompous pose of cogitation that they adopt as they pretend to listen to each other and worst of all, perhaps, the sycophantic introductions." So, please do not feel obligated to accept my praise of David. Discount it accordingly, but be assured that in my experience, he is an adequate moderator, sometimes a fully competent one. So, let us hope for the best. David Brooks.

David Brooks: Thank you, Gary, for that introduction. The panel discussion will be somewhat shorter than the introduction. That was very fulsome and now I am going to seem very small because with you guys, I just have your bios. First, let me welcome those of you on behalf of the New York Times, welcome to the building in which we temporarily hold the mortgage. It may not last long, but we are here. I am particularly thrilled to be here, and in my line of work, I do not get to do stuff, but I get to be around famous people and the last thirty-six hours have had this whirlwind period where literally within the last thirty-six hours I have had meetings with President Obama, Gordon Brown, Ben Bernacki, a guy named Peter Orszag, who is the budget director who actually runs the government, and it has been a whirlwind period, but I am literally more thrilled to be here with these gentlemen than with those losers because as someone who covers politics, I am under the illusion that these guys actually know what they are talking about. I am also of the belief that the work they are doing, the work that Barrack Obama is doing is tremendously important, but the work that is being done now in understanding human nature is the sort of stuff that really will have an effect for decades and centuries as we get a better understanding of human nature. I have been dragged a little into this world because a couple of months ago a colleague of mine won a Nobel Prize and I did not have one and I thought I would discover how consciousness emerges from the brain and I have been at it for a couple of weeks now, and...I have been drawn into this because I was writing about why social policies kept producing disappointing results and very often the answer was that because policy makers, frankly economists, and a lot of social scientists had an inaccurate view of human nature and when you get into the world that these gentlemen inhabit, they have a much more illuminating and accurate view of human nature than what I have been trying to do in this book I have been working on is to bring a little of their world into my world. And so, we are privileged, first of all, thrilled to be with them, but privileged to have three not only esteemed scientists and researchers, but extremely eloquent writers and speakers which should cause us to distrust them. Michael Gazzaniga is a true giant in this field. He is the Professor of Psychology and Director of the Sage Center of the Study of the Mind at the University of California at Santa Barbara; he served on the President's Council on Bioethics. I believe you are working on something in the law in neuroscience and he is also the author of many extremely readable books and accessible books. The most recent of which is called Human. It is about how humans are different from animals and what makes us human. Jonathan Haidt is Associate Professor of Social Psychology at the Department of Psychology at the University of Virginia, which is a lot of psychologies, he writes voluminously about many subjects including politics and religion. His book The Happiness Hypothesis changed my life, and I highly recommend that. At the far end, Steven Quartz is an Associate Professor of Philosophy, which is worth noting, at Cal

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Tech University. He is also the Director of the Brain Mind and Science PhD program which is part of the Social Science and Computation in Neural Systems PhD program at Cal Tech. He is also author of a very accessible book, for those of us not in the field, called *Liars, Lovers and Heroes*. So, as Charlie Rose would say, it is a pleasure to have you at my table. Now, I want to start out by asking you, Michael, we are going to talk about evolution and ethics and moral decision-making, when I was in ninth grade, we had a class in my high school and it was about moral thinking and they would show us a little movie for ten minutes and it had a moral quandary and then we were taught to discuss the moral quandary in a coolly rational manner and then come up with a solution. This was the model to which we were supposed to apply all moral quandaries as we went about our life. Is this how moral decision making really works?

Michael Gazzaniga: Not mine. I think the model that modern neurosciences kind of generating is that we work at two levels. There is this automatic emotional level and then we have those responses and then we tend to think about them. We interpret those responses. I think what has happened over the last bunch of years is that we have zeroed in on a lot of those automatic reactions, what they are and many of them are governed by genetic disposition, many of them are not, they are just triggered by prior conditionings in life, but once they are isolated and discovered, then there is this sense, there is this response you have and then the question is what do you do about it? How do you think about it? Do you override it? I mean, there are lots of situations red-blooded males would like to react to and that is why you have your frontal lobes. Well, I cannot do that. I have to stop, just to be blunt about it. But then we have all of our temperamental questions, all of our sense of justice, all of our sense of all these things that we are going to get into and there is this reaction and then we try to build and understand that reaction and then to decide very actively to either accept our impulse or not. So, I would have contested that ninth grade teacher of yours.

David Brooks: Jonathan, when we see something that strikes us as morally just or unjust, how do we get that very quick reaction?

Jonathan Haidt: Well, I think it is the same as we get any aesthetic reaction, we have to look at our brains as organs that evolve to solve tasks over long period of human history and when we see anything we like or dislike, we see a person, an object, a vista, you do not sit and sort of say, "What are the things I like? What are the things I do not? Oh, yeah, that is attractive." You cannot help but make an instant judgment and this has been one of the major trends in psychology in the last twenty or thirty years is realizing that our minds are always evaluating. If I were to show you some Chinese words, you would have a positive reaction to some of the characters and a negative reaction to others. We cannot stop these reactions and I think these are the foundations of our moral judgments and our moral sense within. We are very good at coming up with reasons afterwards, but you have to see that our moral reasoning was not... Oh, no. Am I doing one of those false cogitating, looking thoughtful things? I suddenly got so self-conscious because of that. We have to see that our ability to do moral reasoning does have an evolutionary basis, but the basis is not to help us to figure out what is really right or wrong, the basis of it is to help us tell a good story so then we can win somebody over to our side.

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David Brooks: Now, you have a very famous story you tell about a brother and a sister. Could you describe that story? Because I think it illustrates this.

Jonathan Haidt: To be blunt about it, this is the occupational hazard, when I went in in graduate school and when I went into research on disgust, I knew that I would forever be known as Dr. Disgust and it would come back to haunt me, but here is the story, in my dissertation at Penn, I was actually studying that very idea that is morality based on reasoning or is it based on gut feelings? The way to do it, I thought, was to create a bunch of stories in which people... there was no harm and people could not find a victim. If you thought about it, I would say it is their right to do it, but yet something just felt wrong. So, one of the stories was about a brother, Julie and Mark, are sister and brother, they are on summer vacation from college in France. They are staying alone in a cabin near the beach. They decided it would be interesting and fun if they tried making love. They use two forms of birth control. They had fun, but they decided not to do it again. They keep that night as a special secret between them which makes them feel even closer to each other. So, I asked hundreds of people in the U.S. and Brazil through translators, upper and lower social class, what do you think about that? Is that okay? And almost everybody says, "No, it is not okay." Well, is anyone hurt? "No, but you just do not do that. It is wrong." The first thing people often say is, "Well, there would be deformities." Then you say, "No, no, they used two forms of birth control." And people do not then say, "Oh, yeah, you are right. I guess that is okay." Rather, what they do is they say, "Well, okay, wait, I know it is wrong. I just have to think why, but I know it is wrong." So, that was my introduction to what happens when you have a visceral feeling which is in many, many cases and how reasoning basically is the tail wagged by the dog.

David Brooks: Steven, you work in a philosophy department. Some of us took philosophy classes where we did a lot of thinking in a very cool and not aesthetic way. What is up with that? Is that wrong?

Steven Quartz: Well, certainly, philosophers are rightly, I think, accused of emphasizing the frontal part of the brain to the exclusion of all else, historically, although, there are certain important historical counter-examples to that. For example, much of what contemporary moral psychology emphasizes with the role of emotion is what David Hume emphasized in his theory of ethics as well. So, the debates that we find in philosophy are in a way mirrored in contemporary work and interact with each other to find insight and inspiration. So, they are both examples of extreme over-reliance on reason within philosophy to the exclusion of all else. There are more nuanced perspectives as well and I think ultimately what we will see is a reconciliation between deliberation and intuition to see where the brain uses different strategies, how those strategies are integrated, what happens when there is conflict between them... If anything, I think from philosophy, philosophers like to think of what are deep unifying principles to come up with a general theory, that we are seeing the brain really more now as essentially a value machine. Our brain is computing value at every fraction of a second. Everything that we look at, we form an implicit preference. Some of those make it into our awareness, some of them remain at the level of our unconscious, but it is the notion that

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what our brain is for, what our brain has evolved for is to find what is of value in our environment to be able to see what are things that have adaptive capacity, what are things that hinder that, allow us to make these computations very quickly and actually, I think, in part what we are finding also is that the intuitive components that we have been discussing so far are in fact actually computationally much more sophisticated than what we would have supposed. So that when we think about what is a deliberative component and what is an intuitive component that those intuitive components are sometimes even far more complex than what we think of as the deliberative component of the brain.

Jonathan Haidt: To add something onto that, in terms of the resolution of the deliberation on the intuitive aspects of thinking, I think a problem in scientific work throughout the twentieth century has been the focus on individualism. For a variety of reasons, moral and historical reasons and also methodological reasons as scientists, it is really just a lot easier to study one person like in a lab or in a scanner than to study groups, but maybe we will get to this later in the talk, but I think we have to see our intelligence as having evolved in a group context where groups solve problems much like neurons solve problems by getting together. Each neuron is really dumb, but you put them together and you get genius.

David Brooks: Not in my world.

Jonathan Haidt: Okay. Well, I guess if neurons could be at each other's throats, then maybe it does not work so well. I do not know what happened to that metaphor. I just want to make a point that human intelligence, we should be really looking at it much more in terms of how do we design systems and groups, and I think the legal system is heading the initiative on this now, but the legal system as a case where each individual agent might not be doing a very good job, but if you set it up in the right way, it will do a pretty good job overall.

David Brooks: I want to get to groups later, but just to finish off this earlier emphasis on vast processes, how do we think about...you all agree that there is a relationship between this slow more conscious and more rational process and the fast processes...how should we conceptualize the relationship to those two things? When I go to work in the New York Times bureau in Washington, my office is next to Maureen and Tom Freedman in what I call Ego Alley. And of course, my first instinct every day is to strangle Tom for his three Pulitzers, his books that have sold 800 million copies and yet I do not do it so far. Now, is my Colie rational process, is that, I think you have described it as a lawyer, which will go along with my instincts until my instincts or intuitions are totally crazy or is this process more powerful than that or some things that you have written suggest that it is even less powerful than that. It is a confabulator and it just follows along. How do we conceptualize the relationship between these two processes?

Michael Gazzaniga: It is an ongoing dynamic between the two. I mean there are different ways you might think about Tom. See me after class and I will...

David Brooks: Sorry to air my deep envy and resentment.

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Michael Gazzaniga: But, if you were put into a different mental set about someone, if you had had a prior unfortunate event that morning on the way to work, your thought about him might be wrong and your interpretation of why you are feeling different is going to be instantaneously related to the summed input at the moment that you are trying to think about whatever it is and so it is not that it is a set deal. It is not that it is a rigid cast in stone kind of thing, it is a constant dynamic and interaction between your experience, variable expression of mood states due to a vast biology that is supporting all of this in you and me, and then your interpretation of all that. That interpretation becomes your narrative which can become a theory which can feedback and influence all those systems that are being modulated. You get that kind of concept.

Steven Quartz: I just want to add that I think that, also, it is important that often times, although it is thought of as an essentially a conflict between automatic and deliberative processes that it is typically much more collaborative in the sense that we need...our attention is extremely limited, our capacity for attention is limited and if we had to pay attention to every mundane thing in our environment to operate, the tiger could sneak up behind us. And so, our brain offloads things into automatic processes when we have learned enough about daily kinds of routines and we can allow what we typically think of habit systems to let us navigate our learned environment to keep our attention free for the detection of the novel. So, they really interact at all times between each other, typically, things like signals like uncertainty, for example, when we get in an environment where the automatic processes no longer operate properly because there is some element of novelty that they are not prepared for, it tells us it is time to bring the frontal lobes on line to learn how to navigate this environment. So, although we like to think about it as being a conflict between the two, both are absolutely essential for regular adaptive cognition.

David Brooks: Let us bring Charles into this. Now, there are these structures or at least these processes that are happening very quickly that we are not consciously controlling, that means we have inherited them through some form of evolution. How has that worked? Are they handed down to us the way the capacity to learn language is handed down to us as a sort of code? Are they handed down through our emotions; you have talked about those emotional responses? How did that work?

Jonathan Haidt: When evolution wants to, not wants to, evolution does not want to do anything. The way evolution builds something into us is by making something feel good or attractive by giving us...drawing us to things or away from other things. I think if we look at, say, the design of our tongues as an example, our tongues have various kinds of taste receptors on it. Those taste receptors, it's really clear just from knowing what the five kinds of taste buds are; our ancestors ate fruit and meat. That is what it tells us. Those that were drawn more to ripe fruit and more towards meat, the glutamate receptors, those are the ones who went on to become our ancestors. And if we look at our moral sense, I think we can see the same thing. The fact that we have these incredibly passionate feelings about equity and reciprocity tells us that our ancestors engaged in all kinds of exchange and cooperation and reciprocal altruism. The fact that we have incredible passions about traitors and apostates and the general rule around the world is

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for traitors and apostates is the only possible penalty is death. I think this tell us something about the way our ancestors lived in tribal groups that worked really hard to maintain cohesion. So, if we go down the line and look at all the various moral intuitions, I think these tell us about the gradual process by which evolution favored those who had those intuitions by, either favored them as individuals or as groups, and so here we are today.

David Brooks: Could we start, Michael, could we start earlier than that? Do animals have morals? How did this come about?

Michael Gazzaniga: Well, if you put it on the emotional response scale, sure, there are some indications of some kind of what looks like moral behavior. In fact, if you take the evolutionary question and you say do animals have and then you put in whatever you are talking about, math abilities, anything, the answer is yes. They have got it. Right?

David Brooks: Credit cards?

Michael Gazzaniga: Credit cards. And the answer is yes, but it is the degree and the sophistication and the fact that you are really comparing these two things is sort of a metaphor on your own mind and not in the reality of the capacity that an animal has to compute. What the world...here is my take on it. What the human can do that no other animal can do is see pretense. They can see behind the scene. They can see the relationship when one ball hits the other and the other one move, what may be the physics behind that. They see the underlying issues that are not present. What the entire animal kingdom does is they can only see and deal with what is in front of them and that is their understanding of the world. So, once you have that chip that allows you to do that, that is going to liberate you for all kinds of thoughts, which we can get into, all kinds of thoughts that really draw out the wonder of the human mind.

David Brooks: But when an ant sacrifices itself for the group?

Jonathan Haidt: That is different.

David Brooks: What about a chimpanzee?

Steven Quartz: Well, I think, speaking of evolution system, what is deeply striking is when we think of these value systems and how the brain evaluates things, we find in humans a central structure, the ventral striatum, in the middle of our brain that is crucially involved in evaluation and it is involved in all motivated behavior, it is where every drug of addiction operates. And when we go to look and see if we share this with other species, we find it across essentially every nervous system in the biological world, has the same basic architecture evaluation and we find it in honey bees. That when a honey bee is deciding whether to land on a blue flower or a yellow flower, these systems in their brain are computing the likely, the expected reward, the variance in the reward. Exactly the kinds of computations you need for making evaluation. In fact, psychologists in bee foraging utilize Harry Markowitz's portfolio theory, that is utilized to figure out how we

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should develop our portfolio in the stock market, so it is exactly the same kind of evaluations, the same mechanisms, the same kinds of computations we would use if we are looking to figure out value or if we are a broker trying to figure out how we should structure our portfolio. It is these conserve mechanisms that really speak to a very deep centrality and universality of value systems in the brain and so the question is then how do these get reorganized to construct the kinds of moral value that we have?

David Brooks: This may be the hardest question of the night, how do you get from the broker making a value judgment to a moral system? You described value systems, but most of us would not call that morality.

Steven Quartz: It is surprisingly similar in the sense that, for example, when we are making a decision about fairness and equity, we need to compute between trade offs, say for example, what an economist would think of as the efficiency or how much good will our action do versus how would this good be distributed in the group so that we are concerned that it is fair. And it is the same kind of computation in this trade-off, and sort of its principle kind of structure, as it is in evaluating stocks. So, the question is how do you take that from one general domain of evaluation to the moral system. It is reorganized in the human brain to interact with our social systems, for example, so we begin to apply this from private individual decisions to the social component.

David Brooks: How is this information passed on? Are there genes? Is there a genetic process? How is it passed?

Jonathan Haidt: There is certainly not going to be a gene for reciprocity or a gene for anything specific like that, certainly people have not been able to find genes for specific behaviors. I think there is a big gap. There are a few big gaps where we just do not know how you get from between point A and point B and some miracle occurs and one of those is how you get from genes to the brain, but on the other hand, what we do know is that just about any trait that you could possibly measure is heritable. Identical twins reared apart, separated at birth and reared in different homes, are going to correlate in their liking for jazz and hot pepper and Republican Party and everything else. Somehow or other, something is encoded in the genes, which starts a complicated process going that leads to a brain that then finds certain things attractive. So, everything is heritable, but we have to drop our idea that somehow the genes make a blueprint and this gene corresponds to this square on the blueprint and this blueprint goes to build this part of the brain that is completely wrong. I leave it to Mike to say what is right because this is very difficult to think about. What is the answer?

Michael Gazzaniga: I was thinking that we should get out on the table there that a lot of the development going on in the field of neuroscience, neuroeconomics, moral judgments is painting a picture that there are certain aspects of moral life that seem to be built into the brain. One assumes they are being built into the brain which means they are inheritable that it is being driven by some sort of multi-gene expression. That part is easy. Just to get the audience a feel for one of these, and Steve can correct me or interrupt me or update me on this, but if you take a game that economists like to play



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called the ultimatum game and, real simply, if you take two people, any two people here in the audience and we give one of them twenty bucks. They can say one thing in this game either one, two, three, four, up to twenty and the other person can only say one thing, yes or no. So, a totally rational person knowing that the game is over, after they say one thing would take any offer from the guy with twenty bucks, right? You have at least one buck, or two bucks, or three bucks, or whatever it is. It turns out that everybody, when you try this on a normal population, they will not take one, two, three bucks, its got to get up to six, seven or eight or whatever the number is because it is just unfair. Alright? So, this is a classic observation of economists and now they have taken this into brain size. Work by economists, there are economists in Switzerland, Ernst Fehr, shows that if you stun the right frontal lobe, you just use this techniques to do that. It is like a stun gun. You turn off the right frontal lobe, that value changes, what you will accept as fair. So, the implication is there are these circuits that are just built in there and how we play with them, how we manipulate them, how we interpret them all becomes part of this experience in life, and your interpreter and all that, but the actual circuit is there. How many of our moral circuits will turn out to be of that kind, or how many of them will be genuinely learned from social process, is, of course, the great unknown. Here is the world's leader on trying to figure it out.

David Brooks: Do we understand the process for which those circuits came about?

Jonathan Haidt: I think the most important thing is to realize that each one has a separate story and any theory about morality, that morality is like grammar, morality like anything else, tends to focus on just one aspect, typically fairness or sometimes harm, so, I think, to talk about morality, the first step is it is to say there is it is not a single organ, it is not a single capacity, just as we have five different kinds of taste buds, my research suggests there are at least five different kinds of or sets of moral intuitions that we can identify, there are probably more than... certain more than five, but there are five that really stand out as the best candidates and each one has a separate story. Most of us secular, liberal folk, whom I presume are the largest group in this audience, but not all, those people tend to just focus on two of them, so it is harm and fairness, and that is what morality is. We point back to our philosopher friends who say, oh, yes, going back hundreds of years, philosophers agree, morality is about harm and fairness, rights related to ideas of fairness. If we are going to look at this from an evolutionary point of view, and Darwin was great on this, Darwin thought that morality was crucial to human evolution, but it was Victorian morality. If you read him, he is obviously a product of the Victorian age and it is about loyalty and respect and obedience and all sorts of more of the higher ethical and Victorian virtues. So, I think we have to start by realizing whatever we think we mean by morality, most people in the world actually mean a lot more.

David Brooks: But if we have gone down to our Pleistocene ancestors, were they over the course of those...that long period in the process of evolving or was these circuits of fairness, altruism, awareness, was that...do we understand it happened sometime around that.

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Jonathan Haidt: By understand meaning many people speculate and under speculation seems reasonable to many people in the field, the answer would be yes, but I think a really exciting point that we are just beginning to look at is that the Pleistocene was not everything. The Pleistocene period from 2,000,000 years ago until about 10,000 years ago and of course that was very important and during that time our ancestors lived as hunter gatherers in a very egalitarian structures and then once agriculture comes in about 10,000 years ago, you get much bigger groupings, much more hierarchy and it has generally been thought that all that had to have been just culture because evolution is so slow that evolution stopped 50,000 years ago, but actually just in the last few years it really becoming clear that evolution is this very rapid and dynamic process which is going to force us to rethink a lot of what we thought just three or four years ago, these are very new findings. So, the Pleistocene was very important, but I think that we are going to be now wrestling with the possibility that the last 10,000 years actually shaped our genes as well and some of our morality, I think, especially of ideas about purity and divinity are probably very, very new. Whereas ideas about harm and care are as old as mammals and attachment systems and reciprocity is millions of years old. I think it is a different story for each part of our moral circuitry.

David Brooks: Now when you say this rapid evolution are we talking in terms of 500 years or 5,000 years?

Jonathan Haidt: We do not know yet, but my feeling is you are going to see 500 to 1,000 years if a selection pressure is constant over that time, that is several dozen generations, and as we know from domesticating animals, in a few dozen generations you can create a new species.

Michael Gazzaniga: I would say that it is the ones that have been picked up and actually elucidated are about 400 generations and there has been an expression change in the gene that involves the metabolism of starch and it dates back to agriculture and then the groups sorted out as some with high starch diets and some without and those groups today and the people eating high starch diets have this extra repeater gene and the ones that do not do not. It did not start that way.

Jonathan Haidt: The same thing with lactose.

David Brooks: It seems like the concept of divinity would be more complicated than starch, as much as some of us are addicted to it.

Michael Gazzaniga: Well, maybe.

Steven Quartz: I was just going to say, I think it is also important to note that when we talk about circuits and circuits for morality, typically we are not talking about novel de novo circuits in the brain that, for example, the parts that we know best, although this is even so a new area, so the areas that we know in term of neurocorrelates of moral behavior, for example, we find, for example, areas like in the ultimatum game, the insula, the region involved in a wide range of very basic, but very basic and homeostatic

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functions in the brain to different types of emotional expression all the way up it is used in making predictions about risk. So, we find again and again systems that are in place that have a long involved history across a wide range of species that become remodeled or tuned to allow for a novel form of behavior. So it is not as though evolution needs to build brand new circuits every day.

Jonathan Haidt: And the insular cortex is emerging as a really interesting part from moral psychology because in other mammals that is called the gustatory cortex a part of the brain on sort of the underside which takes all sorts of projections from the nose and the tongue, I suppose. It sort of helps us, especially, pick food. So, that seems to be very active in the emotion disgust as well as a lot of other emotions but if you take this part of the brain that was already being used to sort of draw us toward certain foods and pull away in revulsion towards others, and then somewhere or other, and this is the part where you just sort of wave your hands and put a question mark, somehow or other that gets just slightly tweaked, slightly modified so that it is no longer just reacting to the physical world, but now it is reacting to patterns in the social world to various sexual things that somebody does or the way that somebody else...those people, they eat pigs, that is disgusting. We are not going to be like them. So, this is the general way to think about it as though there are these building blocks as Franz de Waaers terms, there are building blocks that many of which can be tens or hundreds of years old and then you can just slightly tweak them, slightly re-use them and you can get this radically new something like divinity emerging just in a few thousands or tens of thousands of years.

David Brooks: Now, as Gary, this is the evaluation judgment, Gary described the reputation which sometimes attaches or has attached to Darwinism that it leads to a view of nature which is pessimistic, which emphasizes competition, rather tooth and claw, which take a dark view of human nature, Wilson is famous for adopting. Steven is it your view that some of this new research gives us a different basic judgment on the certain predilections.

Steven Quartz: Absolutely and I think it goes back to thinking about the relationship between genes and traits. The early models in applying Darwinism to moral behavior thought about genes for specific traits and then began incorporating game theory into that to see how certain kinds of types could either evolve or not evolve. The very pessimistic conclusion that followed from that was that niceness seems to be weeded out by selfishness on every kind of scenario. So, it seems like altruism looks like an evolutionary dead-end that a little bit of selfish characters around and there is enough to wipe out the altruist. It seemed like this is where evolution became seen as Darwin seeming to have very pessimistic conclusions for moral behavior and I think now it is beginning to change as we are thinking let us think about this mapping between genes and traits. Let us not think about people as having a fixed trait. Let us think of them as having a repertoire of strategies that they utilize in social interactions, so, for example, some of us are conditional cooperators. We enter a social exchange willing to cooperate with other people and if someone cooperates with me then we develop a cooperative relationship. If they begin to defect and act selfishly, then I change my behavior contingent on how they operate. So, we think this is the dynamics of social interactions

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and social exchange. If we have these different kinds of flexible characters, well, then it turns out that in fact things like altruism, like cooperation become very powerful and we can actually begin to by conditionally cooperating and have sanctions to punish people who do not cooperate, we can band together and weed out the selfish among us. So, I think that, in fact, inverting that, I think Darwin actually, as we think about it, this mapping between genes and traits in a more complex kind of way, begins to vindicate the how we could find robust solutions for things like cooperation.

Jonathan Haidt: Darwin actually, I think, had a much more positive view of human nature and human morality than we now think of as Darwinians. I think, again, what happened was this focus on individualism and parsimony. The idea that let us model it as the simplest possible thing and everyone in the 1960's and '70's became obsessed with the prisoner's dilemma game and a few other games like the ultimatum game and if everybody...the problem with the free ride or the problem with taking advantage, that is going to wipe out everyone else. That is always a win strategy. Darwin considered that very directly. Darwin thought that groups are real, groups compete with other groups and within any group, sure, the free-riders are going to do better than the others, but actually if you look at human groups, he said, they care an awful lot about reputation and just look at Victorian England. Reputation, conscience, religion, he listed all these mechanisms that he thought were solutions to the free-rider problem. So, he thought that actually human nature was full of benevolence, as well, and it makes sense. You have to...if you are going to have cooperation; you have to also be punitive and vigilant. The two have to go together. Morality is really a two edge sword and we often think that morality means being nice or being fair, but it also means being nice, but also aggressive when you need to, fair and punitive and actually if we want to get into politics, that would be the lead in because I think the distribution of all of these lead-ins and various intuitions is not symmetrical across the parties.

Steven Quartz: Well, said. What is deeply surprising about that is people's willingness, what is called altruistic punishment that people are willing to incur cost to punish people who violate social norms which is completely contrary to the classical view of these kinds of games. So, again, we are built...which likely rides upon the top of the emotional systems as well. We are built to construct cooperation, to punish people who violate our social norms and again, it goes back to reputational effects. We reinforce social norms also because of the reputational effect it has for us. It helps us gain rank or status within our group. It is a mechanism that is in there via these evolved systems that enforce and allow us to construct cooperation.

David Brooks: Now, you are still describing being good, being altruistic as part of a strategy and a survival strategy, is there nothing else beyond self-interested, ultimately self-interested strategy to pass down genes?

Michael Gazzaniga: Well, first off, there is a sort of selfish gene interpretation of everything that has been said. If you work up through the fact that there is reciprocity, there is the value of taking not only care of your kin because of an expression of genes, but also people you do not know because of the possibility that they can help you in a

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social situation. All of these are sort of, I think we should categorize this as a sort of raging debate in evolutionary biology and psychology and a fascinating one and I certainly do not know what is the answer. It is important to know that we have evolved cheater detectors in order to not let the free-riders go on and so forth and so on. There is a whole storyline to that.

David Brooks: There are these somewhat controversial things called neurons which talk about the way that we replicate each other.

Michael Gazzaniga: They are not controversial, the people who talk about them are.

David Brooks: Okay. Okay. Thanks for being precise. Now, why cannot...maybe we are just altruistic and we love other people because it feels good and we have no strategy, we just like it.

Steven Quartz: I think it is important also to say it is an approximal mechanism which is a motivation. We certain need to act in a psychologically selfish way to have these systems operate. So, there is a difference between when we are being specifically selfish versus a system that may bias our behavior in one way or the other. And also, it seems to me that it is so important to think about...I just forgot my thought. Go ahead. You wanted to jump in.

Jonathan Haidt: Okay. We will put a little place holder there. So, in thinking about what else is there besides wanting to pass on our genes. I think a really helpful concept is the idea of a major transition in evolutionary history and the beginning of life, there were just little bits of DNA and when they got together and formed chromosomes that could replicate one for all and all for one, suddenly bacteria spread as viable life form. When various bacteria got together and incorporated each other and carried out its cells that was a very effective form. So, throughout evolutionary history, you get the growth of life in terms of solving free-rider problems at one level, you get cooperation at the next higher level and you get this explosion of life. If we follow that out, there have been six or seven major transitions that have been identified. If we go all the way out to a couple of million years ago, I would say the answer to your question is yes, all life on Earth can be explained by the struggle to pass on your genes even though the agents are not aware of it. I think that something happened in the major transition around agriculture which qualifies as a major transition. Group size gets much, much higher. Our symbolic life gets much, much richer. We are able to solve free-rider problems. Look at an event like this, sort of a game I sometimes play if I am bored sitting some place, I look around and I just think how many millions of people it took to create the space I am in. How many millions of people had to come together just to create this water bottle and get it here and get the electricity to us and get us all together and everybody worked quite cooperatively. How did this happen? No other species can do anything like that. Leaf cutter ants can come close, but other than them, we are the masters of it. So, I think that just taking a straight Darwinian perspective, you have got to say that for everybody else, every other species on Earth, yes, it is just what you said, but something new changed, something new happened when we became much more symbolic species, much more focused on our

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groups and able to enjoy being part of a group, helping the group, being a good group member. So, even though you want to strangle Tom Freedman, some part of you probably likes being a part of the New York Times staff and some part of your brain says no, he is part of my in group.

David Brooks: That is truly an unconscious process.

Steven Quartz: I was just going to add that the point that I was going to make was also that we need to think about how permissive these mechanisms are, if there is a cost to making them permissive or not. So, for example, look at attachment mechanisms, we have attachment mechanisms that allow us to care for our young. How strictly do those keep us in line? Well, think about pets. We also have pets with the same kinds of systems, for an evolutionary biologist, I think of a pet as an evolutionary parasite in the sense that your pet is mimicking or we have bred them to mimic features of our children. We will die for our pets and frequently many people do. People run into a burning building to save their pet. Is that a selfish act? Is that an act in the direct line of an evolutionary mandate? No. It is a mechanism, a general mechanism that is in the brain that has all these permissive side effects that allow all sorts of behavior that have nothing to do with direct reproductive advantage that create a multitude of our activities. So, the reductive path from behavior to direct reproductive advantage does not have to be there at all.

David Brooks: We just have seven minutes until we open the floor for questions, but I wanted to play around with a few contemporary events and one is financial panic. Do our brains evolve well enough to handle hedge funds? Are there certain systems in which we are led astray by certain of these things that you gentlemen have been talking about where we just react badly because of certain patterns we are ill adapted to?

Jonathan Haidt: There is a wonderful idea from, I am not sure who it is originally from, but Paul Bloom, Developmental Psychologist from Yale, that our minds were really good at doing two sorts of things. We have a special computer up there that really is really good at helping us track objects moving through space, so any sort of three dimensional problem, running through the woods or fixing cars, or whatever, we can understand things moving through space. We are really, really good at understanding people or agents with intentions, moving through social space with their goals and their receptive tactics and all of that. So, it is basically like we were evolved to read Popular Mechanics and People magazine. Anything that falls into those two domains, we are really, really good at, but there are some things that do not fall into those two domains. In fact, there is no metaphor for them and there is really nothing that helps us think about them and I think three of those are evolution, the brain and society. That is why we need social scientists and especially sociologists, they sort of go into this sort of hyper-drive where they can think about things that do not really seem to exist to the rest of us. So, I think there are levels of complexity and I think that economic system is one where no normal person can think about this and when we try, what we do is we usually fall back on one or the other. So, there is an economic problem, prices are going up. Well, let us use our mechanical computer. Prices are going up, let us push them down. Okay, that makes

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sense, but it is a very bad idea. Or there is an economic collapse and a lot of people lied on their mortgages to get mortgages. The social computer with all its moral stuff says they tricked us, they lied, punish them. Okay, that while there is something to be said for it, and again, you need punishment in a system, doing that couple bankrupt and destroy the economic system of the world. So, I think that we are at a level of complexity as this incredible boom of complexity and growth happened in the last 10,000 years and it is just a parabolic curve or hyperbolic or whatever it is. Yes, we are not tackling problems that our brains did not evolve to solve, are not good at solving and do not make sense.

Michael Gazzaniga: I had the Darvos experience this year and so people show up in this beautiful town to try to figure out the financial markets and I can tell you the answer. They do not have any idea what is going on. One of the things that struck me is that there has been this push that we have all been part of for globalization and the world interacts and we are all one big system and all the talk, we are all into it. We all have completely bought into it and yet the lesson that came out of there is that it is all collapsing in unison. It is not just the United States that is in trouble. It is not just the UK is in trouble. Everywhere is in trouble. Why? Because we are all connected. So, there was an emerging thought that maybe we have to go local. That is just anathema to the way we are now situated in the world and I think that dilemma will be with us for a few years that this wonderfully integrated system, you make one mistake...I will shut up here in a minute. There was a wonderful You Tube video of Bernie Madoff, remember him, and it was taken a year before his demise. He had sitting beside him one of these quant guys from his company and it was this really bright kid with the spiked hair and all that stuff. He sat there and gave a lucid description of what would happen. He said, "We quant guys, we are all over the financial world now. We all look at the same data. All of us are looking at the same data and we all have the same algorithms about what to do when the data does something. So, when it says sell, there is nobody out there buying. The drop is going to be specific. Right?" So, you come away with wait, people are still buying. The stock market is not zero. You say maybe that is the diversity of opinion of, and maybe it is due to local decisions and local decisions will become a strength, so anyway all these things are mixed in there.

David Brooks: Now, I ask people, if people want to ask questions, I think we have microphones on either aisle. There is one of them and there is the other. Please come up there. While people are...some of us who are following this read about neuro-economists who say that when you are riding, say, a gambler is riding a winning streak, levels of dopamine rise in the brain which cause you to misprice risk. Should we take that sort of stuff seriously? Is that plausible for an explanation for bad bets?

Steven Quartz: Here is an example, we all know when we are, let us say, at the roulette wheel that each round is independent. The probability on one trial has nothing to do with probability on the next, when we have CalTech undergraduates who, as quantitatively minded as possible, perform in the lab experiments in economics; they violate this principle of independence. When we tell them that the odds are being generated by a Geiger counter hooked up to a subatomic particle, and we know they have all taken quantum mechanics, understand that this is intrinsically a sarcastic process. They violate

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it. Why is that the case? It is in part because our brain evolved in an environment where events were correlated with each other, where we do not find that kind of independence. We cannot seem to shake ourselves out of perceiving the world through these kinds of regularities. We see regularities where there are not any. We see reasons for things where there are not anything. It is just that we cannot help but do this to impose structure on the world and so we have these environments now where we just systematically misrepresent them and misperceive them do to these intrinsic kinds of biases.

David Brooks: So we can all leave here as better people, is there something that we can do to correct this mistake?

Steven Quartz: Well, we can...in part; we can recognize the limitations or the way that our way perceives the world and use this to the extent that we can as a meta-cognitive strategy. We can build better decision heuristics where we...part of the help of neuro-economics and behavioral economics is to understand better the limitations of our capacity for deliberation and decision-making and build better heuristics to hopefully improve our decisions.

David Brooks: We are going to go to questions. I just want to...I just feel compelled to emphasize that Tom's superior success has actually not harmed our friendship. I was just kidding about that.

Woman 1: Kind of reconciling the deliberative and the intuitive into visceral and cognitive and I am not sure how much this would tie in with just methodological issues of studying individuals instead of groups, but to what extent do you think that embarrassment and fear of embarrassment are a link between our more autonomic visceral responses and the higher order cognitive regulation of behavior?

Jonathan Haidt: I think embarrassment, I think of it as the gravity of the social world and it is the thing that keeps us...if you think of all the things you could do in any given moment, almost all of the would be weird and embarrassing and you would not do them. And one of them is strangling one of your colleagues; it would be rather embarrassing really. So, I do think that embarrassment and social emotions are ways of bringing emotions to bear on every decision we make because if you just sort of left it up to the rational mind to make every decision with no input from the emotions, what you get is not Spock. What you get is Antonio DaMasio's patients. DaMasio wrote Descartes' Error and other widely read books. You get people who really cannot do anything because they have no reason to go one way or the other. So, I do think those visceral emotions turn out to be absolutely critical to our rationale.

Woman 1: Sorry, but in terms of how those are developed. It is not entirely clear to me whether those can be selected or how are those inherited that we have this kind of same...that we all know that it is weird to do X in this situation when there are a million possibilities?



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Steven Quartz: I think part of it is the cost of...one of the things in thinking of evolution and what kind of mechanisms for motivation, is we are deeply motivated by reputation, we are deeply motivated to seek esteem and we deeply fear dis-esteem. So, people would rather wrestle a lion than give a speech. It is...when you ask undergraduates what is the worst possible thing that could happen to you, it would be get up and give a public speech. In part it is because it is an opportunity for being embarrassed in front of a large group and you can vary the size of the audience and you can see exactly proportional embarrassment. These are deeply adaptive mechanisms that are, as Jon was saying, are built into very basic emotional responses to help allow us to see what kind of environments are adaptive and what are not.

Woman 1: Thank you.

Man 1: I am wondering what each of you sees as the major other issues that remain to be solved or addressed in your respective fields? Professor Haidt you mentioned the need for sociologists for the kinds of problems or questions or areas that you think remain to be examined.

Jonathan Haidt: I would turn this over to Mike because he is the big thinker with the view of all the sciences who just wrote a book called Human. I listed my three. Mike, what do you think?

Michael Gazzaniga: Understanding the moment of personal conscious experience, we do not have a clue as to what that is. Everybody in this room by virtue of the fact you are here and experiencing what we are experiencing is in some sense a dualist. You are looking at all the sub-elements here and you are throwing it into a conscious experience and flipping immediately into that conscious state, what is that? What is that process? What is that? We are so far from understanding something like that and we are not a lot closer to understanding how you see a triangle either by the way. These things are so complex that when you hear the successes in brain science, we are all excited about what we can bring in. Five years ago, I do not think there were more than five experiments on the social processes of the human. Now, through brain imaging techniques, you cannot keep up with it, almost. It is so fast and so wonderful. Having said that, though, you do not want to oversell it. We are just getting our hands on the ladder here and it is exciting, but, I think, still limited.

Steven Quartz: Yes, to speak to that, we still do not know how a neuron works. Sometimes we say a neuron is simple or whatever, but, in fact, a neuron is an extraordinary complicated cell. We do not understand how it integrates information. We do not understand really how it represents information or what kind of code it utilizes and we certainly do not understand how you put a billion together to generate complex behavior and thought. So, one of the real challenges is the gap between imaging provides an opportunity to look non-invasively on the human brain and it provides sort of an insight, but we still, the gap between understanding brain activation at the level of imaging and how individual neurons in unison give rise to that, what are the computations involved in that, what are the ways in which information is represented,

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how does it compute that information, what are the algorithms, what are the processes that give rise to that? It is still completely unknown.

Jonathan Haidt: I just thought of one for you. Is religion a feature or a bug? Dawkins and all the new atheists think it is a bug if it is not a selective form of evolution, but I side with David Slide Wilson and others in thinking that it shows a lot of signs of an adaptation that our minds seem to appreciate and believe in gods, but that is one that if I think we ever do reach resolution on that, will have profound implications for thinking about morality.

Michael Gazzaniga: Let me pick up on that because I think Jon is closer to the truth. So, 40,000 years ago, we know for sure that people started doing burials. Okay? There is some evidence that it goes back 400,000 years. So, anyway, there has been this respect for the dead that there is a clear history of. Now, what is that? How come people began to think that somehow if you showed respect for the dead it must be because you think something else is going to influence your present? I have had a death in my family recently that got me thinking about this. You really realize...this will take two minutes, I heard a talk by a mortician. He had been a mortician for forty years and he had a recurrent refrain during his talk, the dead do not care. Can you imagine being a mortician, coming through? So, you have this thing that the dead do not care. You realize that everybody has had a loss and so forth that you...it is very active in your mind that Uncle Joe there is very, very much a part of your mind, and when you think about it, Uncle Joe and your knowledge of Uncle Joe actually does not depend on whether he is alive or dead. It is all a theory going on about him in your mind. Where did that come from? Well, as soon as we became social, as soon as we had to understand the intentions of the other animals next to us, which were humans, as soon as you have a theory of anybody else, you realize you are building a theory of Uncle Joe. That is what is going on. So, when the actual death occurs it is very active in your mind and it is very stressing. So, if someone says, "So and so suffered during their death." You say, "No, no the dead do not care." It has nothing to do with the dead. It has to do with your own theory and that theory is just the same as when the guy is actually dead versus when they are alive. Well, it seems to me if that is true, and I think it is inescapable, it is a teeny step to believe that there has to be something else. There is a bias to thinking it. It comes with the fact that you have to understand the intentions of others being a social animal. It just comes along and you cannot get rid of it.

David Brooks: I recommend a book called *I Am a Strange Loop* by David Hofstadter which talks about a lot of the issues we have been talking about in the context of the death of his wife at a very early age. He includes some of the diaries he wrote just after his death in the context of all these ideas. It is a fantastic book. I am afraid it violates my journalistic ethics but I am going to cut off the follow-up question because we are running out of time.

Man 2: You have talked a great deal about the moral relevance of emotional issues or the other way around the emotional relevance of moral issues. What about emotional removal from moral issues like seeing a homeless person on the street or knowing about

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AIDS in Africa? How does that really fit in? Is it a function of, I guess, conceptual modeling of morality or is exclusion part of our social development? Address that, please.

Jonathan Haidt: I would start by saying, especially if you are politically liberal; you tend to think that morality is about caring about everyone, especially those who are suffering the most. I think that the way our minds were shaped, we care overwhelmingly about our children and our kin and it gradually declines beyond that. I think you have to look at the degree to which people ever care about starving children in other countries, the homeless people. That is the anomaly that has to be explained and so I would start from that and say it does not take much to deaden you against frequent appeals, especially when they are frequent. Most of us have lived in cities where homeless people were very, very common. The way that we adapt to our social environment is often completely disconnected from our values. So, liberals who care a lot about helping suffering people will end up treating homeless people very callously, perhaps.

Michael Gazzaniga: There is also a body of work coming out of Princeton, Susan Fitz's lab, which shows people in a brain scanning environment, shows them faces with people have various emotions and the person seeing these and that is captured in what part of their brain lights up and the system makes a differentiation. But if you then show them a picture of a drug addict or someone down on their luck under the bridge and all that kind of thing, they have no emotional response at all. It is like showing them a picture of a carrot or something like that. There is perhaps a deadening to having the normal sort of concern about the person due to associated cues learned over the course of the culture. It is quite a striking phenomenon that she is detecting.

Woman 2: Taking up on that, I think that former President Lincoln was born on the same day as Darwin. Is not that correct? So, what I want to ask, and I know Tara Eagleton says, that if you ask a question it is because you have some idea of an answer, I want to bring to the fore your comment about that plastic bottle of water and that was the result of a cooperative effort. My question to the panelists is, fundamentally, is not capitalism immoral?

Jonathan Haidt: From my definition of morality as a way of suppressing certain kinds of selfishness to allow cooperation to emerge, I think I would have to say mostly no in that capitalism has made it possible for vast astronomically large and complex cooperatives to exist. So, it depends on your definition of morality. If your definition of morality is that you do not do things for your own interest, but you do them for others, then yes, I would have to say that capitalism is immoral. But if you take a definition of a sort that I advocate, then I would say no it is not.

Man 3: First of all, David, I would like to thank you for your rationality on the News Hour. You are the first person since William F. Buckley, from the right, whom I can tolerate.

David Brooks: On behalf of all my conservative friends, thank you.

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Man 3: I do not know if you heard this or not, I do not know if you would consider this a compliment, but Tom Delay said you are not really a conservative.

David Brooks: I cannot imagine a better person to hear that from.

Man 3: But for the panel, I have this view of what morality is and I would be interested in your response to it. I see evolution as this movement from single cell to multi-cell organisms. As the multi-cell organism develops, there has to be a system by which these cells can benefit each other and in order for the various components of the organism to survive, they have to not inhibit the behavior of the others. I would think that social beings represent a form of an organism. So, in a sense, just the same any individual organism is a collection of individual cells that have to survive on their own, so too a social group is a collection of organisms who are dependent...their survival is dependent upon the survival of the group as a whole. So, I know there are some speakers, some people, I do not know if it was Dawkins, but a few of the early theorists in evolution suggested that the behavior is always for the individual and I think that is incorrect. I think that if you have a social group, the behaviors of the group are dependent...the survival of the group is dependent upon the behaviors of the individual components and consequently, there would be a selection for those traits which facilitate the survival of the group. Essentially, the groups are in competition, the groups are competing; you have this realistic conflict for resources. So, those groups which help each other, who have components which contribute to the cohesive survival of the group in competition with the other groups, those groups are going to be conserved in the same way that the individual genetic...

Jonathan Haidt: That is what Darwin said.

Man 3: circuitry which provided other characteristics and traits are conserved because they are successful. So, although, it is not...I want to know

Man 4: God bless you.

Man 3: Do you have a better question or can I finish?

David Brooks: He came to the so...

Man 3: So, if you see morality, although it is not a real...it does not have the high, we like to think in terms of spirituality and so on, but the reality is these behaviors of fairness and not taking things away from other people, are really part of some essential circuitry required for the group to succeed. So, what we put into law, do not you think that it is like the immune system in a body?

David Brooks: I do think we have it.

Steven Quartz: Do you want to speak to that?

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Jonathan Haidt: Yes, I do.

Man 3: Do you have time?

Jonathan Haidt: There is a new book out by Edwin R. Wilson that is called *The Super Organism* and the idea that groups can come together with that kind of tightness like the immune system that they become functionally an emergent entity is one that is widely accepted in the study of social insects. Now social theorists and evolutionary theorists got into a lot of trouble over extending that in the early nineteenth century to the point where, "Oh, evolution cares about the good of the group and the good of the species and the good of the planet." And that is not true. It does not care about the good of the species or the good of the planet. So, the reason that we had this move to the low level parsimonious selfish gene model was to sweep away all the loose thinking about humanity as a group. You have to...while I completely agree with you and that is what I am trying to push in the study of morality is that multi-level selection including group level selection probably happened for human beings. That is my view, but you have to be really careful in doing it because it is so easy to make mistakes and get sort of overly optimistic about humanity.

David Brooks: Can I just ask why it does not care about the health of the planet?

Jonathan Haidt: Well, if our planet was competing with other planets and there was some selection mechanism by which only the most cooperative planet survived, then it would care.

David Brooks: Maybe that happened.

Man 4: I have one suggestion and two very brief questions. I will try to make them brief. The suggestion is that some of the research that you do, Professor Haidt, and a lot of other people do in psychology relies completely on utilitarian theories and ignores the etiological theories. So, if the utilitarian concerns are abated then there are no moral issues, but there are moral issues when the etiological concerns and a good part of philosophy is the etilogically based. The two questions are as I understand science is to explain variability, variability across time, variability across people, variability across cultures, how does the kind of theory that you are advocating explain any kind of variability since essentially it says we have all inherited this? Particularly I am referring to, and I know the answer when it comes to cultures, but the answers when it comes to individual difference between somebody like Mahatma Gandhi and somebody like Adolph Eichmann. How do you explain that? The second question is, if morality is fundamentally nonrational then are meetings like this useless?

Jonathan Haidt: Okay. Sure. I will take the first one first because I need something witty for the second. Let me work on that. On the first one, again, it is hard for us to think about these things because there is no metaphor and our minds are not good at it. You have to keep it mind these sort of three different dynamic processes of construction. One

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is evolution. You have changes over time in the genome. Then you have culture evolution, changes in time over the pool of means and norms and everything else. Then you have changes over time from childhood to adulthood. Our brains have a first draft, our brains are not \_\_\_\_\_ (1:15:42). They expect and require a lot of stimulation and information and engagement with the environment. So you have complex dynamical system within complex dynamical system within complex dynamical system and boy do you get a lot of variation that way. So, I think that anybody who thinks that if it is variable, then it cannot be innate. That is just not true. Nobody...that is not the right way to think now because now that we understand more that the genome is not a blueprint and there is a lot of variation across people, you have to put them together. The genes vary and the personality varies. I have not come up with anything witty on the second one except to say that even if...my view is that we do not persuade each other by giving each other logical arguments. We persuade each other by giving people experiences of trueness, that feels right, that sounds right. It is a gradual process of tuning up. So, in conversation, and this is what is so great about watching the News Hour...Oh, no. Was that a sycophantic comment about the...geez.

David Brooks: It is working.

Jonathan Haidt: In conversation, especially civil conversation, this is an issue that I am really getting passionate about, if you turn into Fox News and just watch people yell at each other, there is no point to that. It has actually been shown to be destructive to democracy and respect. If you see people who seem to respect each other and realize there are a lot of ways to look at this and here is why I think this. That actually does elevate us all; gradually tune up our neural networks without having to rely on conscious reasoning directly.

Man 4: I would like to add one thing, it was a comment by Gilbert Gottlieb, the developmental biologist, the best thing I ever heard on things in a psychological context is, he said, "Genes makes proteins. They do not make behaviors."

David Brooks: We have about ten more minutes.

Michael Gazzaniga: Just to add to that. So, in studies that assess people's moral judgment making across all cultures and all ages and all religions, can find questions, it finds basically responding one way or another. Getting what looks like tapping into a universal moral response to a dilemma. Those studies have been done. You go and ask each person "Why did you do that?" They all have different stories and interpretations because this thing I call interpreters in the brain drawing on their own life experience, their own culture to give a reason as to why they did that, but if you actually just looked at the behavior, everyone in the world is behaving the same way. They just have a different theory about it. So, there you go.

Man 5: Thank you for taking my question. Paul Degrees with New York Divinity School. Let me state the question and then briefly explain it. Are not we talking about different kinds of narratives here? Twenty-five years ago, I introduced the concept of

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methodological naturalism so that people with intense belief in God, participate in biology and chemistry and so forth because we choose to look at a naturalistic world, for a period of time in the lab or in our research and look for natural causes as a matter of method, but step back as Sir Isaac Newton did, to see the bigger picture that all this is part of God's handiwork at the same time. So we are hearing tonight the story about DNA connecting to make chromosomes, connecting to make bacteria, so forth and at some point very complex societies and yet is not there another story that says yes all of that is happening and there is someone, perhaps an intelligent designer, connecting these dots and making these things happen. In a similar way...

David Brooks: We have really got to rush.

Man 5: Okay. So, what I am saying is some of these stories are wonderful stories, but to borrow a phrase from Al Gore, is our convenient untruths, if you see the bigger picture, that there is meaning and we do not like to see individual events disconnected as we were talking about before because we are part of a narrative, a bigger narrative of the Divine Creator?

Michael Gazzaniga: I am happy if you are happy.

Jonathan Haidt: I would just add that because evolution is something that we cannot really understand with either of our two brains up there, we try to explain it using the social brain and two ways to do that is to say well, if there is design then there must be a designer. There must be a person who had goals and intentions and another way is to say there are selfish genes. So, I think the way...personally, I think creationism is a product of this personal, the social computer.

Man 5: Is not this a choice of narratives here?

Jonathan Haidt: Yes.

Man 6: It seems that just because a set of moral beliefs has evolved it does not mean that they are necessarily true. So, I am getting the sense from the panel that we should not be worried about moral relativism although I think we should be worried because we need some way as a society, as a group of people, to adjudicate various moral claims otherwise where are we all going to be going in the future? I do not see any of the panel, maybe I am mistaken, giving us a pathway to go or a way to handle these issues.

Steven Quartz: A basic difference between what we try to do in the lab with understanding at the descriptive level how people make moral decisions versus how we ought to make decisions.