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Column: Why you don't really have free will

By Jerry A. Coyne

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Perhaps you've chosen to read this essay after scanning other articles on this website. Or, if you're in a hotel, maybe you've decided what to order for breakfast, or what clothes you'll wear today.

You haven't. You may *feel* like you've made choices, but in reality your decision to read this piece, and whether to have eggs or pancakes, was determined long before you were aware of it — perhaps even before you woke up today. And your "will" had no part in that decision. So it is with all of our other choices: not one of them results from a free and conscious decision on our part. There is no freedom of choice, no free will. And those [New Year's](#) resolutions you made? You had no choice about making them, and you'll have no choice about whether you keep them.

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The debate about free will, long the purview of philosophers alone, has been given new life by scientists, especially neuroscientists studying how the brain works. And what they're finding supports the idea that free will is a complete illusion.

The issue of whether we have of free will is not an arcane academic debate about philosophy, but a critical question whose answer affects us in many ways: how we assign moral responsibility, how we punish criminals, how we feel about our religion, and, most important, how we see ourselves — as autonomous or automatons.

What is free will?

But before I explain this, let me define what I mean by "free will." I mean it simply as the way most people think of it: When faced with two or more alternatives, it's your ability to freely and consciously choose one, either on the spot or after some deliberation. A practical test of free will would be this: If you were put in the same position twice — if the tape of your life could be rewound to the exact moment when you made a decision, with every circumstance leading up to that moment the same and all the molecules in the universe aligned in the same way — *you could have chosen differently.*

Now there's no way to rewind the tape of our lives to see if we can really make different choices in completely identical circumstances. But two lines of evidence suggest that such free will is an illusion.

The first is simple: we are biological creatures, collections of molecules that must obey the laws of physics. All the success of science rests on the regularity of those laws, which determine the behavior of every molecule in the universe. Those molecules, of course, also make up your brain — the organ that does the "choosing." And the neurons and

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molecules in your brain are the product of both your genes and your environment, an environment including the other people we deal with. Memories, for example, are nothing more than structural and chemical changes in your brain cells. Everything that you think, say, or do, must come down to molecules and physics.

True "free will," then, would require us to somehow step outside of our brain's structure and modify how it works. Science hasn't shown any way we can do this because "we" are simply constructs of our brain. We can't impose a nebulous "will" on the inputs to our brain that can affect its output of decisions and actions, any more than a programmed computer can somehow reach inside itself and change its program.

'Meat computers'

And that's what neurobiology is telling us: Our brains are simply meat computers that, like real computers, are programmed by our genes and experiences to convert an

array of inputs into a predetermined output. Recent experiments involving brain scans show that when a subject "decides" to push a button on the left or right side of a computer, the choice can be predicted by brain activity at least *seven seconds* before the subject is consciously aware of having made it. (These studies use crude imaging techniques based on blood flow, and I suspect that future understanding of the brain will allow us to predict many of our decisions far earlier than seven seconds in advance.) "Decisions" made like that aren't conscious ones. And if our choices are unconscious, with some determined well before the moment we think we've made them, then we don't have free will in any meaningful sense.

Psychologists and neuroscientists are also showing that the experience of will itself could be an illusion that evolution has given us to connect our thoughts, which stem from unconscious processes, and our actions, which also stem from unconscious process. We think this because our sense of "willing" an act can be changed, created, or even eliminated through brain stimulation, mental illness, or psychological experiments. The ineluctable scientific conclusion is that although we *feel* that we're characters in the play of our lives, rewriting our parts as we go along, in reality we're puppets performing scripted parts written by the laws of physics.

Most people find that idea intolerable, so powerful is our illusion that we really do make choices. But then where do these illusions of both will and "free" will come from? We're not sure. I suspect that they're the products of natural selection, perhaps because our ancestors wouldn't thrive in small, harmonious groups — the conditions under which we evolved — if they didn't feel responsible for their actions. Sociological studies show that if people's belief in free will is undermined, they perform fewer prosocial behaviors and more antisocial behaviors.

Many scientists and philosophers now accept that our actions and thoughts are indeed determined by physical laws, and in that sense we don't really choose freely, but philosophers have concocted ingenious rationalizations for why we nevertheless have free will of a sort. It's all based on redefining "free will" to mean something else. Some philosophers claim that if we can change our actions in response to reason, then we've shown free will. But of course the words and deeds of other people are simply environmental influences that can affect our brain molecules. That's how love begins.

Other philosophers argue that while we may not be able to choose our actions, we can choose to *veto* our actions — in other words, we don't have free will but do have "free won't." But from the standpoint of physics, instigating an action is no different from vetoing one, and in fact involves the same regions of the brain.

Finally, some argue that we have free will if our actions are consistent with our

personalities and past behaviors. But that says nothing about whether we "choose" our actions; only that our genetic and environmental makeup affects our actions in a consistent way. As Sam Harris noted in his book *Free Will*, all the attempts to harmonize the determinism of physics with a freedom of choice down to the claim that "a puppet is free so long as he loves his strings."

If not, then what?

So if we don't have free will, what can we do? One possibility is to give in to a despairing nihilism and just stop doing *anything*. But that's impossible, for our feeling of personal agency is so overwhelming that we have no choice but to pretend that we *do* choose, and get on with our lives. After all, everyone deals with the unpalatable fact of our mortality, and usually do so by ignoring it rather than ruminating obsessively about it.

But there are two important ways that we must face the absence of free will. One is in religion. Many faiths make claims that depend on free choice: [Evangelical Christians](#), for instance, believe that those who don't freely choose Jesus as their savior will go to hell. If we have no free choice, then such religious tenets — and the existence of a disembodied "soul" — are undermined, and any post-mortem fates of the faithful are determined, Calvinistically, by circumstances over which they have no control.

But the most important issue is that of moral responsibility. If we can't really choose how we behave, how can we judge people as moral or immoral? Why punish criminals or reward do-gooders? Why hold *anyone* responsible for their actions if those actions aren't freely chosen?

We should recognize that we already make some allowances for this problem by treating criminals differently if we think their crimes resulted from a reduction in their "choice" by factors like mental illness, diminished capacity, or brain tumors that cause aggression. But in truth those people don't differ in responsibility from the "regular" criminal who shoots someone in a drug war; it's just that the physical events behind their actions are less obvious.

But we should continue to mete out punishments because those are environmental factors that can influence the brains of not only the criminal himself, but of other people as well. Seeing someone put in jail, or being put in jail yourself, can change you in a way that makes it less likely you'll behave badly in the future. Even without free will then, we can still use punishment to deter bad behavior, protect society from criminals, and figure out better ways to rehabilitate them. What is *not* justified is revenge or retribution — the idea of punishing criminals for making the "wrong choice." And we should continue to reward good behavior, for that changes brains in a way that promotes more good behavior.

There's not much downside to abandoning the notion of free will. It's impossible, anyway, to act as though we don't have it: you'll pretend to choose your New Year's resolutions, and the laws of physics will determine whether you keep them. And there are two upsides. The first is realizing the great wonder and mystery of our evolved brains, and contemplating the notion that things like consciousness, free choice, and even the idea of "me" are but convincing illusions fashioned by natural selection. Further, by losing free will we gain empathy, for we realize that in the end all of us, whether Bernie Madoffs or Nelson Mandelas, are victims of circumstance — of the genes we're bequeathed and the environments we encounter. With that under our belts, we can go about building a kinder world.

Jerry A. Coyne is a professor in the Department of Ecology and Evolution at The University of Chicago. His latest book is [Why Evolution is True](#), and his website is www.whyevolutionistrue.com.

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106 comments

[Add a comment](#)**Marshall N Wimberly**

No new ideas here; this is an age-old and flawed argument. If all is reduced to biochemical reactions and atomic physics, then "meaning" has no meaning. If our thinking processes have evolved through natural processes, then Mr. Coyne's reasoning is an illusion. If reasoning is an illusion, then human language, logic, and ethics are meaningless. For a full discussion of this self-annihilating argument, see "Miracles" by C.S. Lewis. We are free moral agents with the ability to think, choose, and act freely as beings created in the image of God. It is Naturalism that is the illusion, not free will. Mr. Coyne hopes we can create a "kinder" world as we realize the "great wonder and mystery of our evolved brains". Without a universal Standard, what defines kindness, wonder, and mystery? The Word, the great "I Am" who created and sustains the universe, is a God of rationality and order. Without Him life is devoid of purpose and meaning.

[Reply](#) · [51](#) · [Like](#) · January 1 at 8:59pm

**Preston Lenze** · Top Commenter · George Washington High school, New York, NY

You're exactly right. It's an old, tired evolutionary argument that has been disproven time and again. But these tenured professors never learn how to think differently, even in the face of undeniable truth with scientific research to back it up.

[Reply](#) · [18](#) · [Like](#) · January 2 at 2:19am

**William Hanley** · Top Commenter · Chardon, Ohio

I agree. I was going to reply on my own but you pretty well said it all.

[Reply](#) · [4](#) · [Like](#) · January 2 at 4:20am

**Peary Kaufman** · Library Assistant at Normal Public Library

"...that has been disproven time and again."*

*Citation Needed...

[Reply](#) · [75](#) · [Like](#) · January 2 at 5:15am

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**Joseph L Cooke** · Top Commenter · Works at Tac56 Consulting

My biggest mistakes occurred when blood destined for my brain flowed south instead.

[Reply](#) · [30](#) · [Like](#) · January 2 at 4:38am

**Chuck O'Connor** · Top Commenter · Works at C.A.H.G

Ha!

[Reply](#) · [1](#) · [Like](#) · January 2 at 6:59am

**Paul E Tooley Sr** · Top Commenter · Hagerstown, Maryland

To JLC, at least in your case it appears that when it (your blood) got as far south as it could go, it went back north. In Coyne's case, it stayed south and he exhibits a deadened brain.

[Reply](#) · [2](#) · [Like](#) · January 4 at 8:18am

**Jim Balter** · Top Commenter · Santa Barbara, California

Paul E Tooley Sr Coyne is professor of biology and a sophisticated thinker regardless of whether he is right ... which makes you a patent liar, in ADDITION to being a senile biblehead. If Jesus loves you, it's certainly not for having a lively brain.

[Reply](#) · [2](#) · [Like](#) · January 4 at 11:10pm

**Neil Simpson** · Top Commenter

This fails on so many levels. Just count how many times Coyne refers to things being good or bad (prosocial, antisocial, it is bad to seek revenge, we can build a kinder world, etc.). But those make no sense in his deterministic worldview. He tries to head off the inevitable argument by conceding that we still need a justice system and prisons, but as usual he breaks form and implies that we have a choice about how we react.

I appreciate that he tries to be consistent with his worldview, but as with most atheists and moral relativists he can't go three sentences without contradicting himself.

[Reply](#) · [19](#) · [Like](#) · January 2 at 2:26pm

**Adam Smedberg** · Portland, Oregon

He hasn't contradicted himself. You have just failed to understand him. There is no mention that prosocial or antisocial behaviors are good or bad. Retribution is not a good justification for punishment if the person could not have done otherwise. Coyne is saying punishment can still be justified as a deterrent. We can still have empathy if we don't have free will.

[Reply](#) · [9](#) · [Like](#) · January 2 at 4:59pm

**Smittie Smith** · United States Army

Adam Smedberg Wouldn't that empathy just be a pre-programmed response to 'an array of inputs'?

[Reply](#) · [2](#) · [Like](#) · January 2 at 5:11pm

**Adam Smedberg** · Portland, Oregon

Smittie Smith Why would you say empathy is "pre-programmed"?

[Reply](#) · [1](#) · [Like](#) · January 2 at 5:51pm

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