

## Profit vs. Principle: The Neurobiology of Integrity | Wired Science



Let your better self rest assured: Dearly held values truly are sacred, and not merely cost-benefit analyses masquerading as noble intent, concludes a new study on the neurobiology of moral decision-making. Such values are conceived differently, and occur in very different parts of the brain, than utilitarian decisions.

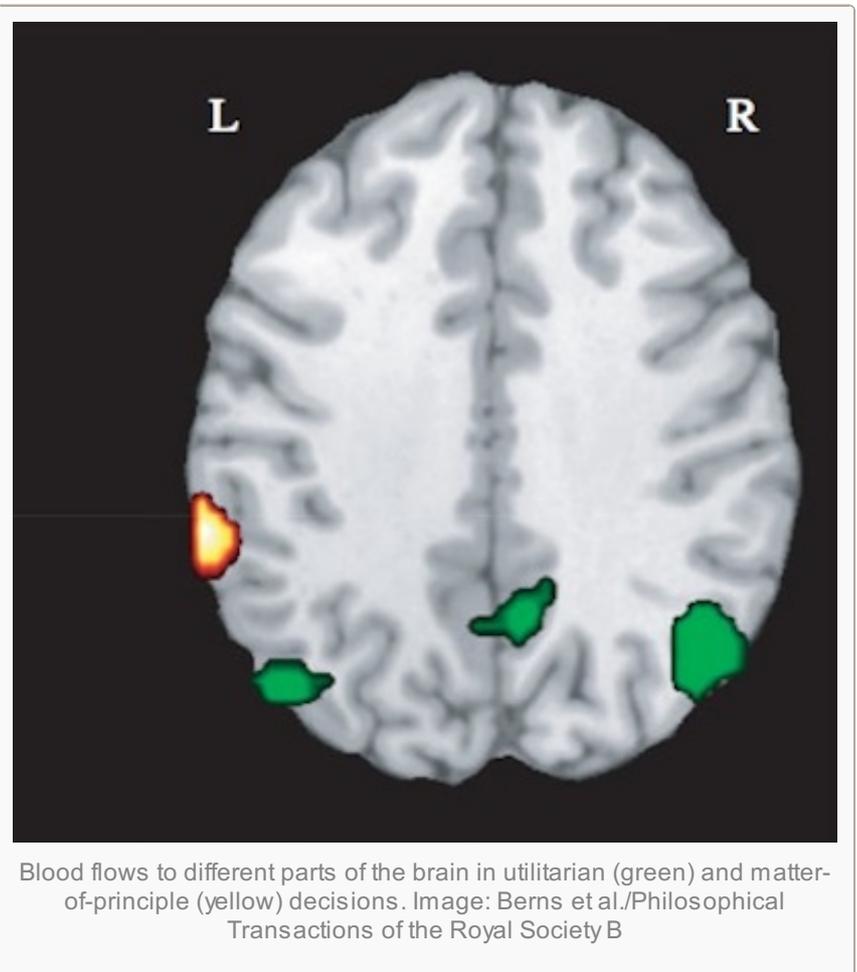
“Why do people do what they do?” said neuroscientist Greg Berns of Emory University. “Asked if they’d kill an innocent human being, most people would say no, but there can be two very different ways of coming to that answer. You could say it would hurt their family, that it would be bad because of the consequences. Or you could take the Ten Commandments view: You just don’t do it. It’s not even a question of going beyond.”

In a study [published Jan. 23 in](#)

[Philosophical Transactions of the Royal Society B](#), Berns and colleagues posed a series of value-based statements to 27 women and 16 men while using an fMRI machine to map their mental activity. The statements were not necessarily religious, but intended to cover a spectrum of values ranging from frivolous (“You enjoy all colors of M&Ms”) to ostensibly inviolate (“You think it is okay to sell a child”).

After answering, test participants were asked if they’d sign a document stating the opposite of their belief in exchange for a chance at winning up to \$100 in cash. If so, they could keep both the money and the document; only their consciences would know.

According to Berns, this methodology was key. The conflict between utilitarian and duty-based moral motivations is a classic philosophical theme, with historical roots in [the formulations of Jeremy Bentham and Immanuel Kant](#), and [other researchers have studied it](#) — but none, said Berns, had combined both brain imaging and a situation where moral compromise was realistically possible.



“Hypothetical vignettes are presented to people, and they’re asked, ‘How did you arrive at a decision?’ But it’s impossible to really know in a laboratory setting,” said Berns. “Signing your name to something for a price is meaningful. It’s getting into integrity. Even at \$100, most all our test subjects put some things into categories they were willing to take money for, and others they wouldn’t.”

When test subjects agreed to sell out, their brains displayed common signatures of activity in regions previously linked to calculating utility. When they refused, activity was concentrated in other parts of their brains: the ventrolateral prefrontal cortex, which is known to be involved in [processing and understanding abstract rules](#), and the right temporoparietal junction, which has been [implicated in moral judgement](#).

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In short, when people didn’t sell out their principles, it wasn’t because the price wasn’t right. It just seemed wrong. “There’s one bucket of things that are utilitarian, and another bucket of categorical things,” Berns said. “If it’s a sacred value to you, then you can’t even conceive of it in a cost-benefit framework.”

According to Berns, the implications could help people better understand the motivations of others. He’s now studying how moral equations change according to the social popularity of values, and what happens in the brain when deep-seated principles are confronted with reasoned arguments. “Can I change your mind? Lessen your conviction? Strengthen it? And how does this happen? Is this appealing to rule-based networks, or to systems of reward and loss?” Berns wondered.

Whether sacred principles offer utilitarian benefits over long periods of time — many years, perhaps many generations, and at population-wide as well as individual scales — is beyond the current study design, but Berns suspects that one of their benefits is simplicity.

“My hypothesis about the Ten Commandments is that they exist because they’re too hard to think about on a cost-benefit basis,” he said. “It’s far easier to have a rule saying, ‘Thou shalt not commit adultery.’ It simplifies decisionmaking.”

Image: [BenFrantzDale/Flickr](#)

Citation: “The price of your soul: neural evidence for the non-utilitarian representation of sacred values.” By

Gregory S. Berns, Emily Bell, C. Monica Capra, Michael J. Prietula, Sara Moore, Brittany Anderson, Jeremy Ginges and Scott Atran. *Philosophical Transactions of the Royal Society B*, Vol. 367 No. 1589, March 5, 2012.

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