Why 'Willusionism' Leads to 'Bad Results': Comments on Baumeister, Crescioni, and Alquist

Eddy Nahmias

Received: 13 July 2009 / Accepted: 16 July 2009 © Springer Science + Business Media B.V. 2009

Abstract Drawing on results discussed in the target article by Baumeister et al. (1), I argue that the claim that the modern mind sciences are discovering that free will is an illusion ("willusionism") is ambiguous and depends on how ordinary people understand free will. When interpreted in ways that the evidence does not justify, the willusionist claim can lead to 'bad results.' That is, telling people that free will is an illusion leads people to cheat more, help less, and behave more aggressively, but these responses may be based on people's interpreting willusionist claims to mean that they lack the powers of rational choice and self-control.

Keywords Free will · Self-control · Choice

Roy Baumeister, A. William Crescioni, and Jessica Alquist [1] are appropriately modest about what psychology can contribute to debates about free will, not because they don't have much to contribute to those debates—they do. Rather, they understand that it is not obvious how people do, or should, understand the concept of free will and that, in part because of this, scientific discoveries can inform debates about free will only to the extent that we are clear about which conception of free will is at issue. Baumeister

E. Nahmias (🖂)

Department of Philosophy, Neuroscience Institute, Georgia State University, P.O. Box 4089, Atlanta, GA 30302-4089, USA e-mail: enahmias@gsu.edu et al. offer us a particular conception of free will that is naturalistic and useful. Useful because scientific discoveries about human decision-making and selfcontrol, such as those offered in the research they discuss, can help to *explain* how such free will works, what its limits are, and even how it might be developed. Many other scientists work with a conception of free will that is non-naturalistic. With that conception in mind, they suggest that scientific discoveries about human decision-making *explain away* free will, suggesting that it is an illusion.

Rather than use Baumeister et al.'s article as a target of my criticisms, I will instead draw on its main points in order to develop some criticisms against these other scientists who suggest they are showing that free will is an illusion. By considering the different ways philosophers, scientists, and laypersons understand free will, we can see why such scientific claims about free will may have significant ethical and social ramifications. I will argue that scientists' claims that humans lack free will are ambiguous: to the extent they are justified, they are, for the most part, harmless, but they also lend themselves to unjustified interpretations that are potentially harmful.

Imagine that scientists say that they have discovered that free will is an illusion and that the media report it widely. How would people react to such news? It would depend, of course, on whether people believed it was true and on what they take free will to mean. Most people tend to believe what science says it has *discovered* (after all, you can't discover something

false any more than you can know something false), so let's suppose most people would accept the scientists' claims and the media's reports. Indeed, Baumeister et al. give us reason to think that people are susceptible to believing such claims about free will since they found that people's behavior changes when they read such claims. And their behavior changes for the worse. For instance, subjects who read a series of sentences, such as "Science has demonstrated that free will is an illusion," are less likely to be helpful and more likely to be aggressive than those who read neutral sentences or sentences affirming that we have free will [2]. Furthermore, Vohs and Schooler [3] found that people are more likely to cheat and steal when they read such sentences or when they read a passage by a famous scientist, Francis Crick, asserting that humans lack free will. I will call these findings that people behave worse when they are told that they lack free will the 'bad results.'

These 'bad results' of diminished belief in free will should trouble us since the scientists' claims and the media's reports are not entirely fictional. Scientists such as Benjamin Libet [4], Daniel Wegner [5], John Bargh [6], Mark Hallet [7], Joshua Greene & Jonathan Cohen [8], and Sue Pockett [9] have suggested that their own and others' research in neuroscience and psychology threatens the existence of human free will. For instance, Bargh concludes, "this strong feeling [of free will] is an illusion, just as much as we experience the sun moving through the sky, when in fact it is we who are doing the moving" ([6]: 148-9). Wegner's The Illusion of Conscious Will concludes: "It seems we are agents. It seems we cause what we do.... It is sobering and ultimately accurate to call all this an illusion" ([5]: 341-342). And Joshua Greene & Jonathan Cohen assert: "Free will, as we ordinarily understand it, is an illusion" ([8]: 1783). Meanwhile, media reports are disseminating (sometimes exaggerating) these claims. For instance, a recent ScienceNews article reports, "Free will' is not the defining feature of humanness, modern neuroscience implies, but is rather an illusion that endures only because biochemical complexity conceals the mechanisms of decision making" (12/6/08). And novelist Tom Wolfe says, "The bottom line of neuroscience is that ... your idea that you have a soul or even a self, much less free will, is just an illusion" (NYTimes 6/2/02). I'll label the claim that science is showing that free will is an illusion 'willusionism.'

If the 'bad results' are replicated and extended to show that these 'willusionist' claims about free will have significant adverse effects on people's behaviornot to mention their self-conception-this would raise a troublesome (neuroethical) question: Should academic and political resources be used to attempt to contain the dissemination of willusionist claims? As someone who would be loathe to advocate any such response, I am hopeful that there is a better alternative-to correct the willusionists' claims. The sense of 'free will' they are using when they claim it is an illusion is ambiguous, and how willusionism is interpreted depends on how ordinary people understand free will. I will argue that the best explanation for the 'bad results' is that people interpret willusionism in ways that the evidence does not justify.

First, let's set up the conceptual landscape, drawing on Alfred Mele's helpful commentary here [10]. Mele reminds us that philosophers debating the relationship between free will and determinism have developed two conceptions of the powers required for free action. Incompatibilists about free will and determinism suggest that free and responsible agency requires 'libertarian powers.' These powers involve, at a minimum, indeterministic 'gaps' at appropriate places in the process of human decision-making, and often an extra power of agents to initiate causal processes without being caused to do so ('agent causation'). On the other hand, compatibilists about free will and determinism argue that free will does not require these libertarian powers (LPs); rather, 'compatibilist powers' (CPs) suffice for free action and morally responsible agency. CPs typically include the sort of cognitive and volitional capacities that Baumeister et al. identify with free will, things like self-control, rational choice, and planning. For instance, CPs might include an agent's capacities to consider alternatives for action and her competing desires to perform them, to form preferences about which of them offer good reasons for action, and to control her actions in light of her considered reasons. These sorts of psychological capacities are compatible with the truth of determinism and, more generally, with a naturalistic understanding of human decision-making and behavior. That is, even if these psychological capacities are manifested in accord with causal (even deterministic) laws, they may still play an essential causal role in the way agents act; indeed, the laws may need to account for the role of these compatibilist powers in our actions rather than

undermining them. (I have, of course, condensed thousands of pages of philosophical theorizing about LPs and CPs into these oversimplified descriptions.)

The questions I want to focus on are: (1) When scientists and the media say free will is an illusion, which powers (LPs or CPs) are they talking about? And (2) when ordinary people think about free will, which powers are *they* thinking about? Considering these questions will allow us to examine how people's interpretations of willusionists' claims (a) may be different from what the willusionists mean and (b) may influence people's behavior in the negative ways suggested by Baumeister et al.'s and Vohs and Schooler's 'bad results.'

I think the answer to the first question is that willusionist scientists typically think of free will in terms of libertarian powers (LPs). They tend to take 'determinism' as equivalent to 'naturalism' or 'physicalism'the view that every event in our universe, including human decisions and actions, is governed by natural laws.¹ And they tend to assume that free will is obviously incompatible with this sort of naturalism, in some cases because they seem to associate LPs with consciousness and to assume consciousness cannot be naturalized. Neuroscientist Read Montague puts it starkly: "Free will is the idea that we make choices and have thoughts independent of anything remotely resembling a physical process. Free will is the close cousin to the idea of the soul-the concept that 'you', your thoughts and feelings, derive from an entity that is separate and distinct from the physical mechanisms that make up your body Consequently, the idea of free will is not even in principle within reach of scientific description" ([11]: R584). Benjamin Libet similarly assumes that free will requires that "conscious decisions can proceed to some degree independently of natural determinism [... i.e.,] natural laws that govern the activities of nerve cells in the brain" $([4]: 55)^2$

These scientists also tend to assume that ordinary people understand free will in the same way. For instance, Joshua Greene and Jonathan Cohen write, "intuitive free will ... requires the rejection of determinism and an implicit commitment to some kind of magical mental causation" ([8]: 1780).³ Finally, willusionists often assume that the consensus among philosophers is that free will is incompatible with determinism (and naturalism), even though the majority of philosophers are compatibilists and even more develop theories of free will designed to be compatible with naturalism.⁴ Hence, willusionists seem to assume that free will requires LPs, and then they take their research to provide reasons to doubt that we have LPs. After all, if one assumes LPs are non-natural powers, "not even in principle within reach of scientific description," then the more that the cognitive sciences can offer complete explanations of human decision-making, the more they seem to suggest that free will is an illusion. Notice, however, what will be important below: scientific evidence suggesting that humans do not have (non-natural) LPs says nothing about whether humans have (natural) CPs.

But do ordinary people associate free will with LPs or CPs? The answer is complex. Research on 'folk intuitions' that my co-authors and I have carried out suggests that most people think that free will and moral responsibility are *compatible* with determinism—e.g., with our decisions being completely caused by prior events or being predictable in accord with natural laws [13, 14]. On the other hand, most people think that free will *is* threatened by a fully reductionistic account of human decision-making in terms of neural processes, one that suggests to people that conscious mental states do not play a proper role in causing our actions [15]. I conclude from such data that most

¹ This is a mistake, since naturalism does *not* entail determinism (e.g., quantum mechanics may be indeterministic and its indeterministic interactions may 'percolate up' to affect macrolevel events). Furthermore, determinism, as philosophers use the term, does not seem to entail naturalism either, or if it does, it certainly does not entail a reductionistic view that suggests that conscious mental states have no causal role in action.

² And Sue Pockett writes that "in order to believe in the existence of a libertarian free will [LPs], one must necessarily be a fullblown dualist with regard to the nature of consciousness—that is to say, one must regard consciousness as being a non-physical phenomenon" ([9]: 282).

³ And John Bargh writes, "Free will may be defined as an agent's ability to act on the world by its own volition, independently of purely physical (as opposed to metaphysical) causes and prior states of the world. The *folk notion of free will* is laden with the concept of a soul, a non-physical, unfettered, internal source of choice-making—in other words, an uncaused causer" ("The Will is Caused, not 'Free'" *Psychology Today* blog 6/23/09, my italics).

⁴ For instance, Robert Kane's libertarian account of free will requires indeterminism but not agent causation in part because he wants to offer an account that "might show how such freedom could exist in the natural order" ([12]: 106). Kane's view, then, is roughly that free will requires CPs plus indeterminism in the right places, though not the dualistic aspect of LPs.

people associate free will primarily with CPs, though they also tend to think such powers are inconsistent with the reductionistic framework sometimes suggested by neuroscience and psychology. Nonetheless, some people also seem to believe that free will requires indeterminism, and some-perhaps especially in the Judeo-Christian tradition-also believe that free will requires non-natural powers (e.g., a non-physical soul that is not 'constrained' by the laws of the physical world). I should note, however, that my work suggests that this dualist view of free will appears to be less pervasive than some philosophers and scientists seem to think.⁵ Baumeister et al.'s research on ordinary people's judgments of free vs. unfree actions also suggests that people take CPs to be important components of free will in that they pick out free actions as those that involve conscious reflection, resisting temptation, and resisting external influences.⁶

What are we to make of these different views about free will that vary both *among* individuals and perhaps also *within* individuals? One possibility is that there are two entirely distinct concepts of free will, one which involves LPs and one which involves CPs. If so, perhaps different people use the concept 'free will' to refer to different capacities, or perhaps individuals apply the concept in different ways in different contexts. (Theorists could *stipulate* that only one of these concepts should be used to refer to (real) free will, but they should then motivate this revision of ordinary people's understanding of free will.) Another possibility is that many people understand free will to require both CPs and LPs. I suspect that some people who believe this do so because they believe that LPs are required for CPs-perhaps they cannot conceive of how a nondualist understanding of the human mind could explain consciousness or rationality. However, given the way I have described these powers (and the way Baumeister et al. describe CPs), this belief is mistaken-we can have CPs without LPs.⁷ The upshot is that the existing evidence suggests that people's conception of 'free will' clearly involves CPs, though some people also think free will involves LPs, and some in the latter group might think this only because they mistakenly think CPs require LPs. That's complicated, but suffice it to say that it looks like CPs are more central to ordinary people's conception of free will than LPs.

If so, what happens when people who hold such views read claims that science is discovering that free will is an illusion? Again, it depends on what the scientists are claiming, how nuanced their claims are, and how people interpret them. I have argued that the willusionists are usually not very nuanced about these claims (e.g., [16]). As indicated above, they generally seem to think of free will in terms of non-natural LPs, and they argue that scientific accounts of human decision-making show that we lack such powers.⁸ Sometimes, however, the scientists suggest they are showing that humans lack CPs as well, in some cases because they seem to think CPs require LPs. For instance, when psychologists like Bargh and Wegner argue that conscious processes play no causal role in action, they are unclear about whether they take this to mean that humans lack LPs or CPs or both. To the extent they mean to be providing evidence

⁵ In Nahmias et al. [15] and Nahmias & Murray [14], a surprisingly low proportion of participants: (1) *agreed* with the statement "Humans have free will only because they have non-physical souls" (15–25%); (2) *agreed* with the statement "Our power of free will is something that is not a part of our brain" (18%); or (3) *disagreed* with the statement "It is because our minds are the products of our brains that we have free will" (only 13% when the statement followed a description of our brains as complex and unique, and still only 25% when the statement followed a description of the brain as mechanistic, governed by physical laws, and soon to be understood scientifically). A plurality of participants accepted the 'naturalistic' alternatives, though quite a few also answered 'I don't know' or neutral, which might suggest that people do not have a 'metaphysically rich' theory of how free will works.

⁶ Their results might also suggest that some people take LPs to be a component of free will, if we assume that their participants' judgments that random or uncaused acts are free is an indication of belief in LPs. However, I think people may associate free will with randomness because they think (or want) free actions to be unpredictable, but unpredictability does not require indeterminism or LPs. Deterministic events can be "random" in the sense that they are not explicable in terms of predictable patterns of events.

⁷ It may take some revision of ordinary thinking to clarify that humans can consciously deliberate and make rational choices even without a nonphysical mind. Indeed, I predict that until we have a better understanding of how the processes of the brain are responsible for consciousness and rationality, the free will problem will maintain its grip on people; conversely, as we develop such a naturalistic understanding of mental processes (especially CPs), the free will problem will dissipate.

⁸ I agree that humans do not have non-natural LPs. The scientists, however, tend to *assume* naturalism (and often determinism) as a working hypothesis, rather than demonstrating it. However, to the extent this assumption *works*—that is, to the extent that scientific explanations for human decision-making and behavior are successful—these sciences, taken as a whole, are providing *inductive* evidence against *non-natural* LPs (though they are not providing evidence against indeterminism).

that humans entirely lack CPs, their claims are highly contentious and, I believe, false. The relevant research has not shown that conscious reasoning and intentionformation have no significant causal effects on what we decide to do or how we act (see [16-18]). On the contrary, Baumeister et al. and others (e.g., [19]) are helping to explain the psychological processes involved in CPs-e.g., self-control, conscious reasoning, and 'implementation intentions'-and their efficacy in action. And neuroscientific research is poised to elucidate the neurobiological processes that underlie these psychological processes. It may be that humans' capacities for rational deliberation and self-control are more *limited* than we tend to think-for instance, Baumeister et al. point out that willpower appears to be a limited resource, and research in social psychology suggests that our reported reasons for action are sometimes merely post-hoc rationalizations. But there is an important difference between saying free will is an illusion and saying free will is hard work.

Regardless of my claims about what the scientists have actually discovered about LPs or CPs, when they claim we lack free will, they tend *not* to make clear distinctions between LPs and CPs in order to clarify which of these they are challenging. And when ordinary people read such claims, it is unlikely they finish this uncompleted task and parse out exactly which powers they are purportedly losing and which they may be retaining. This leads to a problematic outcome:

- (1) If people believe that free will involves both libertarian powers and compatibilist powers (and especially if they believe that it involves primarily or only CPs), and
- (2) if scientists and the media inform people that free will is an illusion, and
- (3) if neither they nor ordinary people are clear about what is meant by 'free will' or exactly which powers are in question, then
- (4) people may very well come to doubt that they have CPs.⁹

This conclusion allows us to see more clearly the connection between the willusionist claims about free will and the 'bad results' and to see the potential danger of scientists and the media claiming that free will is an illusion.

I've provided some reasons to think that (1), (2), and (3) are plausible. Now let's consider (4): What would people think if they started to question their compatibilist powers, such as rational choice and willpower-and how might their behavior change? They would likely think that their efforts to deliberate about what would be best to do were inconsequential and that their efforts to do what they think best were insignificant. They might think that what they end up doing is caused by forces that bypass conscious reasoning and decisions. Even if the willusionist claims simply percolate below the surface, they might lead people to make fewer or weaker attempts to deliberate about what to do and to exert willpower. For instance, people may engage in less counterfactual reasoning about alternatives for action, and they may not try very hard to be helpful or honest or nice.¹⁰ Put simply, if people are told they have no free will, they might interpret this to mean they lack willpower, and believing that might lead them to exert less willpower to do the more difficult (but more appropriate) thing to do.

I think this is the most plausible explanation for the 'bad results' from Baumeister et al. and Vohs and Schooler. People read that Nobel laureate Francis Crick is discovering that "Who you are is nothing but a pack of neurons" such that "although we appear to have free will, in fact, our choices have already been predetermined for us and we cannot change that" [3], and it seeps in enough to make them believe that nothing they try to do can change anything. They internalize this fatalistic view that suggests one's conscious decisions and efforts make no difference to what ends up happening. And since people do not think of themselves as being just "a pack of neurons," when they are then told that their neurons cause everything they do, they are likely to think that their conscious mind or self plays no role in what they do.

⁹ Compare: (1) if people believe that romantic love involves both a connection between immaterial *souls* (S) and deep *feelings* (F) of attraction, empathy, (occasional) ecstasy, etc. (or if they believe it primarily or only involves F), and (2) if scientists and the media report that love is an illusion, and (3) if neither they nor ordinary people are clear about what is meant by that claim (e.g., the scientists actually mean that S is false), then (4) people may very well start to believe that their *feelings* (F) of love are not real.

¹⁰ In addition to finding that subjects in the 'no-free-will' groups were less helpful and more aggressive than controls, Baumeister et al. report that the no-free-will subjects engaged in less counterfactual thinking, coming up with many fewer alternatives for action that they might have chosen to avoid a bad outcome.

Or people read the sentence, "Everything a person does is a direct consequence of their environment and genetic makeup" [2], and it leads them to think that their actions are *directly* caused by these forces, without their conscious deliberations or efforts (their CPs) playing any real role in what they do. Indeed, most of the no-free-will primes in these studies emphasize the idea that our actions are caused by our genes and the environment or by brain processes (e.g., "All behavior is determined by brain activity, which in turn is determined by a combination of environmental and genetic factors"). None of them mention any role for conscious deliberation or any other mental processes (except the one that says "Our mental activities are exclusively the product of physical processes"). It would be natural to read these reductionistic claims as suggesting that we have limited or no CPs, that our conscious deliberations and efforts of self-control are *bypassed* by processes over which we have no control (see [15]). And such reductionistic claims permeate the willusionist literature.

It is crucial to remember, however, that lacking LPs does *not* entail that our conscious decisions and our efforts make no difference to what we do, nor does determinism (or naturalism) entail such fatalism. It may be that some people *think* that lacking LPs has this consequence, but if so, they are confusing their CPs with their LPs. Indeed, one danger of willusionist claims is that, like some of the willusionists, people do not properly distinguish CPs from LPs.¹¹

Of course, another possibility is that the 'bad results' occur because people are reading the no-freewill primes to mean that humans lack LPs. How would this story go? It could be that many people are committed to the more general belief that they (their souls) are not part of the natural world, and claims to the contrary lead them to question the legitimacy of morality (or the meaning of life, etc.), which then leads them to act less morally. If so, the trouble runs deeper than claims about free will. And we should predict similar 'bad results' from primes that discuss this more general naturalistic picture but do not specifically mention free will.¹² Again, there is nothing about naturalism that properly threatens CPs, but it may be difficult for some people to see this. For those who do see this distinction, we should predict that any claims about naturalism that do not challenge CPs will not have 'bad results.' Indeed, this prediction is borne out, at least as far as I can tell: compatibilists and 'hard determinists' (who believe we do not have LPs but we do have CPs) do not behave any worse than non-naturalists who believe we do have LPs.¹³

¹¹ These confusions are exemplified by the common practice of misinterpreting determinism to entail fatalism. Even Baumeister et al. make this mistake when they write, "to the lay determinist, everything that happens is inevitable, and nothing else was possible ... [and] there are no counterfactuals" (2009). But determinism does not entail that nothing else was possible nor that there are no counterfactuals. Things could have happened differently in a deterministic universe. If they had, then the past would have been different (and the past could have been different). For instance, this sentence may be true in a deterministic universe ("just as true" as in an indeterministic universe): "If the dog had jumped earlier, he would have caught the frisbee." When people interpret determinism in these mistaken ways, then they are likely taking it to be a threat to CPs. Indeed, my recent work with Dylan Murray [14] suggests that when people take determinism to preclude free will and moral responsibility, they do so primarily because they misinterpret determinism to involve fatalism or epiphenomenalism (lack of causal influence) regarding beliefs, desires, and decisions, and when people do not misinterpret determinism in this way, they tend to say that it is compatible with free will and moral responsibility.

¹² One possibility is that such claims, if they conflict with beliefs people hold dear, make people angry or frustrated, such that they are more likely to cheat, be aggressive, or be unhelpful. However, both Baumeister et al. [2] and Vohs and Schooler [3] tested for mood effects and found none. Another explanation of the 'bad results' is that, in general, being told that what you believe to be true is false induces a cognitive load. Perhaps people have to think hard about something they took for granted ("Huh, scientists say we don't have free will. Is that possible? What exactly do I think free will is?" And so on.) This cognitive load, like others studied by Baumeister and his colleagues, then lowers people's willpower. To test for this, one group of participants could read prompts that induce cognitive load or that challenge beliefs they take for granted, and one could examine whether they cheat more or help less than controls.

¹³ In this context, we should also note that it is premature to extrapolate too much from these initial 'bad results,' since they primarily look at subjects' behavior very soon after they read statements prompting them to doubt free will (though see [2], experiment 2). It is possible that these effects would not last. Even if people came to believe them, they might, upon further reflection, come to 'live with' lacking free will such that it has no adverse effect on how helpful, aggressive, honest, etc. they would be, especially if what they come to believe they are losing is not as significant as they initially thought. Furthermore, there may also be some long-term 'good results' of diminished belief in free will, such as reduced feelings of guilt, moral anger, or retributive vengeance. Of course, the goal should be for our beliefs and feelings to accurately reflect the *truth* about what powers of free will humans actually have.

The moral of my story is that it would be much worse to lose compatibilist powers than libertarian powers. Indeed, some (like me) think that 'losing' LPs is to lose something we never had and never needed in order to have free will or to be morally responsible agents. But it is very hard to imagine someone who would not be troubled by the prospect that humans lack CPs—that the *apparent* impact that our conscious deliberations, rational choices, and efforts have on our behavior is, as a matter of fact, illusory. (It's a bit hard to imagine how to even make sense of that possibility.)

If my interpretation of the 'bad results' is on track, then willusionist claims are problematic because the negative effects they have on people's behavior are based on a false claim (that we lack CPs), or on a claim that is too easily interpreted as this false claim. The more significant claim is not that we lack LPs but that we lack CPs, yet the scientists are not showing that we have no CPs. Of course, the claim that science is showing that we lack LPs would still have an impact on many people's self-conception. However, if these people came to understand that lacking nonnatural libertarian powers does not mean we lack the powers of rational choice, self-control, etc., then they would likely come to accept that they still have most of what they already thought free will was good for. And like the people who *already* believe that our minds are not super-natural and that free will involves CPs rather than LPs, they would probably not react by becoming more selfish or aggressive or dishonest.

Let me conclude by emphasizing that nothing I have said here suggests that scientific discoveries about the human mind are irrelevant to debates about free will. Quite the contrary. Baumeister et al. offer us some excellent models of how such discoveries can be relevant (indeed, the willusionist scientists also carry out excellent research that is highly relevant to debates about free will, if not always in the ways they suggest). Such discoveries may inform us that human free will is more limited than we tend to thinkwhich I believe would be more significant than the potential discovery that the physical laws are deterministic. Our compatibilist powers may not be as extensive as we believe or hope they are (e.g., as Baumeister et al. suggest, self-control, deliberation, and conscious decision-making all draw on the same limited resources). But this information, properly understood, should not lead to the 'bad results' if, as I have suggested, these results derive from the fatalistic attitude that it doesn't really matter how we deliberate or how hard we try. If anything, information about the limitations of our CPs should encourage us to *try harder* (and more efficiently). Such information can open up opportunities for us to learn (and teach) strategies to strengthen free will (e.g., Baumeister suggests willpower is like a muscle that can be built up with practice) and to use our rational capacities more effectively (e.g., to understand when conditions are more or less ideal for making rational choices). Science has not shown that free will is an illusion. But it may be showing that exercising free will can be hard work.

Acknowledgments I appreciate helpful comments on an earlier draft from Al Mele, Neil Levy, and Dylan Murray. This article was completed in part with support from a grant from the University of Chicago Arete Initiative and the John Templeton Foundation.

References

- Baumeister, R., A. Crescioni, and J. Alquist. 2009. Free will as advanced action control for human social life and culture. *Neuroethics*.
- Baumeister, R.F., E.J. Masicampo, and C.N. DeWall. 2009. Prosocial benefits of feeling free: Disbelief in free will increases aggression and reduces helpfulness. *Personality* and Social Psychology Bulletin 35: 260–268.
- Vohs, K.D. and J.W. Schooler. 2008. The value of believing in free will: Encouraging a belief in determinism increases cheating. *Psychological Science* 19: 49–54.
- Libet, B. 1999. Do we have free will? In *The volitional* brain, ed. B. Libet, A. Freeman, and K. Sutherland, 47–57. Exeter: Imprint Academic.
- 5. Wegner, D. 2002. *The illusion of conscious will*. Cambridge: MIT.
- Bargh, J. 2008. Free will is un-natural. In *Are we free? Psychology and free will*, ed. J. Baer, J. Kaufmann, and R. Baumeister, 128–154. New York: Oxford University Press.
- Hallet, M. 2007. Volitional control of movement: The physiology of free will. *Clinical Neurophysiology* 118: 1179–1192.
- Greene, J. and J. Cohen. 2004. For the law, neuroscience changes nothing and everything. *Philosophical Transactions* of the Royal Society of London B 359: 1775–1778.
- Pockett, S. 2007. The concept of free will: Philosophy, neuroscience, and the law. *Behavioral Sciences and the Law* 25: 285–293.
- 10. Mele, A. 2009. Surrounding free will: A response to Baumeister, Crescioni, and Alquist. *Neuroethics*.
- 11. Montague, R. 2008. Free will. Current Biology 18: R584-585.
- 12. Kane, R. 1996. *The significance of free will*. New York: Oxford University Press.

- Nahmias, E., S. Morris, T. Nadelhoffer, and J. Turner. 2006. Is incompatibilism intuitive? *Philosophy and Phenomenological Research* 73: 28–53.
- Nahmias, E., and D. Murray. forthcoming. Experimental philosophy on free will: An error theory for incompatibilist intuitions. In *New Waves in Philosophy of Action* (Palgrave).
- Nahmias, E., J. Coates, and T. Kvaran. 2007. Free will, moral responsibility, and mechanism: Experiments on folk intuitions. *Midwest Studies in Philosophy* 31: 214–232.
- 16. Nahmias, E. forthcoming. Scientific challenges to free will. In *A Companion to the Philosophy of Action*. Wiley-Blackwell.
- Nahmias, E. 2002. When consciousness matters: A critical review of Daniel Wegner's *The Illusion of Conscious Will. Philosophical Psychology* 15: 527–541.
- 18. Mele, A. 2009. *Effective intentions: The power of conscious will*. New York: Oxford University Press.
- Gollwitzer, P.M. 1999. Implementation intentions. *American* Psychologist 54: 493–503.