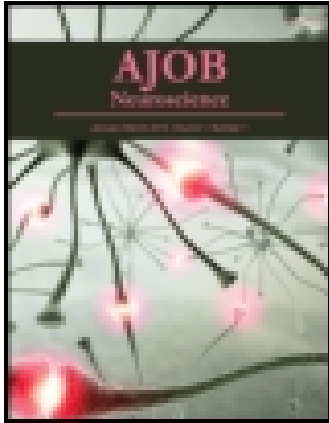


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Neuroscience Evidence Should be Incorporated Into Our Ethical Practices

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in order to understand what challenges neuroscience might make to these moral concepts.

Let me offer an example. On a view of moral responsibility to which I am sympathetic, it is only *fair* to hold agents accountable if they have some type of normative competence. This competence might be fleshed out in a number of ways (Wolf 1990; Wallace 1994; 2006), but in one prominent case it is the capacity for choice “even in the face of . . . potential [deliberative] obstacles to rational action” (Wallace 2006). This competence may be compatible with physical determinisms, but not with a psychological determinism on which agents are necessarily unable to resist “desires” presented to the agent as temptation to do something that the agent judges he or she ought not do (Wallace 2006). Whether or not agents have such a capacity seems to me an empirical matter rather than a normative one; moreover, neuroscience may at some point determine whether or not *we* have such a capacity. Neuroscience might then challenge, or even underwrite, this sort of freedom of the will and moral agency.

However, any particular evidence is only going to underwrite or challenge a *particular* conception of freedom. We have seen that Kaposy’s argument must rely on a conception of freedom, persons, and selves. So too do arguments employing “The Inference.” Thus, we will only know what place neuroscientific arguments have in the free will debate by understanding what types of freedom are “worth wanting” (Dennett 1984) and what types of freedom can be neuroscientifically attacked. The neuroethics community should get clear on both the former, a task of considering

and engaging in the philosophical literature, and the latter, a task of exploring what neuroscience can tell us. ■

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How scientific knowledge should guide our ethical practice is a long-standing question at the intersection of science, philosophy, and ethics. The scientific naturalism shared by scientists and many philosophers holds that our factual beliefs about the world are answerable to the results of empirical inquiry (Flanagan et al. 2008). It follows (at least for

anyone committed to scientific naturalism) that to whatever extent a system of ethics makes implicit or explicit appeal to facts about how the world actually is, such a system must incorporate relevant scientific discoveries into its descriptive components, and consider how such incorporation may impact its normative components.

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Kaposy (2010) appears to endorse the relevance of scientific findings for ethics in general, but he argues that in three exceptional cases—free will, selfhood, and personhood (FS&P)—the ethical norms we adopt should not, and logically cannot, be affected even if neuroscience demonstrates these concepts to be illusory. We suggest that his emphasis on the potential for neuroscience to entirely prove, or entirely disprove, any of these concepts is misguided. We argue that where neuroscientific evidence reshapes our notion of freely acting, coherent persons it *should* be incorporated into our ethics, even if this restricts the circumstances in which the notion applies. We further argue that it is problematic to appeal to presumed societal consequences in order to exempt certain knowledge from moral consideration.

Neuroscience, as currently conceived and generally practiced, can address the natural phenomena to which we appeal when we discuss FS&P, but it is not the appropriate discipline to address the existence or nonexistence of these concepts. Instead, these concepts are more appropriately rooted in the domains of philosophy and cognitive psychology (Roskies 2006). While Kaposy does offer the caveat that his argument shall have been otiose if neuroscience does not ultimately lead us to question FS&P, we suggest that neuroscience *cannot* have this effect. Thus, the central conditional that Kaposy poses in his very next sentence (“if it is found that discoveries in neuroscience are sufficient to cast grave doubt on these concepts”) is equally otiose: Existence-debunking neuroscientific evidence on these topics simply cannot exist. It follows that since the underpinnings of rationality do not come under existential threat from neuroscience, there is no threat of a “performative contradiction” in incorporating neuroscience into our conception of FS&P.

Elucidating the neural mechanisms underpinning FS&P thus fails to constitute a full-throated argument for dismantling any of them. Rather, it contributes to the constant reshaping of the intuitive concepts to which we appeal when we state “I have (or have not) free will” (Roskies 2010), and it is this that Kaposy *should* be worried about. Although the likelihood of people ceasing to talk about themselves as freely acting persons is very slim (Kaposy 2009), social change guided by a neurally-informed picture of human volition and personhood is already with us, and increasingly so as neuroessentialist thinking moves back and forth among academia, the popular press, think tanks, psychiatrists’ offices, advertising slogans, and dinner-party conversations (Abi-Rached and Rose 2010; Reiner in press). From criminal defenses of “my brain made me do it,” to increased medication of neurally defined childhood disorders, where and when our actions can be considered “free” is a far more pressing issue for our ethical deliberations than whether neuroscience will eliminate FS&P.

We demonstrate the utility and inevitability of incorporating neuroscience into ethical deliberations with an illuminating and relatively uncontroversial example: the question of whether animals sense pain. Once the hypothesis was articulated and the relevant technological hurdles overcome, experiments in neuroscience validated this idea. Neurobi-

ology is well positioned to investigate pain, but is relatively shackled when it comes to opining on whether a given instance of pain constitutes suffering. While relevant empirical observations have been made and cogent arguments put forward that animals suffer (Shriver 2006), it is arguable that a purely empirical conception of subjective suffering will remain out of reach. Nonetheless, as these observations entered into dialogue with public perception and institutional practices, they affected intuitive concepts of animal suffering, and society’s moral stance toward it.

What sorts of observations in neuroscience are relevant to our understanding of FS&P? One area of investigation that has been remarkably fruitful is the investigation of the neural mechanisms of decision making (Gold and Shadlen 2007). Specifically, a host of findings question the extent to which choices are made autonomously, as traditionally conceived. For example, many experiments have demonstrated powerful effects of priming (Tulving and Schacter 1990) and framing (Tversky and Kahneman 1981) on decisions, while others have shown that emotions strongly influence decisions (Damasio 1996). Of particular relevance to the present discussion is that these phenomena are pervasive and often manifest covertly; as such, they would seem to threaten certain particulars (but not the entirety) of the notion of conscious, deliberative, rational choices as the hallmark of the autonomous agent. When decision making is understood as a competition among anatomically distinct neural circuits representing conflicting goals (Miller and Cohen 2001), our self-description as freely acting coherent selves becomes problematized. Thus, the field of decision making has elucidated a number of empirical observations that give pause to our *intuitive* sense of FS&P, are directly relevant to societal mores, and yet do not constitute the existence-disproving experiments that are the focus of Kaposy’s moral concern.

Consider the issue of economic decision making. It is well known that individuals will commonly opt to receive \$10 today rather than \$20 in one year’s time, even though such a choice may be suboptimal if the goal is to maximize wealth. The reason that this happens is that humans—along with other species that have been studied—discount the values of rewards, as well as the costs of penalties, that occur in the future (Ainslie 1975). The neural bases of such “delay discounting” are beginning to be understood (Roesch et al. 2006), and the myopic bias appears to affect the processes that compute the values of the available options outside of conscious awareness. It is not difficult to imagine a strong ethical argument that incorporates these findings and suggests that it is morally wrong to exploit this “quirk” in brain function.

But such exploitation is widespread. It is hardly uncommon to see advertisements offering luxury commodities at “No money down, with 0% interest for 6 months!!” Irrespective of the fact that the fine print spells out the exorbitant interest rate that will be applied after the six-month grace period, many people succumb to the allure of the bauble today, all the while knowing that the day of reckoning is around

the corner. Given the growing body of empirical data on this point, some have argued that the credit industry should be more heavily regulated to protect the consumers by countering their inherent biases (Thaler and Sunstein 2008). The hard-nosed political libertarian would argue that such regulation restricts freedom (including the freedom to make poor choices), but this argument presupposes that humans act as *Homo economicus*, capable of making rational choices, free from covert influences. The empirical evidence, both behavioral and neuroscientific, decisively calls this conclusion into question. To reiterate, the data do not dismantle FS&P, but rather shift the ground around which our intuitive understanding of FS&P rests, and they do so in a manner that lends itself quite naturally to a defensible argument for a change in norms.

Finally, Kaposy argues that the norm of belief in FS&P should be inviolable, trumping the rational norm of allowing scientific knowledge to inform our worldview. The notion that we should ignore the evidence and behave in accord with what we want the evidence to be seems to us a dangerous proposition. Indeed, human history is replete with instances in which our morals ignored scientific evidence for the worse, as well as examples in which our norms shifted appropriately upon new discoveries, and we would be leery of the assumption that it will ever be possible to predict the (uniformly deleterious) outcomes of neuroscientific evidence. It is important to acknowledge that Kaposy's particular grievance is with a rational *obligation* to change our moral beliefs should neuroscientific evidence threaten FS&P. We are sympathetic to his interrogation of the norms guiding belief acquisition, but argue that allowing such evidence to remain an integral part of the process of ethical deliberation does not oblige us to follow its implications. In fact, it seems that Kaposy is the one bringing obligation to the ethical table by arguing that should neuroscientific findings threaten certain norms, we may find ourselves obliged to ignore them; "The protection of these values might *require* the rational *refusal* to believe discoveries of neuroscience that put them in doubt" [emphasis authors' own].

We conclude by emphasizing the importance of understanding how people incorporate such evidence into their beliefs, and how different disciplinary perspectives and levels of explanation are brought into dialogue in society as well as within the individual's mind. Here, neuroscientific findings take on a dual aspect—they both have ethical implications, and can potentially shed light on the processes of ethical deliberation itself. We must not replace a conversation about how this kind of evidence should impact on our

norms with an assertion about the boundaries of its ethical purview. Protecting the very existence of free will, selfhood, and personhood in this way diverts attention from the multiple, negotiable ways in which neuroscience might change their substantive meaning. ■

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