



The Need for a Conceptual Expansion of Neuroethics

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To cite this article: Arleen Salles, Kathinka Evers & Michele Farisco (2019) The Need for a Conceptual Expansion of Neuroethics, *AJOB Neuroscience*, 10:3, 126-128, DOI: [10.1080/21507740.2019.1632972](https://doi.org/10.1080/21507740.2019.1632972)

To link to this article: <https://doi.org/10.1080/21507740.2019.1632972>



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Published online: 22 Jul 2019.



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design in nature prior to Darwin, so too naturalists have struggled to explain ethics without a unifying theory of morality. Perhaps the greatest contribution of neuroethics will be something like a Darwinian revolution for morality, and any reflection on the future work of neuroethics must emphasize the pursuit of this revolution. ■

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The Need for a Conceptual Expansion of Neuroethics

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In “Neuroethics at 15: The Current and Future Environment for Neuroethics” the Emerging Issues Task Force of the INS provides an overview of the current and future topics for neuroethics and the foreseeable challenges that the field will face (Kellmeyer et al. 2019). The authors note that these challenges, emerging both at the individual, societal, and often global levels, are importantly connected to increasing knowledge of the brain and neurotechnical capabilities, to increasing awareness of value diversity and of the need to attend to a global landscape, and to novel applications (commercial, military, governmental) of neuroscientific findings. The overarching theme, the authors note, is expansion.

We agree. However, we believe that there is another type of expansion barely mentioned by the authors that is crucial for allowing us to better manage many of the above mentioned challenges: an expansion in how neuroethics and its methodologies are conceived and how neuroethical issues should be approached. In particular, we believe that the key role of conceptual analysis in neuroethics needs further reflection.

All too often, neuroethics is taken to be just a subfield of applied ethics. However, in our understanding, neuroethics is methodologically far richer and its scope much larger. It is possible and desirable to make a distinction between three main methodological approaches within the

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field (Evers et al. 2017, Salles and Evers 2017, Farisco et al. 2018). A “neurobioethical” approach is primarily normative and prescriptive: It applies ethical theory and reasoning to practical issues arising from neuroscientific research and its applications (clinical, commercial, etc.) and to those issues raised by public communication of neuroscientific findings and their impact. An “empirical neuroethical” approach is descriptive and occasionally explanatory: It uses empirical data to inform theoretical (e.g., what is moral reasoning) and practical issues (e.g., who is really a moral agent). In contrast, a “conceptual neuroethical” approach, although it may involve prescriptive or descriptive aspects, is primarily theoretical and, as we show, foundational. At its most basic, it entails the recognition that the full range of issues raised by neuroscience cannot be adequately dealt with without careful conceptual analysis of the relevant notions. At a deeper level, conceptual neuroethics emphasizes the need to develop and use a methodological *modus operandi* for effectively integrating scientific (e.g., neuroscience) and philosophical (e.g., ethics) interpretations. Thus, a properly conceptual neuroethics approach aims to offer more than assistance to neuroscientists and social scientists in identifying the ethical issues raised by neuroscientific findings and applications, in clarifying notions, and in applying ethical theory to solve moral issues. It is designed to focus on the construction of scientific knowledge and of ethical or social reasoning and analysis, on the relevant scientific and philosophical notions, and on the legitimacy of diverse interpretations, not just reflecting on neuroscience from the outside, but rather collaborating with it in order to get a shared definition of key notions relevant to the scientific and ethical discourse.

In their piece, the members of the Emerging Issues Task Force recognize the existence of “fundamental conceptual challenges” raised by neurotechnological advances and call for an expansion of neuroethics conceptual toolkit. While significant, this does not seem to fully capture what we have in mind when we propose a conceptual approach. To illustrate, we can focus on two topics that they specifically mention as deserving of conceptual clarification in their article: the notion of brain death (widely recognized as being conceptually opaque), and the issue of who bears fundamental rights or is a moral agent.

How to understand brain death and its relevance to a discussion of clinical options for patients with severe brain injuries falls within what we could call a conceptually informed neurobioethics; fundamentally practical, it requires action that crucially benefits from careful conceptual analyses. Indeed, a scientific and philosophical interpretation of a concept such as organismic death in general and brain death in particular and the unveiling of underlying assumptions are necessary conditions for avoiding simplistic solutions and conducting a productive discussion about clinical praxis in cases of patients with severe brain injuries. In conducting this kind of conceptual analysis, neuroethics uses a number of

conceptual toolkits, for example, from philosophy of science and philosophy of mind.

The issue of how to understand moral agency in light of neuroscientific advances falls within what we could call a conceptually informed empirical neuroethics. A discussion of what is moral agency and who should bear fundamental rights would greatly benefit from a deeper conceptual clarification of the relevant notions. However, conceptual clarification is not all. The underlying assumption of empirical neuroethics is that neuroscientific results are quite relevant to the discussion of philosophical questions, and this assumption raises important translational issues that require careful philosophical attention. It raises translational issues because unless one supposes that brain facts and normative concepts correspond one to one (and there is no reason to take this for granted), it is not self-evident that brain facts have such explanatory power. A particular understanding of “brain facts,” their correlation with mental events, their value, and their normative weight underlies the claim that neuroscience has such relevance. Thus, the importance of a conceptual discussion of the issues.

This means that a conceptual neuroethics approach is not exhausted by its potential contribution to enhancing the solution of practical ethical issues or improving our empirical knowledge. A conceptual approach such as fundamental neuroethics, for example, is intended to offer reflection on foundational elements (including concepts and methods that are used in linking neuroscientific results and philosophical questions). To call for a conceptual neuroethical approach does not entail denying the important conceptual components in the field of neuroscience itself. Rather, the goal is to complement them insofar as neuroscience’s conceptual apparatus is somewhat limited by intrinsic and extrinsic factors. To illustrate, consider what we take to be an intrinsic limitation of neuroscience: the distinction between third-person and first-person accounts of notions like mind, consciousness, and normativity. Even if a material correspondence between cerebral (the object of neuroscientific investigation) and mental levels exist, the mental cannot be totally explained by third-person scientific accounts. This fact lies at the root of an epistemic insufficiency of neuroscientific explanations. A conceptual neuroethics approach informed by philosophical reflection offers a more integral way to interpret such explanations and their ethical implications. The complementarity offered by conceptual neuroethics is also important when we focus on those highly sophisticated tools used by neuroscience as epistemic mediations between the world and us: models. Models are not isomorphic with their target objects; what features will be modeled depends on a selection process shaped by the scientist’s scientific and extrascientific interests/purposes. A conceptual approach can thus help neuroscience both to recognize its own epistemic limitation and to build conceptual models that are not arbitrary and appropriate for explaining the target object (Farisco et al. 2018).

There is, indeed, an increasing need for a collaboration between neuroethics and neuroscience in order to better identify and analyze the ethical issues raised by brain research. Equally important, however, is their collaboration in providing the necessary conceptual toolkits for avoiding misconceptions and misleading interpretations of neuroscientific language and categories. In short, we agree in that conceptual clarity is key for a richer analysis of the practical (and often urgent) issues raised by neuroscience (e.g., clinical options for severely injured patients) or for enhancing our understanding of moral reasoning. However, we think that the value of such analysis is not exhausted by its potential to improve normative discussions or to refine our empirical understanding. Insofar as conceptual analysis mitigates problematic misinterpretations, it fosters a clearer and more reliable vision on how to respond not just to practical but also to the many philosophical issues raised by neuroscientific knowledge and neurotechnologies. For this reason, we believe that conceptual work as described in the preceding should be part of neuroethics for better facing present and future challenges.

FUNDING

This research has received funding from the European Union's Horizon 2020 Framework Program for Research

and Innovation under the specific grant agreement number 785907 (Human Brain Project SGA2). ■

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It Is Time to Expand the Scope and Reach of Neuroethics

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Kellmeyer and colleagues, on behalf of the International Neuroethics Society (INS) Emerging Issues Taskforce (2019) discuss the current and future environment for neuroethics on this, the 15th anniversary of the International Neuroethics Society. While highlighting the tremendous progress made in neuroethics in the short period since the founding of the INS, they underscore the need for a global, transdisciplinary community of researchers to address future challenges. While I am in agreement with the authors' focus on the importance of further discourse and research on rapid neurotechnological advances and commercialization of both implantable and wearable devices, harvesting of brain data, and global mental health concerns, a dramatic expansion of

neuroethics beyond its current focus on neurotechnology to include neuroethical issues of day-to-day significance to the average neuroscience clinician, researcher, and patient is required. Further expansion of the scope of neuroethics to include more issues of significance to patients and practitioners in low- and middle-income countries is also warranted.

WHAT IS NEUROETHICS?

Wolpe underscored the difficulty in defining what neuroethics "is" in his editorial "Enhancing Neuroethics" (2011) and called for an expansive definition that included a wider range of discussions in a field still in

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