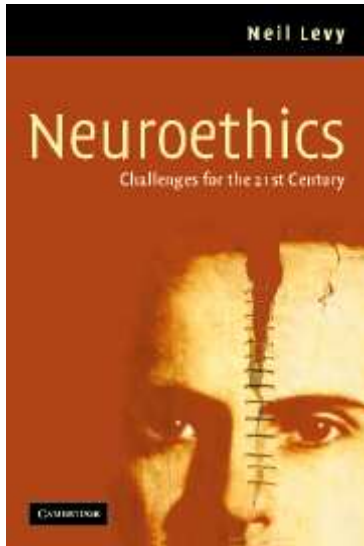


Book Review
Neuroethics. Challenges for the 21st Century
Neil Levy
Cambridge University Press, 2007



On June 2008, in the Indian state of Maharashtra, for the first time a judge has convicted a woman of murder based on evidence from a brain scanning procedure named BEOS (*The New York Times* – 09/15/2008, p. A8). The *Brain Technology Oscillation Signature* test (BEOS) registers data from an electroencephalogram with special software that, according to the inventor, detects the activation of specific region of the brain connected with the memory of really occurred facts. The Indian jurisdiction has been the first to accept BEOS as relevant legal evidence of guilt, but it's certainly not the unique to be interested in to develop such revolutionary technologies.

Actually other jurisdictional institutions are seriously evaluating the possibility of accepting *brain based* tools of investigation, commercial enterprises are also starting to invest capital in the research of brain based predictive models concerning consumers choices. In view of facts like these, it appears reasonable to suppose that a revolution concerning the way we evaluate people's behaviors is near to occur.

If so, from a philosophical point of view, two preliminary questions appear to be of primary importance: *What kind of awareness regarding the brain's functions can improve our understanding of the people's moral status?* And more generally, *how can the experimental research be used in our future studies concerning Ethics?* A new challenge to the traditional philosophical studies comes from one of the most hopeful scientific fields: Neuroscience. Today, the advancement of neurobiological research and the availability of new methodologies of inquiry promise to solve ancient dilemmas, showing us the natural constraints regulating our moral judgments.

The recent methodological progress into the brain's anatomical and functional analysis, made possible by technologies as PET, fMRI, EEG or single neuron investigation, today makes accessible new data concerning the occurrence of simultaneous states of *mind, behavior* and *brain*. These new information, for many years the object of conjectures and speculations, are now accessible for the development of exciting interdisciplinary studies between science and philosophy.

In this context *Neuroethics* represents a good example of multidisciplinary field of research, offering an analysis of the way investigation of the biology of the brain can be employed into different research contexts, including *social, political* and *ethical* studies. As shown by the



increasing number of scientific publications and the copious quantity of items present on the web, *neuroethics* is today the center of a lively discussion, attracting interest from such diverse fields as Philosophy, Neuroscience, Psychology and Cognitive Science. Moreover, it's impossible to underestimate the role that public understanding of science plays in the development of studies so correlated with our common life. The announcements that fit the pages of newspapers, regarding surprising discoveries about the neural basis of our ordinary life, as for example of our sentiments, tastes and decisions, participate with these frequent emphatic account to increase the general interest and the expectations that support, in their turn, new researches and new discoveries.

Before analyzing the main thesis of Levy's book, it's necessary to introduce a preliminary distinction. Internal to the subject of *Neuroethics*, two main different branches can be defined: the *ethics of neuroscience* and *the neuroscience of ethics*. The former regards the definition of an ethical framework for regulating the neuro-scientific enquiry and its application to the human beings, the latter concerns the effects of the neuro-scientific knowledge upon the development of ethical theories.

Into his book, Levy aims to point out how neurobiological knowledge promises to be, more than a solution of ancient philosophical questions, a practical instrument useful for different moral troubles that afflict our social life. Far from proposing an enthusiastic approach, Levy opts for an examination of various instances characterizing the relation between the two, apparently distant, worlds of ethics and experimentation.

It's important to note that Levy's intention is not coincident with the attempt to develop a theory of moral behavior starting from a biological point of view. For this, Levy's proposal is not subject to classical objections against the role of factual knowledge within our moral understanding. Despite the potential confusion related to the introduction of empirical information into moral analysis, a condition well known since Hume's distinction between *descriptions* and *prescriptions*, and despite the limits imposed by the *naturalistic fallacy* introduced by Moore, Levy is successful in giving a representation of the effective practical and theoretical opportunities associated with the study of the relationship between brain and behavior. Instead of a source of theoretical or pragmatic *solutions*, Levy appears to conceive Neurosciences as a special *instrument*, the use of which is central to producing a deeper understanding of the ethical and moral troubles that confront us.

Essential to Levy's argumentation is the definition of *Extended Mind* (EM). With the EM notion Levy aims to show the possibility of considering our mind in a more broad sense than usual, that is not only as *an abstract object*, neither as *a part of our body* confined in our skull. According to the EM notion we can conceive our mind as the *whole set of mechanisms and resources with which we think*, including the set of technical tools we have developed for this purpose, as for example calculators, books and any other part of the environment that supports our cognition.

If the definition of EM proposed by Levy is certainly vague and open to objections, at the same time it furnishes an interesting suggestion about the way the relationships between our mind and our brain's mechanisms could be understood. Starting from the EM hypothesis, the techniques of inquiry we use to scan our brain become integral parts of our vision of the world,



directly influencing our conceptions and our actions. As a new perceptive skill, neuroscience gives us the possibility to contemplate problems with a richer set of information and conceptual parameters, illuminating hidden links between our behavior and the natural circumstances that influence it. In light of this, *Neuroethics* emerges as a new frame of analysis, involving the introduction of different conceptual parameters of evaluation than traditional approaches, as represented by the recourse to *experimental corroborations* for the development of ethical analyses.

Another important purpose of Levy's book is to sketch a more familiar image of neurobiological research. Despite the dramatic perception popularized by some fictions, Levy shows how implausible is the progress of neuroscience toward fearful forms of mental control. As Levy notes, other *traditional* researches, more than the study of our brain's mechanism, permit today the development unconscious mental manipulations devoid.

Without the necessity to refer to complex scientific notions, our social environment alone could be considered a powerful instrument of everyday influence on our perceptions. As well demonstrated by surprising experimental researches, relevant cognitive aspects of our life, such as memory, self identity and judgment skill, are usually modified starting from the influence of our common social relations. After all, for many years the commercial use of psychological strategies to attract customers and increase business is a common aspect of our life, a typical form of mind control that doesn't require any particular kind of neuro-biological intervention.

In particular, a theoretical limit appears to interfere with the development of the "ambitious" projects concerning the realization of efficacious mind reading machines, based on the knowledge of our brain mechanisms. The definition of a standard procedure of analysis, designed for all kinds of mental processes and for any effective cerebral instantiation of them, presupposes that salient aspects of our thought and behavior present the same functional realization in all different brains. If in some respects, this great deal of commonality appears certainly evident in various aspects of our social life, is still far from established for the practical purposes involved in the development of universal mind-reading machines.

Far from being able to control our memory and our behavior in a more efficacious manner than other environmental influences (social or chemical as drugs), neuroscience today can offer a *sub-personal* descriptions of some recurring features that characterize the moral choices of our life. The neurobiological explanation of impairments concerning the coordination of different "modules" of our cognition, as for example involved in syndromes as autism, Capgras' delusion, or in case of brain damage, offers us the possibility to understand better the natural limits characterizing the way we perceive the world and consequently control our body and behaviors.

Ascertained cases of crimes committed in consequence of brain's pathologies, underline the necessity to enlarge the range of legal facts including in them the domain of neuroscience, moreover they also encourage a more accurate awareness about the way our biological constitution is involved in making possible the moral judgments we use every day to live in our social environment.

Cases such as that of the Indian jurisdiction reflect the real importance of an accurate epistemological analysis of the effective level of knowledge today available in the field of



neuroscience. As Levy notes, the reliability imputable to new techniques of mind-reading, such as the BEOS legal test, is strictly connected with the presence of real supporting data and independent controls, both fundamental aspects of serious scientific research that commercial and political interests are frequently inclined to eclipse.

Leaving aside Orwellian scenarios with fantastic speculations, for Levy the importance of Neuroethics is represented by the opportunity to define a revision of our conception of morality on an empirical basis. Enlarging the conception of our mind to the whole set of methodological instruments involved by the development of our knowledge, Levy tries to show troubles concerning morality instead to be only a priori matters, present relevant natural constraints, well represented by the anatomical and functional futures of our brain.

The work of Levy is an appreciable attempt to discuss necessities and limits related to the introduction of experimental methodologies also within classical philosophical debates concerning ethics and morality. Despite the general analysis of the interactions between science and philosophy requires a discussion outside the aspirations of the Levy's book, the studies relating neurological and ethical questions contained in this book represent today an opportunity of progress along the way toward an integrated conception of our mind and our body. This is nothing but an old challenge that still persists also in the 21st Century.

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Table of Contents

1. Introduction
2. Changing our minds
3. The presumption against direct manipulation
4. Reading minds/Controlling minds
5. The Neuroethics of memory
6. The self of "self" control
7. The Neuroscience of freewill
8. Self-deception: the normal and the pathological
9. The neuroscience of ethics