

From the Guest Editor

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This special issue of *Res Cogitans* is dedicated to the problems of neuroethics, i.e. the ethics of brain research and its applications. Most of the authors of the papers are philosophers and bioethicists, and their approach is conceptual and normative rather than purely empirical – although many empirical matters are also considered in the papers. This collection grew out of a workshop on Neuroethics and Consciousness that took place in Turku, Finland, in August 20-21, 2010.

A brief overview of the problems of neuroethics reveals that the field is extensive. While some of the questions are instances of more general ethical problems or analogous to the problems of gene ethics, others are, apparently at least, specifically neuroethical problems. Neuroethics concerns issues such as neuroimaging.

Diagnostic neuroimaging may reveal neurological and psychiatric disorders that cause violent behaviour. Are people suffering from such disorders responsible for their actions when the actions are merely results of impulses that they cannot control?

Suppose that brain imaging reveals neurological and psychiatric disorders that suggest anti-social behaviour. Should we intervene in the neural circuitry or biochemistry of the people whose structural and functional brain images display abnormalities that correlate with such behaviour?

Predictive neuroimaging may reveal dispositions to certain illnesses, including illnesses that cannot currently be cured. Should predictive neuroimaging still be used to predict such diseases when there is no treatment available?

When predictive neuroimaging is used and conclusions are drawn, we typically receive information about *risks*. If a person has an increased risk of getting a certain illness, this does not mean that she will necessarily get it. Would there be more harm than benefit in informing people of the results of brain scans?

Psychosurgery has a negative connotation because it is still associated with lobotomy. However, it continues to be practiced as a defensible medical treatment in some cases although it may have undesirable side-effects and its results are always uncertain. Under what conditions psychosurgery is an acceptable treatment?

Locating the neurobiological cause of mood and anxiety disorders is complicated, because the aetiology of these disorders may include psychological factors such as beliefs that have widely distributed neurological correlates and because these mental states may also be influenced by factors in the physical and social environment. If the efficacy of neurological treatment is limited, is the treatment justified at all?

Whether neurological patients can give valid informed consent can be unclear. Permanent disorders of consciousness and doubts about patients' decision-making competence are relatively common. How to proceed in these cases?

Neurosciences may allow us to enhance people's cognitive capacities. The use of drugs that enhance alertness, attention, memory, or other cognitive capacities can have significant social implications. Some of the consequences may certainly be desirable, but drug abuse may cause serious problems. What are the ethical limits of developing such drugs?

At least in the future, brain imaging and other applications of neurosciences may violate people's right to privacy, in particular, their right to conceal parts of their inner life. Brain scans may also invite misuse of private information. For instance, someone may either coerce or unduly influence a patient or an employee to undergo a scientific intervention. How to secure people's privacy in the age of neuroimaging?

There is more and more knowledge about the neural bases of our moral intuitions. Should this knowledge lead us to change our opinion about the trustworthiness of those intuitions, i.e., do neurosciences have direct normative implications?

Empirical research has already been conducted on how the latest findings on neurosciences have affected people's attitudes about the responsibility of the persons suffering from disorders of consciousness.

Should the results of the studies be taken into account, say, in law drafting and political decision-making?

In the future we may be able to use certain technical equipment simply by mental acts – just like healthy people are now able to move their hands just by deciding to move them. This new possibility would help people with disabilities, but negative applications would evidently follow, for instance, in warfare and war industry. What should be the guidelines here?

The articles of the present collection touch on some of the issues listed above, but are not limited to them. Questions of both ethics and philosophy of mind are addressed. In the first paper, Valtteri Arstila asks to what extent the real prospects of neuroscience match with the prospects as they are pictured in the popular press. The second paper, authored by Catherine Rodrigue, Richard J. Riopelle, James L. Bernat and Eric Racine, deals with ethical and medical issues identified in and associated with the care of patients with disorders of consciousness such as coma and vegetative state. In the third article, Jukka Varelius considers the implications of respecting patient autonomy from the viewpoint of the question of how decision-making competence ought to be understood in connection with medical informed consent. The topic of the fourth essay, written by Ralf J. Jox, is ethics of end-of-life decision-making concerning patients with disorders of consciousness. In the fifth paper, Hendrik Terwort discusses the philosophical questions related to the mental life of patients in vegetative states. In the sixth essay Susanne Uusitalo asks in light of new neuroscientific research on the neurobiological mechanisms of addictions whether problematic gamblers have the kind of control to be morally responsible for their actions. The final article, authored by Luca Barlassina, discusses the philosophy of mindreading, understood as an ability to attribute mental states to other individuals.

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