Chapter 14
Functional Neuroimaging, Free Will, and Privacy

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ABSTRACT

Technological advances in neuroscience have made inroads on the localization of identifiable brain states, in some instances purporting the individuation of particular thoughts. Brain imaging technology has given rise to what seem to be novel ethical issues. This chapter will assess the current abilities and limitations of functional neuroimaging and examine its ethical implications. The authors argue that currently there are limitations of fMRI (functional magnetic resonance imaging) and its ability to capture ongoing brain processes. They also examine the impact of neuroimaging on free will and privacy. The degree of variability of brain function precludes drawing meaningful conclusions about an individual's thoughts solely from images of brain activity. The authors argue that neuroimaging does not raise novel challenges to privacy and free will, but is a recapitulation of traditional moral issues in a novel context.

INTRODUCTION

The development of brain imaging technology in neuroscience has given rise to a new domain in ethics: neuroethics. This fledgling new branch of philosophy is interdisciplinary. Neuroethics covers areas of medicine, cognitive science, and philosophy of mind, and aims to produce systematic reflections about the ethical issues stemming from the rapid development of brain imaging technology in neuroscience.

For clinicians, neuroscience promises to provide new diagnostic and therapeutic tools to treat neurological and psychiatric disorders. For philosophers and cognitive scientists, brain science helps lead the way towards the reduction of mental, or psychological states, to physical, or brain states. Traditionally, philosophers have tried to answer questions about free will, personhood and personal identity, and consciousness and other purportedly unique aspects

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of mental states. Cognitive scientists aim to explain even broader psychological phenomena, including memory, learning, and attention, by combining methods of psychology and neuroscience. Both fields are mostly focused on achieving the scientific explanation of psychological states.

Neuroscience has had a similar goal. Its aim is to uncover the structure and function of the nervous system and ultimately provide physical explanations, in terms of neurological function, of all psychological states. The growing ability of science to uncover the workings of the brain raises numerous ethical issues. If refined enough, brain imaging technology could be used to identify particular mental states, thereby breaking one of the last frontiers of absolute privacy. Already, brain imaging is being utilized in commercial applications for lie detection.

Biomedical sciences have always promised to uncover the nature of life in general and the human body in particular. In the doctor's office or hospital, the vast knowledge that can be obtained using diagnostic tests has often made large encroachments on our bodily privacy, and has made the commitment to doctor-patient confidentiality one of the primary principles in bioethics. It seems, however, that brain technology provides physicians and all other interested parties with a new resource to gain information about our minds. Although most accept some compromise when it comes to their bodily privacy when needed for medical treatment, the possible erosion of the privacy of mental states seems potentially unwarranted.

Our commonsense idea about mental states defines them as inherently private. The origin of this commonsense conception of the mind is unclear, but it is easy to assume that part of it stems from Cartesian dualism (Descartes, 1992). Rene Descartes, the 17th century French philosopher, cleaved what for many years seemed to be an unbridgeable gap between the mind and the body. He argued that the world is made of two distinct substances, *res extensa*, the body, and *res cogitas*, the mind. He argued further that we know our minds first and our bodies second, and that this primacy of access confirms the intimate link between the self and the mind. Descartes essentially argues that mental states are tied to our conscious access to them, which means that mental states can be accessed only by the person experiencing them. Conscious access to mental states reveals their properties to the person experiencing the state and in a veridical way. In Descartes' view, we cannot be wrong about the content of conscious states and that the nature of those states is determined by how they seem to us. Mental states, according to Descartes, are inherently private.

Technological advances in brain science seem to contradict the Cartesian conception of the mind. Brain imaging permits the localization of mental states in the brain, and the study of their nature independent of the person having those states, thereby permitting others, at least in principle, to access our mental states. Neuroscience has often yielded results which run contrary to commonsense ideas about psychology, revealing, for example, that many psychological states are not conscious states (see Merikle & Daneman, 2000). This result puts into question our ability to provide truthful reports of our mental states. The cited scientific evidence not only runs contrary to Descartes original argument that we know our minds better than our bodies, but it also promises to close the gap between mind and body.

For bioethicists, technological advances in neuroscience raise what seem to be novel ethical issues, including the moral permissibility of the further erosion of privacy. Is it morally permissible to use brain imaging in court proceedings? There are, however, further more complex ethical issues connected to the human ability to be moral. We tend to identify our selves with our minds. Our ability to be moral has often been supported by mental phenomena such as free will. If free will is nothing but a brain process, determined by natural laws, our ability to make voluntary choices becomes questionable, and our ability to hold people responsible for their actions is

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