

Neuroscience and Human Rights

Gert-Jan LOKHORST (Delft, The Netherlands)

Nearly fifteen years ago, the first publications began to appear about neuroscience and Human Rights. In an article with the ominous title “Advances in neuroscience may ‘threaten Human Rights’,” which appeared in 1998 in *Nature*, we read:

“Neuroscience is being increasingly recognized as posing a potential threat to human rights, just as another area of biology – research in human genomics – may lead to an excessive focus on genetic determinism and raises the spectre of genetic discrimination. This was one of the conclusions to emerge from the annual public meeting of the French national bioethics committee held last week in Paris on the theme of ‘Science and Racism.’ Jean-Pierre Changeux, the chairman of the committee and a neuroscientist at the Institut Pasteur in Paris, told the meeting that understanding the working of the human brain is likely to become one of the most ambitious and rich disciplines of the future. But neuroscience also poses potential risks, he said, arguing that advances in cerebral imaging make the scope for invasion of privacy immense. Although the equipment needed is still highly specialized, it will become commonplace and capable of being used at a distance, he predicted. That will open the way for abuses such as invasion of personal liberty, control of behaviour and brainwashing. These are far from being science-fiction concerns, said Changeux, and constitute ‘a serious risk to society.’ Denis Le Bihan, a researcher at the French Atomic Energy Commission, told the meeting that the use of imaging techniques has reached the stage where ‘we can almost read people’s thoughts.’ The national bioethics committee is taking such threats so seriously that it is launching a study to consider the issues and recommend possible precautions. The study will also cover more immediate issues such as the legal question of whether criminals are responsible for their actions; Changeux predicts an increase in defence arguments based on irresponsibility due to a genetic predisposition to certain types of behaviour.” (BUTLER 1998.)

Fifteen years is a long time – sufficiently long to assess to what extent the warnings in *Nature* were appropriate. Let us begin with the most startling claim, the claim that we can almost read people’s thoughts. Has anything happened in the last fifteen years to justify this claim? Not really. There is considerable literature on this topic (RICHMOND et al. 2012) and also about its legal implications (*New York City Bar Association* 2005), but we may largely ignore this literature for the very simple reason that mind-reading on the basis of brain scans is *a priori* impossible on purely *philosophical* grounds. There are several simple reasons that support this claim.

First, many mental states are *intrinsically relational*: they do not only depend on a person’s internal properties, but also on the rest of the world. Knowledge is perhaps the simplest example. Knowledge implies truth, as the ancient Greek philosopher PLATO already knew: One cannot know that A is the case unless A is indeed the case. This implies that knowledge cannot be read from a brain scan: A brain scan might indicate that someone believes that it is raining, but this belief cannot be knowledge if it has stopped raining. Knowledge is *intrinsically relational* in the same way as “being an orphan” is *intrinsically relational*: orphanhood

does not depend on one's internal state, but on one's parents. Just as orphanhood cannot be read from one's anatomy, knowledge cannot be read from one's neuroanatomical or neurophysiological constitution.

There is much more to be said about this. According to various kinds of Externalism in the philosophy of mind, "meanings (of thoughts, for example) are not in the head," but depend on the environment and communal linguistic practices, with the consequence that brain scans can only tell a very limited part of the whole story (see LAU and DEUTSCH 2008 and LOKHORST 2011). Even if we knew all that there is to know about the contents of the brain, this still would only give us a piece of the puzzle and not the whole story that we need to have in order to decipher the content of a person's mental state. These claims can safely be made without having to know anything at all about contemporary or future neuroscience, just as I can safely say that $1 + 1 = 2$, or that I am hungry, or that I feel grief, or that I seem to have a free will, without having to know anything at all about neuroscience.

Second, according to the currently popular "extended mind thesis" in the philosophy of mind, the mind is not confined within the brain but extends into the environment (CLARK and CHALMERS 1998). Perhaps the best illustration of this thesis is TURING's classic model of computation (BARKER-PLUMMER 2012). A Turing machine is a finite automaton (an automaton that has only a finite number of internal states) with an unbounded tape. The finite automaton can read and write symbols from a finite alphabet on the tape, one by one. Now where does the machine's computational activity occur? Where is the machine's memory? It is obviously not confined to the finite automaton, but extends to the tape. Similarly, a man's mental activity is not confined to the brain but extends into the man's environment, and a man's memory is not confined to the brain but is partially implemented in the man's environment. To a certain extent, it is even arbitrary where we draw the line between "inside" and "outside." This is a second reason for questioning the possibility of mind-reading on the basis of brain scans. Brain scans can only provide a part of the story.

There is an important ethical lesson to be learned here, namely that there is a certain danger in focusing our attention exclusively on the brain. The environment may be just as important. As the philosopher Daniel DENNETT wrote:

"It is commonly observed – but not commonly enough! – that old folks removed from their homes to hospital settings are put at a tremendous disadvantage, even though their basic bodily needs are well provided for. They often appear to be quite demented – to be utterly incapable of feeding, clothing, and washing themselves, let alone engaging in any activities of greater interest. Often, however, if they are returned to their homes, they can manage quite well for themselves. How do they do this? Over the years, they have loaded their home environments with ultrafamiliar landmarks, triggers for habits, reminder of what to do, where to find the food, how to get dressed, where the telephone is, and so forth. An old person can be a veritable virtuoso of self-help in such a hugely overlearned world, in spite of his or her brain's increasing imperviousness to new bouts of learning [...] Taking them out of their homes is literally separating them from large parts of their minds – potentially just as devastating a development as undergoing brain surgery." (DENNETT 1996, pp. 138–139.)

Conversely, social measures which enable elderly persons to continue to live at home for a longer stretch of time may be just as effective as any brain-based anti-Alzheimer treatment.

There is one area which is mentioned in the 1998 *Nature* publication that we have not yet addressed: neuroscience and the law. This area is currently in full swing. We cannot discuss it extensively, but we do want to point out that some of its practitioners betray the same shortsightedness that we noticed above, namely an undue focus on the brain. This is often accompanied by an insufficient appreciation of the enormous gap between the neuroscientific

view of man (synapses, axons, and so on) and the ordinary view of man (reasons, hopes, fears, desires, plans, and so on). As Stephen MORSE writes:

"Criminal law presupposes a 'folk-psychological' view of the person and behavior. This psychological theory explains behavior in part by mental states such as desires, beliefs, intentions, willings, and plans. Biological and other psychological and sociological variables also play a causal role, but folk psychology considers mental states fundamental to a full causal explanation and understanding of human action. Lawyers, philosophers, and scientists argue about the definitions of mental states and theories of action, but that does not undermine the general claim that mental states are fundamental. Indeed, the arguments and evidence disputants use to convince others presuppose the folk-psychological view of the person. Brains do not convince each other; people do. Folk psychology presupposes only that human action will at least be rationalizable by mental state explanations or will be responsive to reasons – including incentives – under the right conditions." (MORSE 2011, pp. 839–840.)

The law is folk-psychological through-and-through. Even if it adopts a view of man that has been proven false by science, this does not really matter, because in the law everything depends, not on *what we are*, but on *how we want to be treated* and *how we want to treat each other*. In the context of human rights, this is an important point to keep in mind. Whatever neuroscience may tell us, "We the People" (to quote the Preamble to the United States Constitution) have the last word with respect to the topic of human rights.

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Dr. Gert-Jan LOKHORST
Delft University of Technology
Faculty of Technology, Policy and Management
Section of Philosophy
P.O. Box 5015
2600 GA Delft
The Netherlands
E-Mail: G.J.C.Lokhorst@tudelft.nl