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NEUROLAW. A NEW PARADIGM IN LEGAL PHILOSOPHY

Introduction

The main goal of this work is to present the issues connected with a new field of interdisciplinary study – neurolaw. Neurolaw is an emerging field that focuses on the potential for neuroscientific achievements to influence legal science. The structure of argumentation will be as follows: firstly, I will discuss some meta-theoretical questions before presenting some of the practical and philosophical consequences of the applications of new science to legal reality. One of the goals of this work will be to demonstrate that changes in legal philosophy are strongly connected with the practical side of legal science and, conversely, when we modify legal practice through neuroscientific achievements it has an impact on legal theory and philosophy. This is especially so when it comes to philosophical issues since it may change our understanding (or manner of interpretation) of basic legal principles.

That is to say, this work is not a full description of the actual state of research in neurolaw. The purpose of it, and the real reason for writing this article, is to show the dimensions of changes in legal sciences thanks to the rapid development of neuroscience. In other words, it is a presentation of the ways in which we can be a witness to the naturalization of normative science. We will start our analysis from a discussion of some meta-theoretical questions.

The first question concerns the need to seek information in natural science which can have a serious impact (or not) on the legal domain. Do we really need to seek answers in neurobiology? The other doubt is raised over the nature of legal concepts and, to be more specific, over the normative nature of legal concepts. This is because the terms used in legal acts do not describe a certain part of social reality but are rather normative constructions, defining how the world should be organized and not describing how it really is. Everyone should remember that difference between the conceptual scheme of natural science and law when it comes to projects like neurolaw. Carelessly moving from natural science to law will effectively commit the naturalistic fallacy.

The third meta-theoretical issue is a methodological one. Legal methodology has been a subject of constant debate for two thousand years, whereas neuro-

biology took its first steps “barely” one hundred and fifty years ago.¹ Moreover, relevant discoveries in neurobiology have only started to appear in the last two decades.² This creates a situation of methodological instability since we do not know for sure how to interpret, and apply neuroscientific achievements in normative sciences, in particular, how we should proceed in the reinterpretation such fundamental legal concepts as: free will, the person, sense of justice, property or normativity. In facing this problem, working out the correct methodology is one of the most urgent and basic challenges which faces anyone who wants to be a neurolawyer. The last meta-theoretical question concerns the credibility of neurobiological research. Is it really so accurate and precise that we can use them as a point of departure in our legal and philosophical investigations?

For all these questions I will try to propose more or less satisfying answers in the next part of this work.

Two perspectives

Putting in order the various strands of discussion in neurolaw’s domain is not an easy task. The large number of issues which we have to face, a multiplicity of problems and their systemic character are causes that we cannot change one concept in the legal conceptual scheme in isolation, changing one concept causes slight differences in understanding other concepts (for example, when we change the concept of declaration of intent we have to change the concept of legal capacity, when we modify the second concept, our interpretations of the legal subject is going to change and so on). However, it seems that choosing one criterion over another or creating “the correct one” is a side issue. It is accepted in this work that the need for a division of discussion in neurolaw into philosophical and practical perspectives is only heuristic. Accepting it allows us to present in clear and precise manner the most important issues. In the literature we can meet other criteria which also play an accomplished role.³

Neurolaw – from the philosophical point of view

We start our investigations in neurolaw by discussing a strongly theoretical problem, specifically, from an analysis of the concept of a “person,” which seems to be one of the most fundamental legal terms. The person has a long and com-

¹ S. Zeki, O.R. Goodenough, *Law and the Brain: Introduction*, “Philosophical Transactions of the Royal Society B” 2004, vol. 359, p. 1662.

² *Ibidem*, p. 1661.

³ Por. O. Jones, *Law, Evolution and the Brain: Applications and Open Questions*, “Philosophical Transactions of the Royal Society B” 2004, vol. 359, pp. 1697–1707 and B. Garland, *Neuroscience and the Law. Brain, Mind, and Scales of Justice*, Dana Press New York/Washington D.C. 2004, p. 6.

plex history with this term appearing not only in philosophy but also theology, bioethics, ethics and in law, and is also starting to appear in the natural sciences⁴. The crucial question one should ask is what kind of function a person plays in law, or more broadly, in legal sciences? One answer was proposed by Stephen Morse in his article *New Neuroscience, Old Problems*. His answer is combined with another question, perhaps more interesting: how can neuroscience change our understanding of the “person” in law?

According to Morse, a “person” is a rational agent, capable of learning social rules of conduct and acting according to them. A person uses rules as premises in reasoning whether what one should or shouldn’t do:

Human action is distinguished from all other phenomena because only action is explained by reasons resulting from desires and beliefs, rather than simply by mechanistic causes. Only human beings are fully intentional creatures. To ask why a person acted a certain way is to ask for reasons for action, not for reductionist biophysical, psychological, and sociological explanations (...). Only persons can deliberate about what action to perform and can determine their conduct by practical reason.⁵

A special accent is put on practical rationality, especially when it comes to discussing legal matters and the way in which law operates in a society:

(...) law operates through practical reason, even when we most habitually follow the legal rules. Law can directly and indirectly affect the world we inhabit only by its influence on practical reason. For the law, then, a person is a practical reasoned.⁶

It can be seen that the definition of a person (and law) presupposes some version of rationality. Practical rationality is the key for understanding law and the “person” in Morse’s theory and is simply a feature of a subject who is able to understand premises (legal, moral, social rules) of conduct and act according to them. However, another feature of the subject can be traced. Discussion over the nature of a person, law, or legal subject is conducted in a Cartesian paradigm. This means that we accept a dualistic view of human nature and the world.

On one side, we have biological processes, the mechanistic sphere where everything works automatically, where there is no place for choice, freedom or normativity and, on the other, we have a mysterious “it,” which means that we can deliberate over our acts, choose among them and asses what should be done. We are free agents. Our actions are not simply reflexes and we do not automatically respond to external circumstances. We think and act because we are practically rational, we posses insight into practical reason, which is necessary for law (because legal sciences presupposes the existence of such a being). When we trace the structure of argumentation in Morse’s work, we see that when it comes to the person and its actions it isn’t: “the mechanistic outcome of mechanistic variables.”⁷ The author does not distinguish between a person and a human. In

⁴ M. Arbib, *Neuroscience and the Person: Scientific Perspectives on Divine Action* (Scientific Perspectives on Divine Action Series) by Robert J. Russell et al. (Paperback – January 1, 2000).

⁵ S. Morse, *New Neurosciences, Old Problems* [in:] B. Garland, *Neuroscience and the Law...*, p. 160.

⁶ *Ibidem*, pp. 163–164.

⁷ S. Morse, *op.cit.*, p. 164.

fact, it seems that he regards the two notions as being identical. Every human is a person, because every human can think rationally.

What is particularly interesting from our point of view is the second question that Morse asks: "How can neuroscience influence our understanding of a person?" To sum up, a person is a free, rational subject, not simply a machine who responds to the changing circumstances of the external world. The concept of a person is strongly connected with other concepts like: freedom, reason, will etc. So when neurosciences appears on horizon there is the possibility that in the process of naturalizing a person we can – in the end – notice that we have in fact annihilated the concept, and we can only think about humans in mechanistic, biological terms. This is the biggest risk for law, ethics or even all normative science. The Cartesian paradigm that Morse accepts forces him to argue in this dualistic manner. This paradigm in our case takes the form of a dualistic view of human beings: in humans we have minds and brains, which are somehow different and separated from each other. Naturalizing the mind is a danger for persons because when it succeeds there will be no people, only a biological (mechanistic) explanation of humans. The result of such a strategy will be a change in our fundamental intuitions about the person understood as a rational, free-choosing agent and, in the end, we will have to change our basic intuitions about law. However, Morse concludes that there is no considerable risk that neuroscience can, so soon at this point of its development, naturalize personhood. As a result, we can speak of a person as it was understood so far.

To sum up, an advantage of this kind of reasoning is mostly that, it brings attention to the concept of the subject in legal science, and also it concerns an essential problem – how can neuroscience influence the concept of person, and therefore on the legal system. However, it should be conducted with a higher dose of precision and more carefully than Morse did so since Morse's argument is flawed. Firstly, his definition of a person is arbitrary accepted. He doesn't explain why he uses this definition and why not another one. In fact, perhaps he does not speak about the person at all? The way in which he argues for his point reveals the author's attachments for a dualistic picture of the world, a kind of Cartesian paradigm. It is of course acceptable to accept in one's work a dualistic ontology, on condition that one explains why it is necessary but Morse does not do so. Secondly, as we have seen before, the naturalization of normative sciences is a naturalization of different sort, than this proposed by Morse. In our case, between neuroscience and law, lies philosophy and philosophical arguments. Lack of it will, as we have seen in Morse's argumentation, cause further problems. Nevertheless, there is another way in which we can analyze a person understood as a fundamental legal concept.

First of all, law presupposes a certain anthropological thesis and this thesis is crucial for the picture of the human which is present in legal sciences. It describes, for example, the ways in which humans make decisions, or find themselves in one or another legally relevant situation. During the process of careful analysis we will be able to extract from legal rules, doctrines and sentences a set of anthropological theses and then use them to construct a picture of the human which is presupposed in law. It has to be pointed out that "a picture" of the human in law cannot be equated with a definition of a human being. The main

difference is that a picture is not a complete description of what humans are. The picture contains only a characteristic of humans to the extent which it is relevant to law. When this picture is reconstructed we can start to wonder how it can be modified by achievements of neurosciences. Being more precise, we can see how a picture of the human in legal sciences can be actualized by the picture of the human present in neuroscience. At this point, after the actualization of the picture of the human in law, we should check how this change will affect fundamental legal institutions or the conceptual framework of law. The next step we can take is to propose a slight change of the interpretation of legal concepts (when necessary), for example, a concept of the person in private law and also the concepts connected with it. In this manner, changes to the anthropological thesis in law can be a cause of change in the person in law.

As we have seen, modifying one term will perhaps make a difference in understanding other terms in the conceptual framework, because the conceptual scheme of law is a complex net of connections between many different notions. When we change one, for example a person, we should revisit such terms as declarations of intent, legal capacity etc. At the end of this process we can actually face a situation where we started with modification of legal notions, and end up with a modification of the ways in which we apply legal rules.

Normative judgments

The next issue which has been lively discussed in the literature is the problem of normative judgments. At first glance, it seems to be only a theoretical problem. Normative judgment happens when a subject declares – generally speaking – how one should or shouldn't proceed. Nevertheless, we need a clearer and precise definition of normative judgment:

For our own usage, we like the term ‘normative judgment’ as an inclusive description of the many flavours humans find among those things that ought to be done and those that ought not to be done, particularly in the social context of interaction with other humans. In this sense, normative judgment first involves the construction of a system (or systems) of norms, values and expectations, and, second, the evaluation of the actions of another agent, or of our own actions, made with respect to these norms, values and expectations.⁸

From the philosophical point of view, the question of the nature of normative judgment is essentially important. The accepted conception of normative judgment introduces a limitation on the definition of ethics or law. Understanding how people make normative judgments also has an influence on the concept of the subject in legal sciences. So, as we can see, the answer for the question: “what is the nature of normative judgment?” is very important from a philosophical point of view.

⁸ O.R. Goodenough, K. Prehn, *op.cit.*, p. 1710.

Philosophers have since time immemorial, we can say without exaggeration, been concerned with the source of normative judgements. They still search for what is responsible for making a judgment – emotions, reason or maybe something else? For the purposes of this work, we assume that two main positions in philosophy can be pointed out and a set of variations between them. The first gives priority to reason and the second claims that emotions are the source of normative judgment. The first is represented by Immanuel Kant, who thought that only reason is responsible for declaring what is right and what is wrong. The second is usually ascribed to David Hume, according to whom emotions were considered as the most important ingredients of this kind of judgment. These positions were irreducible to one other and we did not possess a criterion for resolving which philosophical position is the correct one. The situation changed when, in neuroscience, researchers started to investigate which part of our brains are active when we resolve moral dilemmas or legal cases. Initial research showed that neither Hume nor Kant were right, and the truth about source of normative judgment lies between them.

We are privileged – by contrast with Hume and Kant – because we have more data than they did at their disposal and thus we are not compelled to only observe and speculate about the source of normativity. Natural science, and in this case – neuroscience, provides us with more data than those philosophers possessed in their times. However, despite this lack and using purely speculative methods, they were not completely wrong in answering the question: is normative judgment a domain of reason or a domain of emotions?

Today, we are able to ask this question again and try to answer it, but from a new perspective. Firstly, we shouldn't think about normative judgment as a strictly rational activity. This observation, or rather an interpretation of neuroscientific information, was the main cause for proposing an answer that emotions play a crucial role and reason is only a tool which actualizes itself after judgment and its role is to create justifications *ex post* for our choices. This “social intuitionist model,”⁹ however, also seems to be inconsistent with neuroscientific achievements. In light of the latest research a normative judgment is:

The totality of the evidence suggests that normative judgment consists of one or more sets of higher mental abilities, which in turn rely on a variety of disparate cognitive and affective processes, such as understanding of a situation, appraising its emotional valence, activating norms from long-term memory, maintaining a norm in working memory, comparing the norm with the present behavior, and deciding if there is any transgression, all of which take place under the influence of emotional processes. Therefore the neural basis of normative judgment is likely to involve several brain systems and to be distributed across the large portions of the brain. That said, it is also possible that there may be dedicated elements – perhaps even primitives – for certain aspects of the process.¹⁰

This brief description is called a consensual model, because it reconciles the Kantian and Humean propositions. In this case reason and emotions are consti-

⁹ J. Haidt, *The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment*, “Psychological Review” 2001, vol. 108, pp. 814–834.

¹⁰ O.R. Goodenough, K. Prehn, *op.cit.*, p. 1717.

tutive elements of it. Nevertheless, the consensual model isn't the final answer which neuroscience can provide. This is because there is a third, more mysterious element of judgment, namely intuition. For example, we can think about everyday judgments about how one should do something, and we are not emotionally involved in it nor do we take time to make fully rational decisions. Moreover, a situation can easily be imagined when we don't think about a correct way of proceeding and yet we do something correctly. A good example of this kind of situation is when we drive a car. We are not emotionally involved when we are doing this, neither do we take time to think it through carefully. The consensual model then tries to tie together reason, emotions and intuition. As a conclusion, it can be said that the old, philosophical paradigm "reason-emotion" is no longer a good point of departure when it comes to revealing the "real" nature of normative judgment.

Presently, the goal of research in neurobiology is focused on the identification of brain areas connected – or more precisely, brain areas which can be interpreted as those which can possibly be linked – with a certain kind of judgment. Particularly interesting is the possibility of a demarcation between moral and legal judgments. Goodenough and Prehn¹¹ claim that setting a boundary between law and morality can be possible from the neurobiological point of view. Research shows that during judging, where premises are literally expressed legal rules, brain areas usually responsible for deductive reasoning are active. On the other hand, when the premises of our reasoning are not expressed in legal enactments or are expressed in any other way we don't "think" rationally. In this case, brain areas are active which are usually connected with emotional processing. This observation – while of course interesting – fails to settle an argument between those who think that law and morality are essentially different, and those who think that law and morality make the same normative system of rules. Further research has to be done in order to provide a more precise answer, but the prospects are very promising.

Also interesting seems to be research which is devoted to measuring the neurological activity of professional lawyers and people who are not involved in legal practices. The activity was measured during the resolution of legal cases and moral dilemmas. Researchers tried to find answers to three questions:

- 1) Are there any differences in brain activity when resolving "hard" and "easy" cases?
- 2) Does the neurobiological process which stands behind decision making the same in legal professionals and legal laymen?
- 3) Is there any difference – from the neuroscientific point of view – between resolving normative dilemmas and any other?

At first glance it seems that deliberations over whether normative judgment is fundamentally rational or emotional are purely theoretical – interesting but theoretical. However, in fact it can be used in practice. For example, research conducted on judges of the first and second instance supplied very interesting results. The brain area activated when judges passed a sentence were different in judges of the first instance than in the case of judges of the second instance. In

¹¹ *Ibidem*, p. 1719.

the case of adjudicating in the first instance, brain areas which were activated were similar to those which are responsible for decision making in cases like *footbridge type dilemma*. It means that emotional reasoning plays a greater role in the first instance court. Judges in trial court are of course rational, however, the role of neurobiological processes which stands behind a first instance decision has a major influence on it. It can be concluded that sentences in trial court are not as objectively rational as they could be. On the other hand, in the case of judges of the second instance, brain areas activated are similar to those activated in the case of people resolving moral dilemmas like *trolley type dilemma*. As a result, the research came to the conclusion that judges in appeal court are more rational because their relations with parties are less personal. Therefore, their sentences are more objective and fair because judges themselves are obtain a higher degree of rationality.

These results can bring very exciting consequences for the process of applying law. Firstly, we can formulate rules of a good trial – the more impersonal relations between parties and judges, the more rational and objective will be a sentence. When a sentence will be more rational, then – automatically – will be fairer.

This is only one example of how neuroscience can enrich our theoretical knowledge about law and thus have an impact on legal practice. We can fluently move from theoretical deliberations to practical ones and vice versa. Therefore, it is hard to think of neurolaw in an non-systemic manner. Changes in theory are very important from a practical perspective, and – as we will see in the next part – changes in legal practice are also important from the theoretical perspective.

Neurolaw from a practical point of view

We can start our investigations from another side, namely we can go straight to the practical side of legal science. Instead of analyzing legal concepts in light of neuroscientific achievements, and then proposing new ways of interpretation, we start now from legal practice, and we are going to analyze if technologies used in neuroscience can be helpful for legal problems.

In fact, they can be and they are. A good example of such a strategy are *neuroscience based lie detectors*: infrared lie detection, thermal imaging, fMRI and so called “brain fingerprinting.”¹² The first one measures blood pressure in a brain.¹³ We don’t need to describe technical details but it suffices to mention that slight changes of blood pressure in brain areas connected with cheating can be interpreted as an indication that a certain person lies. The second technique is thermal imagining. This is based on the observation that a lying person emits more heat in eye areas than a person who is honest. However, these methods are not – strictly speaking – revolutionary. The situation changed when fMRI

¹² www.brainwavescience.com; “Neuroscience and The Law”, p. 109 ff.

¹³ R. James, *Brainwave Monitoring Becomes Ultimate Lie Detectors*, “SciScoop: Exploring Tomorrow”, January 6, 2003.

was first used in order to detect if a person tells the truth or lies. Dr Daniel Langleben made an experiment using fMRI and concluded that when people are lying, their ACC (*anterior cingulate cortex*) and SFG (*superior frontal gyrus*) automatically light up. In the case of honest people, their ACC and SFG are not activated so much. In fact, when people tell the truth, another brain area lights up – the temporal lobe. Of course, we do not know for sure that the ACC is responsible for cheating because it is also responsible for, for example, resolving cognitive conflicts.¹⁴ Therefore, using fMRI in spite of its promising results is still not the ultimate technique for lies detecting.

The most technologically developed lies detector is so called “brain fingerprinting.” It measures the electrical activity along the scalp produced by the firing of neurons within the brain. What it is important from our point of view is that we can use this technique to say if someone has contact with a brand new stimulus. It can be very useful as a tool for interrogation since, for example, we can present a stimulus that it is known only to the police and an offender, and if the brain tells the person had prior contact with this particular stimulus then she committed a crime.

To this day, brain fingerprinting was used several times in legal proceedings. The most spectacular use of it took place in T. Harrington’s case. He was released after serving twenty four years in prison for murder. L. Farwell demonstrated in the courtroom that an electrical pattern of the brain of T. Harrington was inconsistent with the pattern of person who really committed this crime. Judge allowed the use of proof from brain fingerprinting because it was consistent with Daubert’ standard.

As we have seen, neuroscience is already present in courtrooms. Brain fingerprinting is the best example of this tendency, which in time will be getting stronger – it could be used to assess the credibility of witnesses, or even parties. Yet there is another side to this coin: Can we test a person with BF without her consent? Or how we should assess the testimony of a witness who refused to take a test with BF? I think that using BF can have potentially huge consequences for legal principles like the presumption of innocence. It’s fascinating how the modifications of legal practice can influence legal theory.

Summary

By way of a conclusion, we will try to answer a few meta-theoretical questions which we asked at the beginning of this work. Firstly, lawyers really don’t have to make use of neuroscientific achievements, the law works fine without them. Lawyers, of course, needn’t be biologists. However, as we have seen, the application of new science can bring us benefits: we will be able to finally understand the process of decision making which is so important for a legal system, we will know

¹⁴ D. Langleben, L. Schroeder, J. Maldjian et al., *Brain Activity during Simulated Deception: An Event-Related Functional Magnetic Resonance Study*, “*Neuroimage*” 2002, vol. 15, pp. 727–732.

more about humans as understood as a subject of legal rules, we will have at our disposal brand new tools (neuroscience based lie detectors) which can improve legal proceedings by making them more scientific. Secondly, the legal system is a set of normative concepts and neuroscience provides us only with descriptive ones. Yet, as we have seen, the legal system presupposes an anthropological thesis and when we actualize it with neuroscientific knowledge we avoid committing the naturalistic fallacy. This means it is possible to change normative legal concepts through the use of descriptive neuroscientific arguments. Therefore, we can still use science to resolve legal issues and it is without question a considerable advantage that neurolaw enjoys over other interdisciplinary studies of law.