

# Neuroscience and the Ontology of Law

Neuronauki i ontologia prawa

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## Abstract:

The goal of the paper is to consider the possible impact of the discoveries in cognitive neuroscience on legal ontology. First, it is argued that - contrary to some popular claims - social ontology is not a priori in relation to neuroscience. Second, the question of how culture in general, and law in particular, is possible, is answered from the perspective of the cognitive sciences. The answer is based on an evolutionary scenario, which explains the emergence of stable patterns of behaviour within human communities. Finally, the problem of the 'nature of law' is addressed. It is argued that the picture of the evolution of culture sketched by the cognitive sciences provides an explanation why there exists no single, proper definition of law.

## Keywords:

law, neuroscience, legal ontology, imitation, the nature of law, rule-following

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## Streszczenie:

Celem artykułu jest rozważenie możliwego wpływu odkryć w dziedzinie neuro nauki poznawczej na ontologię prawa. Najpierw - wbrew popularnym tezęom - dowodzi się, że tzw. ontologie społeczne nie są a priori wobec siatki pojęciowej neuronauki. Po drugie, analizowany jest problem, jak - z perspektywy nauk kognitywnych - możliwa jest kultura, w tym prawo. Wyjaśnienie tego problemu opiera się na konstrukcji scenariusza ewolucyjnego, ukazującego drogę powstania stabilnych wzorców zachowań w społecznościach ludzkich. Po trzecie, analizie poddane zostaje pytanie o istnienie 'natury prawa'. Twierdzi się, że obraz ewolucji kulturowej stworzony w naukach kognitywnych dostarcza przekonujących argumentów, dlaczego nie istnieje jedna, poprawna definicja prawa.

### Słowa kluczowe:

prawo, neuronauka, ontologia prawa, imitacja, natura prawa, postępowanie zgodnie z regułą

The recent advancements in cognitive science have to a large extent reshaped our understanding of human behaviour. It is therefore no surprise that lawyers have been looking at the findings of neuroscience<sup>[1]</sup> and related disciplines in order to determine whether the new science of the mind<sup>[2]</sup> can contribute to the functioning of the law.<sup>[3]</sup> This process culminated in the establishment of a new legal discipline, often referred to as ‘neurolaw’ or ‘law & neuroscience’.<sup>[4]</sup> So far, the interests of ‘neurolawyers’ have been practical rather than theoretical or philosophical. According to a recent survey article, the main areas of ‘law & neuroscience’ include such legally relevant issues as brain death, brain injury, pain and distress, memory, emotions, lie detection, judging, brain development, and addictions.<sup>[5]</sup> These prob-

lems are not merely interesting from the legal point of view: any reasonable approach to the law requires to have an up-to-date and scientifically sound understanding of the aforementioned issues. However, there are also studies which suggest that neuroscience (and cognitive science in general) may contribute to the development of doctrinal theories pertaining to criminal responsibility or contract law.<sup>[6]</sup> Doubtless, such an approach is much more complex and connected to numerous methodological traps. The law operates within a certain conceptual scheme which is quite different from the conceptual apparatus of neuroscience.<sup>[7]</sup>

The legal ontology is still further up on the scale of abstractness, and hence the question arises whether the neuroscientific findings can in any conceivable way inform ontological inquiry. My goal in this paper is to consider this issue. I begin by rebutting an argument by Maxwell Bennett and Peter Hacker to the effect that our conceptual scheme – and hence our basic ontology – is *a priori* in relation to any scientific theory. Then I sketch a picture of the emergence of culture as found in the recent evolutionary scenarios and neuroscientific theories. Against this background I argue that there is no – and there cannot be – one correct understanding of what the law is, which explains why

<sup>1</sup>The term ‘neuroscience’ is understood very broadly here and refers to all kinds of interdisciplinary study of the nervous system, embracing various aspects thereof, from molecular to behavioural, and including, *inter alia*, behavioural neuroscience, cellular neuroscience, clinical neuroscience, cognitive neuroscience, computational neuroscience, cultural neuroscience, developmental neuroscience, molecular neuroscience, neuroimaging, neuroengineering, neuroinformatics, neurolinguistics, social neuroscience and systems neuroscience.

<sup>2</sup>I borrow this phrase from an engaging book by Rowlands, M. (2010) *The New Science of the Mind*, MIT Press, Cambridge, MA.

<sup>3</sup>ed. Garland, B. (2004). *Neuroscience and the Law*, Dana Press, New York – Washington. For a critical overview see Pardo, M., Patterson, D. (2013) *Minds, Brain, and Law*, Oxford University Press, Oxford.

<sup>4</sup>ed. Spranger, T. M. (2012). *International Neurolaw*, Springer, Dordrecht.

<sup>5</sup>Jones, O. D., Schall, J. D., Shen, F. X. (2014) *Law and Neuroscience*, Vanderbilt University Law School, Public Law and Legal

Theory, Working Paper p. 14–12.

<sup>6</sup>Pardo, M., Patterson, D. *op. cit.*

<sup>7</sup>*Ibidem.*

it is possible to develop competing, but equally acceptable legal ontologies.

## Legal ontology meets neuroscience

When one considers the relationship between neuroscience and ontology, the first problem to address is whether the findings of neuroscience or other related disciplines have any relevance for ontological inquiry. Perhaps the most famous answer to this question was given by Maxwell Bennett and Peter Hacker in their celebrated book *Philosophical Foundation of Neuroscience*.<sup>[8]</sup> Bennett and Hacker insist, first, that one should clearly distinguish between two types of questions, conceptual and empirical:

Distinguishing conceptual questions from empirical ones is of the first importance. (...) Conceptual questions antecede matters of truth and falsehood. They are questions concerning our forms of representation, not questions concerning the truth or falsehood of empirical statements. These forms are presupposed by true (and false) scientific statements and by correct (and incorrect) scientific theories. They determine not what is empirically true or false, but rather what does and what does not make sense. Hence conceptual questions are not amenable to scientific investigation and experimentation or to scientific theorizing. For the concepts and conceptual relationships in question are presupposed by any such investi-

gations and theorizing.<sup>[9]</sup>

The final sentence of the quoted passage is of special interest. Bennett and Hacker claim that concepts are *a priori* to any scientific investigation. They believe further that the failure to notice this fact often leads to serious errors, and in particular the so-called mereological fallacy, common – as they stress – in the contemporary cognitive neuroscience. It consists in referring to the brain or its parts with concepts which are correctly applicable only to a person as a whole. They observe: [talking] of the brain's perceiving, thinking, guessing or believing, or of one hemisphere of the brain's knowing things of which the other hemisphere is ignorant, is widespread among contemporary neuroscientists. This is sometimes defended as being no more than a trivial *façon de parler*. But that is quite mistaken. For the characteristic form of explanation in contemporary cognitive neuroscience consists in ascribing psychological attributes to the brain and its parts in order to explain the possession of psychological attributes and the exercise (and deficiencies in the exercise) of cognitive powers by human beings.<sup>[10]</sup>

One may ask whether the problem Bennett and Hacker identify is a real one. It may be argued, for example, that such claims as 'the brain thinks' or 'the right hemisphere is responsible for decision-making' are not to be taken literally. Some fundamental linguistic intuitions and the basic knowledge of language are enough to realize that such a utilization of the words 'think' or 'decide' is metaphorical or analogi-

<sup>[8]</sup>Bennett, M.R., Hacker, P.M.S. (2003) *Philosophical Foundations of Neuroscience*, Wiley, Blackwell, Malden, Oxford. This section is partly based on my previous paper, Brożek, B. (2013) *Philosophy and Neuroscience. Three Modes of Interaction*, in: Stelmach, J., Brożek, B., Kurek, Ł. (eds.), *Philosophy in Neuroscience*, Copernicus Center Press, Kraków.

<sup>[9]</sup>Bennett, M., Dennett, D., Hacker, P., Searle, J. (2007) *Neuroscience and Philosophy: Brain, Mind, and Language*, Columbia University Press, New York, p. 4.

<sup>[10]</sup>*Ibidem*, p. 7.

cal. Bennett and Hacker are fully aware of this strategy to defend the existing neuroscientific idiom and clarify that the evidence for neuroscientists' committing the mereological fallacy does not lie in the fact that on occasions they use 'inadequate' psychological terms to describe the functioning of the brain, which may easily count as taking advantage of analogy, metaphor, homonym or using a concept with a derivative meaning. The mereological fallacy results when neuroscientists transfer entire complexes of concepts from the 'psychological discourse' to the 'neuroscientific' one, and – on the basis of such inadequate attributions – they draw conclusions.

Is Bennett and Hacker's argument tenable? I believe no, and the reason is their foundational view of knowledge. There are two interpretations of Bennett and Hacker's foundationalism. The stronger interpretation, attributed to them by John Searle, is that they believe natural language to determine the only acceptable ontology. Searle says that they commit a fallacy: the fallacy, in short, is one of confusing the rules for using the words with the ontology. Just as old-time behaviourism confused the evidence for mental states with the ontology of the mental states, so this Wittgensteinian criterial behaviourism construes the grounds for making the attribution with the fact that is attributed. It is a fallacy to say that the conditions for the successful operation of the language game are conditions for the existence of the phenomena in question.<sup>[11]</sup>

This reading finds some textual evidence. Interestingly, while elaborating the doctrine of the mereological fallacy, Bennett and Hacker quote Aristotle as one of those who first con-

demned this erroneous mode of thinking. He observed that 'to say that the soul is angry is as if one remarked that the soul weaves or builds, for it is surely better not to say that the soul pities, learns or thinks, but that a man does these with his soul'. One needs to remember, however, there is a certain metaphysical view standing behind his claim. Aristotle's metaphysics is essentialist: he believes that every entity belongs to some natural category, one determined by the entity's essence (form); moreover, he believes that the essences may be captured by the so-called essential definitions<sup>[12]</sup>. Thus, the incorrect or metaphorical use of words is not a mere mistake – it is an error that may effectively ruin our attempts to construct the foundations of knowledge, captured by the essential definitions. This doctrine is, of course, far from the actual scientific practice. The history of science shows clearly that no such foundations should be assumed as they are most likely to ban scientific progress. But if so, the same holds for Bennett and Hacker's view: if they indeed believe that the conceptual scheme of the ordinary language determines 'the only' ontology, their conception is hopelessly flawed.

It is also possible to read Bennett and Hacker in a more moderate manner; this weaker interpretation is that they only underscore that the conceptual scheme which constitutes the framework for the ordinary language does not determine any unique ontology, but nevertheless is independent of any scientific practice, in the sense that in order to communicate any scientific discovery one needs to employ concepts according to some pre-existing criteria. If one does not do so, one risks following wrong

<sup>[11]</sup>Ibidem, p. 105.

<sup>[12]</sup>Popper, K. (1966) *The Open Society and Its Enemies*, vol. II, Princeton University Press, Princeton, p. 1ff.

paths and uttering nonsensical statements: the incorrect use of language can lead us astray. The conceptual scheme of the ordinary language constitutes, at the very least, the foundation for communicating scientific theories.

This view – even on the moderate reading – is troublesome. Firstly and less importantly, Bennett and Hacker are mistaken when they claim that an excessive use of metaphors, and in particular clusters of metaphors is destructive for any neuroscientific endeavour. Certainly, it may lead to blind alleys yet there is little danger that the consequences of such a way of expression will be daring. The reason is that neuroscience, as any other science, has some built-in corrective mechanisms that ultimately help us to distinguish progress and fruitful hypotheses from mere mistakes and useless conjectures. The presence of this mechanism is evident once one considers the recent successes of neuroscience. A science which overuses metaphors and leads to no serious predictions or explanations is simply a bad science; the mere fact of committing or omitting the mereological fallacy is of no significance here.

Secondly, we should consider the bigger picture, which is encapsulated in Bennett and Hacker's claim that the conceptual scheme of the ordinary language is *a priori* relative to the scientific practice. It is particularly troublesome with respect to neuroscience. It must be realized that the psychological idiom, characteristic of the ordinary language, is not only shaped by our inner experience but also by the theories developed throughout the history which aimed at conceptually capturing mental phenomena. The problem is that the conceptual scheme of the ordinary language is characterized by some inertia: it takes much time for the current scientific conceptions to 'infiltrate' our ordinary

conceptual scheme. It is safe, therefore, to assume that today's ordinary language 'embraces' some psychological theories of yesterday, or better even: a blend of those theories and common-sense ideas. Now, to say that ordinary concepts are *a priori* relative to neuroscience amounts to saying that folk psychology is *a priori* to neuroscientific theories, which is an outright nonsense: it is one of the main goals of the contemporary neuroscience, one that it fulfils vigorously and with much success, to revise our old, common-sense psychological notions.

This clearly shows that Bennett and Hacker's conceptual foundationalism is faithful neither to the mechanisms of scientific practice, nor to the way our conceptual schemes evolve: they are never final, or independent of the theories we develop. This point is quite general and pertains to any foundational philosophical project: the sources of philosophical reflection are always, at least partially, based on *some* scientific conceptions, although often on outdated ones. In the case of Thomism, the Aristotelian view of the world – or the Aristotelian science – constitutes the foundations of the conceptual scheme. Similarly, in the case of those philosophies that find confirmations or disconfirmations in the workings of the ordinary language, it is the knowledge encapsulated there (e.g., a kind of folk psychology being a blend of the common sense observations and some old psychological theories) that ultimately determines the philosophical doctrines of the followers of Austin and Strawson. In other foundational projects, such as phenomenology, the scientific knowledge internalized by any given person crucially shapes their experiences, and so their philosophical views. All in all, there is no source of philosophical knowledge that would be independent of some kind of science, and

the key point is that this ‘hidden science’ may be at odds with what the contemporary science has to say. The splendid isolation of ordinary language philosophers is an illusion: there is no escape from the confrontation with the barbarians from the other side of the Channel.

It does not mean, of course, that the mutual interactions between neuroscience and ontology are unproblematic and straightforward. It is difficult to imagine that some neuroscientific discovery or theory may have direct bearing on ontological deliberations. In this sense, Hacker and Bennett make a valid point: philosophy and neuroscience use different methods, different conceptual schemes, as well as deal with different kinds of problems. However, as I tried to stress, those different discourses are not isolated from one another; rather, they interact in numerous ways. It is difficult to map those interactions precisely, and harder still to uncover their structure. They take place at various levels: conceptual (concepts migrate from philosophy to neuroscience and *vice versa*, often altering their meaning), presuppositional (scientific theories and methods often presuppose strictly philosophical theses), problem (philosophy and science often tackle similar problems), and functional (e.g., scientific theories may in some contexts replace philosophical theories, while philosophical doctrines can play a heuristic role in science).<sup>[13]</sup> The scope of the present paper is too limited to provide a more comprehensive description of these interactions.<sup>[14]</sup> The moral is, however, that since

such interactions exist, it is possible to relate ontologies to neuroscientific theories.

The ontologies one develops may be *more or less coherent* with given neuroscientific conceptions. For example: if a neuroscientific theory presupposes some form of strong reductionism (i.e. the thesis that all mental phenomena may be fully explained by brain activity), then such a theory is more coherent with some version of materialism than it is with a dualistic ontology, which underscores strict separation of mind and body. The Aristotelian conception of the mind is more coherent with the embodied mind paradigm than it is with the view that mind is a kind of a Turing machine. These bold examples show that ontology and neuroscience are not completely alien to each other. If one embraced strict mind-body dualism in their ontological conception, while believing in strict reductionism underlying their neuroscientific considerations, they would simply be incoherent in their beliefs. Our knowledge does not consist of isolated ‘islands’ – that of ontology and that of neuroscience; it rather resembles Quine’s web of beliefs, where ontological and scientific conceptions are interconnected in various ways.

When investigating the relationship between neuroscience and legal ontology one has at least two strategies at hand. The first may be deemed *presupposition analysis*. It consists in uncovering the relevant presuppositions of a given ontology and checking whether they are coherent with the neuroscientific theories. For example, the view of law proposed by Thomas Hobbes assumes a peculiar view of human nature, according to which humans act in a purely egoistic way. This is incompatible with the findings of the contemporary evolutionary theory and neuroscience. At the same time, John

<sup>[13]</sup> I provide a more in-depth analysis of the four levels in Brożek, B. (2011) *Philosophy in Neuroscience*, in: Brożek, B., Mączka, J., Grygiel, W. (eds.), *Philosophy in Science. Methods and Applications*, Copernicus Copernicus Center Press, Kraków.

<sup>[14]</sup> For further details see Brożek, B. *Models of Naturalizing Jurisprudence*, in manuscript.

Locke's view of human nature, which serves as the basis of his conception of law, is much more coherent with the picture of human motivational mechanisms as found in scientific literature. Thus, one may conclude that Locke's theory of law is more coherent with the views embraced by the contemporary neuroscientists than Hobbes' conception is.<sup>[15]</sup>

The second strategy is *genealogical*. Here, one does not begin with an ontology, but by reconstructing the evolutionary history of the development of the relevant abilities of the human species. Let us consider law or any other social institution. A genealogical narrative does not lead to one particular ontology of law, but rather uncovers the mechanisms which made the emergence of law possible in the first place. But this is an important insight, one that excludes certain social ontologies (as incoherent with the reconstructed evolutionary scenario), while allowing a number of other ontological stances (as coherent with the scenario to a greater or lesser degree).

In what follows, I adopt the second strategy.

## The emergence of culture

In order to inquire into the origins of law – or, to put in differently, to answer the question ‘what makes the law possible’ – one needs to bear in mind two methodological precepts. First, there is no point in limiting the analysis to the findings of neuroscience alone. On the one hand, neuroscience is difficult to define in such a way that it would be clearly distinguished from related sciences (e.g., evolutionary theory, pri-

matology, developmental psychology, etc.). On the other hand, such a limitation would make our quest for a theory of the origins of law much weaker. The more arguments from different disciplines can be formulated in support of a given evolutionary scenario, the better justified it is.<sup>[16]</sup> The second precept is the following: there is no sense in inquiring into the origins of law *per se*, as if it was completely separated from the other forms of cultural behaviour. It does not seem possible that the law evolved separately from morality or other social institutions. The question ‘how is the law possible?’ is only a small aspect of a more general question: ‘how is culture possible?’

The emergence of culture is a puzzle for one simple reason. Michael Tomasello notes:

The 6 million years that separates human beings from other great apes is a very short time evolutionarily, with modern humans and chimpanzees sharing something on the order of 99 percent of their genetic material – the same degree of relatedness as that of other sister genera such as lions and tigers, horses and zebras, and rats and mice. Our problem is thus one of time. The fact is, there simply has not been enough time for normal processes of biological evolution involving genetic variation and natural selection to have created, one by one, each of the cognitive skills necessary for modern humans to invent and maintain complex tool-use industries and technologies, complex forms of symbolic communication and representation, and complex social organizations and institutions.<sup>[17]</sup>

<sup>16</sup>Brożek, B. (2015). Explanation and Understanding, in: Brożek, B., Stelmach, J., Hohol M. (eds.), *The Concept of Explanation*, Kraków: Copernicus Center Press.

<sup>17</sup>Tomasello, M. (1999) *Cultural Origins of Human Cognition*, Har-

<sup>15</sup>Zaluski, W. (2009). *Evolutionary Theory and Legal Philosophy*, Edward Elgar.

And he adds:

There is only one possible solution to this puzzle. That is, there is only one known biological mechanism that could bring about these kinds of changes in behaviour and cognition in so short a time (...). This biological mechanism is social or cultural transmission, which works on time scales many orders of magnitude faster than those of organic evolution.<sup>[18]</sup>

Thus, Tomasello claims that the richness and complexity of human culture cannot be explained by the mechanism of biological evolution alone; rather, one needs to posit that in our phylogenetic past some relatively minor biological adaptations paved the way for the emergence of the mechanism of cultural evolution. The crucial aspect of this mechanism is what Tomasello calls the cultural ratchet: cultural transmission is cumulative, i.e. the behavioural patterns discovered by one generation are passed on to the subsequent generations. Because of that, there is no need to 'reinvent the wheel again' – we are born into a society that already possesses a substantive arsenal of the forms of conceptualizing experience, behavioural patterns and tools.

The essential question reads: what are the biologically conditioned abilities of the human species that enabled cultural transmission? A well-grounded answer points towards the social learning mechanism of imitation. Robin Dunbar notes:

Human babies are imitation machines who seem to suck up anything and everything they

come across that involves imitation of another individual's behaviour. Teaching helps to guide that up-take, but without the human child's seemingly infinite capacity for imitation, it is doubtful whether any amount of teaching by the parent would help in the absorption of so much behaviour in so short a space of time. In contrast, young chimpanzees seem more proactive and clued in to finding things out for themselves.<sup>[19]</sup>

It is common to distinguish several different mechanisms of social learning. Given the purpose of this paper, the important distinction is between imitation and emulation. Imitation consists in copying both the goal (the change in the environment) of someone else's behaviour as well as the way of acting, while emulation is confined to trying to achieve the same goal. Primatologists agree that non-human primates emulate rather than imitate. For example, in an experiment conducted by Tomasello, Nagel and Olguin, two groups of chimpanzees and two groups of two-year-old children were shown two ways of using a rake-like tool to reach food, of which one was more efficient than the other. Each group saw one method only. It turned out that the chimpanzees from both groups did not mimic the instructors' behaviour exactly, but used the rake in various ways. According to Tomasello, it can be interpreted as showing that chimpanzees learn by emulation: the way of using a tool is not important, whereas the change in the environment – reaching for the food – is. Meanwhile, children participating in the experiment *repeated* the actions of the instructor, even if they followed the less-efficient method of using the rake. Tomasello believes that this is evidence that humans – in contrast to great apes – do not learn through emulation but

vard University Press: Cambridge, Mass, p. 2.

<sup>[18]</sup>Ibidem, p. 4.

<sup>[19]</sup>Dunbar, R. (2004). *Human Story*, Faber and Faber, p. 159.



through imitation. He adds that learning through emulation may under some circumstances prove more efficient than imitation; however, the latter has a significant social potential, as imitating requires paying attention not only to the changes in the external environment, but also to the behaviour of others.<sup>[20]</sup>

The evolutionary advantages of imitation over emulation and other social learning strategies become clearly visible when one considers the following facts. First, imitation is the mechanism which leads to the accumulation of knowledge regarding behavioural patterns. Emulation or individual learning by trial and error do not guarantee the inter-generational transmission of the communally shared ways of acting. Second, imitation is cost-minimizing when compared to individual learning. Third, it is the only social learning mechanism which enables recombination, i.e. using the same means to achieve different goals or attaining the same goal with different means. In other words, imitation leads to some kind of 'combinatorial explosion', enhancing considerably the set of behavioural tools an individual possesses. Fourth, imitation enables easy modifications: due to the fact that it requires us to learn the mode of acting, it opens the way for introducing modifications to the existing behavioural patterns. Fifth, imitation is fine-grained, i.e. it is the only mechanism that enables the existence of very similar, yet distinct, patterns of conduct. Let us consider the language: we often use very similar utterances, but to achieve completely different goals. If emulation constituted the learning strategy responsible for communication, language would be impossible.<sup>[21]</sup>

What are the biological adaptations that enable imitation? It is customary to talk about the human *ability to imitate* and *tendency to imitate*: the former is a cognitive while the latter a motivational mechanism. The cognitive aspect of imitation is crucially linked with the ability of mindreading, i.e. ascribing beliefs and intentions to others (this mechanism is often called 'theory of mind'). In order to distinguish between the way of acting and the action's goal one needs to understand what the other individual is trying to do. There are two main accounts of how mindreading works: the theory theory and the simulation theory. According to the former, the ascription of mental states or intentions to others proceeds through a kind of reasoning from the first-person relations to the third-person relations: it is based on such schemata as 'I behave in the way *x* when I feel pain; therefore, if he behaves in the way *x*, it means he feels pain'.<sup>[22]</sup> The simulation theory, on the other hand, suggests a different mechanism at work. For example, Alvin Goldman claims that the ascription of mental states to others proceeds as follows. In stage one, through the 'mindreading' of another person's mental state, the brain generates a state similar to the state of the mind of the other person. The second stage consists in processing the obtained data, with the use of one's own neural system, but working 'off-line'. Goldman believes that the brain uses the same circuits when we experience something and when we 'read' the similar experiences of others. The results of the 'off-line' simulation are in the last stage ascribed to the observed person. Thus,

<sup>20</sup>Tomasello, M. (1999) *Cultural Origins of Human Cognition*, Harvard University Press: Cambridge, Mass.

<sup>21</sup>Brożek, B. *Imitation and the Emergence of Normative Orders*, in: Brożek, B., Stelmach, J., Kurek, Ł., (eds.), *The Emergence of*

*Normative Orders*, Kraków: Copernicus Center Press.

<sup>22</sup>Meltzoff, A. N. (2005) *Imitation and Other Minds: The <Like Me> Hypothesis*, in: Hurley, S., Chater, N. (eds.), *Perspectives on Imitation*, vol. 2: *Imitation, Human Development, and Culture*, MIT Press: Cambridge, Mass., p. 55–77.

according to the simulation theory, mindreading does not require carrying out of any reasoning.<sup>[23]</sup> Interestingly, in the first stage of Goldman's model some form of very basic imitation (generating a mind state similar to the state of the mind of the other person) occurs. This leads to the question, what is phylogenetically and ontogenetically prior – mindreading or imitation. Susan Hurley and Nick Chater suggest that the question may be ill-stated: mindreading and imitation are two abilities which develop simultaneously – imitation requires fully developed mindreading capabilities, and *vice versa*. But both skills are built upon some rudimentary abilities: Very early imitation may express a fundamental self–other similarity, while the distinctive human capacity for imitative learning with its flexible means–ends structure in turn contributes to the development of the self–other distinction and of more advanced mind-reading skills.<sup>[24]</sup>

The single most important discovery that brings us closer to understanding of how imitation and mindreading are possible is arguably the discovery of the mirror neurons by neuroscientists from Parma in the early 1990s.<sup>[25]</sup> Mirror neurons fire both when an action is executed and when it is observed.<sup>[26]</sup> Hence, they provide some support for the simulation theory: there exists a neural mechanism which

engages the same brain circuits when an action is performed and when it is only observed. In this way, no first-person to third-person reasoning is needed to grasp someone else's action, as his or her action is automatically 'simulated' by the brain of the observer. Similarly, the existence mirror system may contribute to the explanation of the mechanism of imitation. For example, Giacomo Rizzolatti claims that there are two types of mirror neuron resonance and, as a result, two types of imitation. The high level resonance is used to mirror the goal of an action, while the low-level resonance copies the way of acting. According to Rizzolatti, only the human brain takes advantage of both mechanisms, which enables imitation. In apes and (possibly) other animals only high-level resonance is used and this explains apes' ability to learn solely by emulation.<sup>[27]</sup>

Let us turn now to the human *tendency to imitate*. It is often stressed that while non-human primates display some cognitive capacity for imitation, they imitate quite rarely due to the lack of relevant emotional and motivational mechanisms. Michael Tomasello notes: there was some initial step in human evolution away from great apes, involving the emotional and motivational side of experience, that propelled humans into a new adaptive space in which complex skills and motivations for collaborative activities and shared intentionality could be selected.<sup>[28]</sup>

Tomasello claims further that the human will-

<sup>23</sup>*Ibidem*.

<sup>24</sup>Hurley, S., Chater N. Introduction: The Importance of Imitation, in: Hurley, S., Chater, N. (eds.), *Perspectives on Imitation*, vol. 2, op. cit., p. 33.

<sup>25</sup>Di Pellegrino, G., Fadiga, L., Fogassi, L., Gallese, V., Rizzolatti, G. (1992) Understanding Motor Events: A Neuropsychological Study, *Experimental Brain Research*, 91, 1, p. 176–180.

<sup>26</sup>There are, however, some reservations as to the real significance of the mirror system; see Hickok, G. (2014) *The Myth of Mirror Neurons*, W.W. Norton & Company, New York.

<sup>27</sup>Rizzolatti, G. (2005) The Mirror Neuron System and Imitation, in: Hurley, S., Chater, N. (eds.), *Perspectives on Imitation*, vol. 1: Mechanisms of Imitation and Imitation in Animals, MIT Press: Cambridge, Mass, p. 55–76.

<sup>28</sup>Tomasello, M. (2009) *Why We Cooperate*, MIT Press: Cambridge, Mass, p. 85.

ingness to cooperate and mimic others is only a manifestation of a more basic biological adaptation: *mutualism*<sup>[29]</sup>. He observes that cooperation among apes is usually based on kinship or reciprocity. The evolutionary passage from these two forms of behaviour to the human cooperative capacities was conditioned by three processes: the development of social cognition and motivational mechanisms, enabling the coordination of cooperative activities and complex communication; the increase of tolerance and trust in relation to others, primarily in the context of acquiring food; and the development of group institutional practices based on social norms<sup>[30]</sup>.

At the neuroscientific end of the story, it is speculated that the emotional and motivational mechanisms required to generate human collaborative behaviour are also conditioned by the existence of the mirror system. For instance, Marco Iacoboni observes – on the basis of anatomical facts and neuroimaging data – that a part of the insula, the disgranular field, is connected with both the limbic system, as well as the posterior parietal, inferior frontal, and superior temporal cortex. This leads to the hypothesis that it is the insula that provides the limbic areas, responsible for emotional response, with the information on the observed and executed action. The hypothesis is further supported by experimental findings which indicate that the process of imitating an ‘emotional’ facial expression increases the activity of the amygdala, i.e. of the part of the limbic system which plays a crucial role in emotional processes.<sup>[31]</sup> These and other

observations led Iacoboni to the conclusion that the mirror neuron system – and imitation – are necessary for experiencing empathy:

we understand the feelings of others *via* a mechanism of action representation that shapes emotional content, such that our empathic resonance is grounded in the experience of our acting body and the emotions associated with specific movements. (...) In order to empathize, we rely on mediation by the representation of the actions associated with the emotions we are witnessing and on a brain network that includes structures supporting communication between action representation circuits and circuits dedicated to emotional processing.<sup>[32]</sup>

A similar standpoint is adopted by Vittorio Gallese, who remarks:

The discovery of mirror neurons in adult individuals shows that the very same neural substrate is activated when some of these expressive acts are both executed and perceived. Thus, we have a subpersonally instantiated common space. It relies on the neural circuits involved in the control of actions. The hypothesis I am putting forward here is that a similar mechanism could underpin our capacity to share feelings and emotions with others. My proposal is that sensations and emotions displayed by others can also be empathized with, and therefore implicitly understood, through a mirror matching mechanism.<sup>[33]</sup>

<sup>29</sup>Ibidem.

<sup>30</sup>J. Silk claims that altruism is prior to mutualism; see her commentary in *ibidem*, p. 111–124.

<sup>31</sup>Iacoboni, M. Understanding Others: Imitation, Language and

Empathy, in: Hurley, S., Chater, N. (eds.), *Perspectives on Imitation*, vol. 1, op. cit.

<sup>32</sup>Ibidem, p. 98.

<sup>33</sup>Gallese, V. Being like me: Self – Other Identity, Mirror Neurons, and Empathy, in: Hurley, S., Chater, N. (eds.), *Perspectives on*

Human ability to imitate, together with our tendency to be like others and mimic them, conditioned the emergence of behavioural patterns shared within human communities and passed on from generation to generation. Already at this stage of the human phylogenesis one can speak of the development of some rudimentary forms of the rule-following practices.<sup>[34]</sup> The spontaneously emerging patterns of behaviour, propagated through the mechanism of imitation and shared by a community, had some degree of objectivity. Moreover, they were collectively enforced: the violators were punished or corrected by other members of the community. Importantly, this cognitive and motivational framework also constituted a platform for the emergence of language. Tomasello notes:

Human cooperative communication (...) evolved first within the bounds of collaborative activities because these activities provided the needed common ground for establishing joint topics, and because they generated the cooperative motives.<sup>[35]</sup>

There is a number of evolutionary scenarios which stress that the sources of linguistic abilities lie in the human tendency to cooperate, and are ultimately based on the neural structure provided by the mirror neurons. For example, Merlin Donald identifies four main types of mimetic representation, which are key to the transmission and propagation of culture: (1) reenactive mime, characteristic of role-playing; (2) precise means-end imitation (as in learning how to fry an egg); (3) the systematic rehearsal

and refinement of skill (as in learning how to drive a car); and (4) nonlinguistic gesture (as in learning how to dance).<sup>[36]</sup> He further claims that these mimetic skills were the foundation for the emergence of language and all the other forms of culture. He stresses that his proposal differs from the traditional scenarios which condition the emergence of culture on the prior emergence of language (*the language first theory*). According to Donald, some forms of culture, based on mimetic skills, must have *preceded* language and enabled its evolution (*the culture first theory*).<sup>[37]</sup>

Donald's theory leads to profound consequences. Firstly, he claims that the human mind is intimately linked to the society in which it flourishes. One can even say that it is *co-created* by the community. Communal practices are constitutive of the human mind, both in their phylogenetic and ontogenetic dimensions. Secondly, language is not an individual but a network-level phenomenon: its evolution resembles the evolution of an ecosystem rather than of a single organism. Thirdly, it follows that 'cognitive neuroscientists are unlikely to find an innate language acquisition device, and should redirect their investigations toward the powerful analogue processing systems out of which language can emerge in group interactions.'<sup>[38]</sup>

The emergence of language further consolidated human rule-following practices. With time, it also enabled the linguistic formulation of rules of conduct, and opened the way for critically discussing them. In this way, humanity reached

Imitation, vol. 1, op.cit., p. 133.

<sup>34</sup>Brożek, B. (2013) Rule-following. From Imitation to the Normative Mind, Kraków: Copernicus Center Press, chapter 2.

<sup>35</sup>Tomasello, M. Why We Cooperate, op. cit., p. 73.

<sup>36</sup>Donald, M. Imitation and Mimesis, In: Hurley, S., Chater, N. (eds.), Perspectives on Imitation vol. 2, op.cit., p. 283–300.

<sup>37</sup>Ibidem.

<sup>38</sup>Ibidem, p. 294.

the stage when the development of full-blooded moral and legal systems became possible.

## The illusive nature of law

In order to relate the above sketched picture of the emergence of culture to the problems of legal ontology, let us introduce a heuristic distinction between rudimentary and abstract rules. By qualifying the distinction as 'heuristic' I want to emphasize that it may represent only a simplified view of the rule-following practices. At the same time, I believe that it is compatible with the evolutionary scenario outlined above, as well as highly instructive: even if a fully acceptable ontology of rules would require much more complex conceptual distinctions, the categories of rudimentary and abstract rules capture some crucial aspects of any such well-developed ontology.<sup>[39]</sup>

Rudimentary rules can be characterized as: (a) independent of language (a fully developed language, i.e. a system consisting of well-defined vocabulary and grammar rules is evolutionarily and logically dependent on the existence of rudimentary rules); (b) simple and concrete (rudimentary rules pertain to relatively simple and concrete forms of behaviour); (c) normatively unified (rudimentary rules cannot be divided into kinds – at the rudimentary level there are no mathematical, linguistic, moral or legal rules); (d) multi-aspect and non-modal (rudimentary rules pertain to some form of behaviour as a whole, they say what should be done under given circumstances and involve no deontic operators such as 'obligatory', 'forbidden' or 'permitted').

Abstract rules, on the other hand, depend on the existence of rudimentary rules. Without the rudimentary form of rule-following it would be difficult to imagine how abstract rules emerged: they would be a kind of miracle. If not for the rudimentary rules, our normative systems such as language, morality or law would become an evolutionary enigma, and achievement such unique and qualitatively different from the 'culture' of other primates that any attempt at explaining them would be destined to fail. Abstract rules were developed through linguistic formulation and reflection over the rudimentary forms of rule-following. In contrast to rudimentary rules, they: (a) depend on language (must be formulated in language); (b) may be complex (i.e., may refer to complex behavioural patterns) and general (i.e. they may refer to generally defined, non-concrete actions); (c) normatively differentiated (i.e., they may be divided into kinds: linguistic, moral, legal); and (d) aspectualized and modalized (i.e., they may pertain to some aspects of actions only, and be expressed with the use of deontic operators).

Abstract rules are therefore the results of theorizing some aspects of rudimentary rules. To illustrate this point, let us consider language. What one finds in dictionaries and grammar textbooks is a picture of language as an isolated system of syntactic and semantic rules; but this is already an outcome of developing a theoretical account of language. To borrow a phrase from American legal realists: language in books is a well-behaved system of rules, while language in action is constituted by the multiplicity of behavioural patterns in which linguistic, moral, mathematical and other aspects are intimately linked together. When one describes someone as guilty, one may be said to follow a rudimentary rule (one does what

<sup>39</sup>The distinction is fully developed and defended in Brożek, B. Rule-following..., op. cit., chapter 2.

is done under similar circumstances in his or her community), but from the more theoretical perspective it may be seen simultaneously as observing a linguistic, a moral, a prudential or a legal rule. Crucially, the same amalgam of rudimentary rules may give rise to different theoretical reconstructions at the level of abstract rules, and hence one can have differing accounts of language, prudence or morality.

Still, abstract rules – i.e., normative systems we formulate in language, discuss, criticize and change – do influence our behaviour. The influence is either direct, when one consciously applies an abstract rule, or (more often) indirect, when the behavioural patterns prescribed by some abstract rules become ‘fibres’ in the amalgam of rudimentary rules. In other words, abstract rules may inform rudimentary rule-following practices. This feedback loop – abstract rules’ dependence on the existence of rudimentary rules, and the influence the latter have on the rudimentary rule-following practice – underscores the heuristic character of the distinction between rudimentary and abstract rules: it is a useful analytic tool that captures some important aspects of rule-following, but does not provide us with a fully adequate picture of the complexity of the phenomenon in question.

These remarks have direct relevance for the problem of the nature of law. The nature of law – or the correct definition of law – has long been the holy grail of legal philosophers. It is symptomatic, however, that the repeated attempts to develop a commonly accepted theory of law have failed. Already at the beginning of the 20<sup>th</sup> century Leon Petrażycki wrote:

The fact that until today it has proved impossible to define the law, even if much effort was

devoted to the task and – with the passage of time – innumerable, more or less ingenious and fundamental attempts to characterize the essence of law were proposed, has recently led to doubts of whether the task may be completed at all, and to accepting definitions which are clearly lacking, as well as steering clear of the question pertaining to the essence of law, in order to achieve some peace.<sup>[40]</sup>

Fifty years later H.L.A. Hart made an almost identical observation:

Few questions concerning human society have been asked with such persistence and answered by serious thinkers in so many diverse, strange, and even paradoxical ways as the question ‘What is law?’ Even if we confine our attention to the legal theory of the last 50 years and neglect classical and medieval speculation about the ‘nature’ of law, we shall find a situation not paralleled in any other subject systematically studied as a separate academic discipline.<sup>[41]</sup>

Petrażycki’s and Hart’s observations can be easily repeated even today. This surprising fact leads to the conclusion that there may be ‘something wrong’ with the very project of providing a characterization of the essence of law or with searching for the nature of law. The recurring failures of the project suggest that it may be based on some false assumptions.

I believe that the analyses of the preceding sections of this paper shed some light on this problem. Any conception of law is *some* theo-

<sup>40</sup>Petrażycki, L. (1959) *Wstęp do nauki o prawie i moralności*, Warszawa: PWN, p. 25

<sup>41</sup>Hart, H. L. A. *The Concept of Law*, 2nd edition, Oxford: Oxford University Press, p. 1.

retical account of the chosen aspects of rudimentary rules. In other words, any conception of law is a reconstruction of the actual social practices, and the practices themselves do not fall into any pre-theoretical, natural categories. Rudimentary rules are not legal, moral or prudential: they are just patterns of conduct which are observed in the given community. Only after theorizing some of their aspects, one can construct a legal or a moral system. This picture is further complicated by the fact that our theoretical endeavours, i.e. the normative systems we develop as well as the accounts of law or morality we construct, entertain some influence on the rudimentary rule-following practices. For a learned medieval person, law was something different than it was for an early 20<sup>th</sup> century positivist, not only because they embraced different conceptions of law, but also due to the fact that those conceptions (natural law theory on the one hand, and legal positivism on the other) to a large extent informed the relevant social practices.

Thus, if the evolutionary scenario of the emergence of culture I sketched above is even roughly correct, one should not expect to capture the 'real nature of law'. This conclusion is true irrespective of whether one understand

'the nature of law' as referring to something 'out there', i.e. some element of the structure of reality (as in the case of substantive natural law theories), or as pertaining to necessary and/or sufficient conditions of applying the predicate 'law' (as in the case of some contemporary positivistic theories of law). There is no nature of law in the substantive understanding of the word, since the law is a result of our joint practical *and theoretical* efforts. For the same reason, there is no nature of law understood as consisting in some criteria for distinguishing law from other phenomena. Of course, such criteria may be proposed, but one should not expect to find them fixed once and for all or without a tenable alternative. In a way, in theoretical reconstructions of law one can never adopt a purely external point of view: by developing a theory of law one *eo ipso* participates in legal discourse and influences the forms of the relevant social practices, even if the influence is very limited. It does not mean, of course, that our theoretical quests for the nature of law are completely futile: at the very least, they inform our understanding of, and help to improve, the legal practice. But it does not change the fact that there is no 'one true picture of the law', just like there is no one true picture of morality or language.

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