

EVOLUTION, MORAL NETWORK THEORY AND CONTESTATION OF THE RULE-BASED MODEL OF MORAL REASONING

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We tend to ascribe moral value to human behaviour, while the natural events are only scarcely subject to moral evaluation. Therefore, the attempts to derive ethical norms from nature are perceived as highly problematic. In moral philosophy, the treatment of the problems of morality and moral behaviour is dominated by rational argumentation. Moral rules are created by people. On the other hand, human morality has its “demarcations” represented by the permanently present needs and desires (called *natural inclinations*) that we have acquired as a result of evolution. One of the problem questions is whether these natural inclinations are hereditary. Ongoing research, giving rise to discourses and controversial debates among ethologists, anthropologists, biologists, ethicists and other scientists, confirms that if this controversy continues, science will be guaranteed its existence.

Key words: evolution, moral network theory, ecology, neural networks research.

Evolucija teorije moralnih mreža i osporavanje modela moralnog sudjenja zasnovanog na ulozi. Pokušavamo pripisati moralnu vrijednost ljudskom ponašanju dok su prirodna zbivanja vrlo rijetko predmet moralnog vrednovanja. Stoga se pokušaji izvođenja etičkih normi iz prirode smatraju krajnje problematičnima. U razmatranju problema moralnosti i moralnog ponašanja u moralnoj filozofiji dominira racionalna argumentacija. Ljudi oblikuju moralne uloge. S druge strane ljudska moralnost ima svoja “razgraničenja” što ih čine stalno prisutne potrebe i želje (nazvane *prirodnim nagnućima*) koje smo stekli uslijed evolucije. Jedno je od problematičnih pitanja zbog čega su ta prirodna nagnuća nasljedna. Tekuća istraživanja, koja su potakla rasprave i kontroverzne debate među etolozima, antropolozima, biologima, etičarima i drugim znanstvenicima, potvrđuju da će pod pretpostavkom nastavka te kontroverzije znanosti biti zajamčen opstanak.

Ključne riječi: evolucija, teorija moralne mreže, ekologija, istraživanje živčanih mreža.

INTRODUCTION

Apparently, moral appraisal always concerns something specifically human. We tend to ascribe moral value to our own behaviour and to behaviour of other people. On the other hand, natural events are only scarcely subject to moral evaluation. In other words, attempts to derive ethical norms from nature are perceived as highly problematic.

In moral philosophy, the treatment of the problems of morality and moral

behaviour is dominated by rational argumentation. Psychologists emphasize the importance of learning and anthropologists argue that there are few, if any, universally valid rules regarding correct or incorrect behaviour. Evidently, moral rules are created by people. It is also clear that human morality has its ‘demarcations’ represented by the permanently present needs and desires (called *natural inclinations*) that we have

acquired as a result of evolution. One of the problem questions is whether these natural inclinations are hereditary.

As F. de Waal asserts, “at present, the way how these factors are put together to create moral system are underinvestigated and contemporary theories of moral evolution can be viewed as only a small

contribution to the overall answer” [1:52]. In spite of that, ongoing research, giving rise to discourses and controversial debates among ethologists, anthropologists, biologists, ethicists and other scientists, confirms that if controversy continues, science will be guaranteed its existence.

DISSCUSSION

The debate about biological investigation of our moral reasoning ability was significantly enriched by V. Davion, a representative of ecological feminism, who published a remarkable study entitled *Anthropocentrism, Artificial Intelligence and Moral Network Theory: An Ecofeminist Perspective*, inspired by the works of Paul M. Churchland [2] and Owen Flanagan [3]. P. M. Churchland is a disciple of W. Sellars, who in his remarkable lecture “Philosophy and the Scientific Image of Man” [4] became one of the first scholars to raise the following question: What will become of man if he becomes subsumed into descriptions of natural sciences? Sellars sees the aim of philosophy in helping us to understand how things, in the broadest possible sense of the term, hang together, in the broadest possible sense of the term [4:35].

The investigation of deep structures of human behaviour and of its implications for human morality is the main focus of the latest *neural networks research*. Preliminary outcomes of this research suggest that moral sensitivities acquisition, moral reasoning and moral behaviour are not necessarily a matter of application of abstract rules to concrete situations in the way described by Western philosophy. Neural networks research indicates that our moral dispositions do not stem from a particular ability that differentiates us from other living beings. As it is already known, the program of

ecological feminism involving criticism of Western culture also implies a negative attitude towards constructions of patriarchal (symbolic) structures and towards traditional view of *the rule-based moral reasoning*.

V. Davion likewise claims that according to certain approaches, such as Churchland's [2], neural network research supplies relevant arguments supporting the claim that moral learning, reasoning and acting are not a matter of application of abstract rules to concrete situations. On the contrary, our moral dispositions are more probably determined by our perceptual skills. These perceptual skills probably arise as a result of adequately synchronized neural networks that have been evolving during the long period of evolution and that are directly connected to the evolution of human brain. P. D. MacLean calls human brain ‘triune’ and claims that its three component parts reflect human evolution. ‘The reptilian brain’ (connected with the most primitive behaviour patterns) is surrounded by ‘the paleomammalian brain’, which has an important function in emotional expression (it gave our ancestors love for their offspring). The outermost layer of the triune brain is the ‘neomammalian’ brain, i.e. the location of the neocortex with its left and right hemispheres, which is responsible for our abstract reasoning, speech and which probably also determines our selective preference for people outside our own family [5]. The basic controversy arising in the

trium brain concerns the conflict between “selfish and altruistic motivation and between pleasure-seeking and normative behaviour” [6:614]. The solution of all problem situations associated with survival requires the same type of neuronal sources and coding strategies, which suggests that *man needs to use his brain for survival (adaptation), not for learning the truth*. In the case of moral reasoning, “the job may be special, but the tools available are the same” [2:92].

V. Davion further wonders: How do we know that the tools are the same? Simply put, it seems that they are the only tools located in the brain. The neural network theory uses the prototype activation model in order to explain how living beings learn about their environment and how they react to it. According to the prototype activation model, we learn about our physical environment by learning how to recognize particular prototypical situations and how to react to them. We learn how to use prototypes in our reactions to constantly emerging new situations.

The above mentioned research indicates that one's capacity for recognizing and discriminating sensory properties usually outstrips one's ability to articulate or express the basis of such discrimination in words. That means that one's ability to recognize a particular taste generally outstrips one's ability to describe this taste. Another good example is our ability to recognize human faces. “In fact, the cognitive priority of the preverbal over the verbal shows itself, upon examination, to be a feature of almost all our cognitive categories.” [7:101] Thus “one's ability to recognize instances of cruelty, patience, meanness and courage, for instance, far outstrips one's capacity for verbal definitions of those notions. One's diffuse expectations of their likely consequences similarly exceed any verbal formulas that one could offer or construct, and those expectations are much

the more penetrating because of it. All told, moral cognition would seem to display the same profile or signature that in other domains indicates the activity of a well-tuned mental network underlying the whole process.” [7:101]

Consequently, our ability to react to our environment is not a matter of application of abstract principles to a particular situation but rather a matter of our ability to activate the correct prototype for a particular situation and to react in an appropriate way to that situation. Since V. Davion is interested primarily in moral learning and moral behaviour, she accepts ‘the moral network model’ (analogous to the theory of neural networks) devised by O. Flanagan [3]. Moral reasoning and learning, according to moral network theory, is primarily a process of learning how to recognize a wide variety of complex situations and how to respond to them appropriately. “There is a straightforward analogy between the way a submarine sonar device that needs to learn to distinguish rocks from mines might acquire the competence to do so and the way a human might acquire moral sensitivities and sensibilities.” [3:25] According to moral network theory the fundamental process is the same in the case of moral learning. Children learn to recognize certain prototypical kinds of social situations and they learn to produce or avoid the behaviours prototypically required or prohibited in each. Children come to see certain distributions of goodies as a fair or unfair distribution. They learn to recognize that a found object may be someone's property. They learn to discriminate unprovoked cruelty and to demand or expect punishment for the transgressor and comfort for the victim [3:28].

In any case, our abilities by far exceed any rules that we can formulate. This view makes problematic the hierarchic construction of moral reaction as something

which only human beings have at their disposal. There are interesting parallels between moral reactions of man described by Flanagan [3] and reactions of animals to apparently unfair situations described by some researchers. V. Davion [7] uses in her work these striking similarities and interesting experimental cases described in the work of J. M. Masson and S. McCarthy [8], showing that animals respond to situations on the basis of something that closely resembles, from the point of view of man, a sense of justice.

Researchers explain that the chimpanzee, which was taught a sign language in their experiment, became very agitated when he felt that people treated him unfairly. “He learned when he can expect praise and when he can expect punishment and he accepted these artificial norms. When he destroyed a toy, he was not surprised by the punishment and he accepted it. On the other hand, if he was punished by one of his teachers for something that used to be ignored by other teachers or if he was not praised for something that used to be seen as deserving praise by other teachers, he became really angry.” [8:214] Researchers claim that the chimpanzee in their experiment used to become nervous in consequence of lack of predictability or transgression of established expectations. They assert: “... but that is indeed an important component part of social justice of humans” [8:214].

The most recent research in the fields of genetics and evolution confirms that human beings and chimpanzees have most of their DNA in common. For additional information on this topic, see e.g. J. Diamond [9]. The author gives a fascinating account of these similarities and of the things that we can learn about ourselves by studying our animal relatives. Masson and McCarthy named the chimpanzee in their experiment *Nim Chimski* – thus suggesting the name of one of the most influential

linguists of the 20th century, Noam Chomsky. According to Chomsky, people have an innate ability for language acquisition. This ability to learn any language probably stems from *the possibility to form certain connections and associations in the human brain* to instill the grammar of that language.

What implications for anthropocentrism can be derived from the above cited interpretations? It seems that moral deliberation and moral behaviour are not exclusively a matter of the application of rules to concrete situations by a rational human being. If moral reasoning has its roots in processes that enable other living beings to function successfully in their environment, then the idea that our moral character stems from something that other living beings lack seems more than implausible. In this connection the importance of the following assertion made by P. M. Churchland gains relevance: “Social and moral cognition, social and moral behaviour are no less activities of the brain than is any other kind of cognition or behaviour. We need to confront this fact if we are ever to understand our own moral natures. We need to confront it if we are ever to deal both effectively and humanly with our too-frequent social pathologies. And we need to confront it if we are ever to realize our full social and moral potential.” [2:92] This direction of Churchland's reasoning casts doubt on the frequently made stipulation by the adversaries of this type of reasoning: namely pure naturalization of the mind and desocialization of our self-understanding.

Analogous or very similar outcomes are also rendered in other branches of science. J. Kagan, a child psychologist, on the basis of his research into heredity, individual development and personality development came to the conclusion that “the moving force behind moral behaviour lies not in rational analysis but in the

emotions. The fear of the feeling of guilt and the desire to avoid guilt is a human universal...morality requires an innate capacity for guilt and empathy, something children of two years old clearly lack” [10:153]. M. Ridley points out that Kagan's theory of childhood morality lays emphasis on irrational emotions: “Construction of a persuasive basis for behaving morally has been the problem on which most moral philosophers have stubbed their toes. I believe they will continue to do so until they recognize what Chinese philosophers have known for a long time: namely that feeling, not logic, sustains the superego.” [10:154]

These and other similar conclusions render problematic the understanding of morality as a set of arbitrary rules and conventions inculcated by society and applied in concrete situations. J. Q. Wilson, the author “The Moral Sense” [11], warns that philosophers should take seriously “the conception of morality as a system of sensory instincts” [11:154]. It has been shown that when we are shocked by a vicious act or by an act of cruelty, we tend to listen to our instincts. In such a case, we do not think about rationality of our instincts and neither do we behave according to conventions. In connection with these claims it is interesting to follow Ch. Darwin and to turn to the minority tradition in moral philosophy represented by D. Hume. According to this philosophical tradition, the feeling of disagreement with a vicious act will never arise until we turn our reflection into our own heart and until we find *a sentiment of disapprobation* towards this action. When we pronounce an action or character to be moral or immoral, we mean nothing but that from the constitution of our nature we have a feeling or sentiment of blame from the contemplation of it.

Sociobiological approach to such significant questions as human behaviour is controversial from the viewpoint of established conventions in science and in

ethics and it has many adversaries who view it as “biological imperialism” and regard its reductionistic approach to evolution and evolutionary mechanisms as unjustifiable, limited and dogmatic. Despite that it can probably offer another important view of the issue of deep structures of human behaviour and of the origin of human morality because

“Like everything that we feel or everything that we are, morality is likewise deeply rooted in neurobiology. Honesty, guilt and the weighing of ethical dilemmas, which were considered to be a purely spiritual matter, are traceable to specific areas of the brain. It should not surprise us, therefore, to find animal parallels. The human brain is a product of evolution. Despite its larger volume and greater complexity, it is fundamentally similar to the central nervous system of other mammals.” [1:263]

This claim enables us to understand morality as a direct function of human naturalness, relating to human inclinations and sympathies, which is a result of a whole complex of mechanisms of evolution – “... as a component part of any satisfactory explanation of morality and moral sense” [1:263]. However, it is necessary to stress the words *as a component part* of the explanation of this complex phenomenon.

The mentioned complex of conditions affecting the evolution of human morality can be illustrated by the following example. From the beginning of the universe, the main operating force has been the “inherent” feature of the substance – self-organization and creation of complexity. The most remarkable instance of this tendency is the heterogeneity in the organization of life on Earth. As P. Coveney and R. Highfield put it,

“Cosmology, astrophysics and particle physics provide far from the whole story. In the case of Life on Earth, complexity in nature has been refined by competition for finite resources. Darwin

popularized the notion of survival of the fittest or of the intensive effort of every species – and of course, of every individual – to adapt or to optimize its ability to survive.”

Understanding of the complexity of life on Earth is the biggest challenge that we have been facing so far because if we manage to uncover and grasp the complexity of the organization of life on this Planet, “we will have at our disposal the instrument that we need in order to secure its future” [12:24].

In line with the introductory statement of this paper, although ecological ethics is a theoretical discipline, accumulation of rational stimuli and knowledge is a necessary precondition for the productive effort to disclose *how real world really works*, which represents the contribution of ecological ethics to understanding of the amazing complexity of the natural world. We, ecological ethicists, have initiated our own journey with the aim to understand the subject which deserves the attention of both natural scientists and social scientists. It is “revival of emphasis on the interdisciplinary research in the renaissance style” [12], in the style of synergy of science, technology and ethics. There are new means and applications that can help us understand the complexity of life. However, these means and applications are difficult to understand on the basis of so called conventional science and therefore they are often proclaimed to be controversial [12].

Since this problem is reflected from the viewpoint of the relations between science and moral philosophy, the ongoing discourses point to one of the long-term results of the acceptance of the theory of evolution at the epistemological level, i.e. with understanding of the origin, process and constraints of scientific knowledge. These discourses point to the fact that moral-philosophical and social conceptions and approaches can find their way into

explanatory theories that are tested and formulated by scientists. Ethics is therefore relevant not only due to its applied dimension but also due to its influence on the interpretation of the natural world, or the relevant view of the natural world. This understanding of the mutual relations between ethics and science serves as a basis for conceptualization of the mutual relation between cultural, ethical and naturalistic spheres in the genesis of scientific approaches and paradigms. Understanding of these complex relations should provide scientists working within all scientific fields with important means for critical revision of scientific opinions in cultural contexts.

Empirical-naturalistic work and philosophical-sociological analyses are both basic and interactive components of scientific research. Exclusion of one of these components, which is often done in naturalistic and sociological school of philosophy of science (e.g. Restivo [13]) is unproductive in scientific research. It overlooks the useful and dynamic relations between science, society and the natural world. Discursions into “inner” or “outer” history of science (where “history” is condensed into theories, empirical data or experiments carried out by members of a given scientific community; or are represented by relations between these communities and their wider cultural environment) confirm complementarity rather than mutual exclusion [14].

We realize that the submitted outline covers only a small segment of the studied topic while other parts of the analysed topic were probably rendered more problematic or left undetected. The wide interdisciplinary sphere of the analysed problems has not been sufficiently covered and leaves a large space for further investigation. Our intention was to introduce the motives and inspiration of new approaches and knowledge offering a new and alternative view of the complex relations between science and ethics. Ethics

(and mainly the problem-oriented ecological ethics), if it is not to become a purely moralizing appeal, has to accept quite a radical review of its rudiments. This paper has provided an interpretation, though a very concise one, of this novel and radical view, by means of models, metaphors and scenarios of evolutionary theory, stemming from paradigmatic basis of ecological ethics. The formulation of ecoethical problems directly requires “extension of demarcations”, investigation of connections existing between biota and environment, between man and society; reconsideration of such basic questions as emergence, life, extinction, the place of man in nature, the position of man in other entities, moral significance of nonhuman beings etc.

If our conception of ecological ethics is correct, if it forms a set of concrete principles “indicating how man should behave and in what ways he should associate with the whole nonhuman world” [15:16], the first step towards establishing relevance of these principles is “good and reasonable relationship between people” and less problematic functioning of the world of culture (or at least less dangerous than it is at present). Human nature can not be changed but as far as science allows us to acquire a deeper view of the so called universal aspects of human character, it is quite natural that we pay attention to their arguments because “we know a lot about the dynamics of the genes, we know less about the dynamics of the memes and we know next to nothing about the nature of human consciousness and about the dynamics of society. Our mythophilia is the cause of our prejudices and almost insuperable inhibitions which prevent us from accepting anti-intuitive findings of science” [16:99].

Darwinian account of evolution through natural selection was the first step towards a significant change in traditional views of human morality as one of the building stones of human society. The next

step is “the new synthesis”. The third step is represented by the effort to view the world of nature and culture in a synergic and complex way and to examine from a holistic perspective such demanding areas as consciousness, intelligence, morality, complexity of nature, life etc., which seem to “evade” the research efforts of both science and philosophy (‘the doctrine of reductionism and specialization’ leads to simplified models and simplified representation and interpretation of the real world). How many times will we have to start afresh? How long will this journey take? We do not know the answer to these questions. However, we know that morality as a social phenomenon has been and will continue to be one of the keystones serving as basis for the formation of various views of “building stones” of human society. Communities of people are complex systems and it is not possible for a group of scientists of one professional and scientific orientation to arrive at a particular account and interpretation. The dominant position of philosophers, the creed of Jesus Christ, the authority of the monarch, the barbarian separateness, the rule of scientists, technocrats and others are all oscillating views of the creation of a happy community and of the creation of social harmony or virtual eudaimonism of new technology. As M. Ridley asserts, “everyone was wrong. The basis of social order is in our brains, i.e. in the seat of our instincts which are able to create society, not a perfect and totally virtuous one but still better than the society in which we are living today. We have to organize our institutions in a way that corresponds to our instincts.” [10:275]

The work of N. Herbert *Elemental Mind: Human Consciousness and the New Physics* [17] represents a significant recent contribution to the theory of inner life of man as well as to the theory of mind that allows us to understand human instincts. Since science does not have a relevant

answer to the question of inner life of man endowed with consciousness – there still remains an intellectual black hole – N. Herbert in the theory of elemental mind studies mind as an elementary process *sui generis*, as a process deeply rooted in nature, as an elementary force of nature. The author uses the knowledge of *new physics and biology* and the findings of such thinkers and scientists as J. von Neumann (who is considered to be the father of artificial life and who is known for his pioneering research of complex systems along with A. Turing), J. Eccles and others (who anticipated the presence and interconnectedness of mind in molecules, atoms and electrons). N. Herbert's research drifts towards psychology and ascribes significance to the phenomena of heterogeneity, plurality and psychological interconnectedness. He talks about *quantum tandra* – enabling to view substance from the inside. The quantum tandra is represented by the equation $2=1$, i.e. particles of the mind and particles of the substance of another body merge (couple). The use of quantum tandra is remarkable from the viewpoint of intersubjective and intercultural communication and understanding.

We know that we are both rational and emotional beings living in communities. We are exposed to complex influences and pressures stemming both from our nature (which is not completely “in our power”) and from social, political and economic structures. People have not changed so much during the past several tens of thousands years. Of course, we could not have changed considerably because not many generations have passed since the Stone Age. But something else happened – namely cultural evolution, the progress of which is incomparable with biological evolution. Cultural evolution can change the world within the course of a single generation and it yields huge disproportions between our

biological properties which we have since the Stone Age and the most recent technological possibilities. It is very demanding and sometimes even dangerous for us to tackle the most recent advances of cultural evolution and its pressures that significantly influence our rational behaviour. This fact manifests itself as the unfavourable diagnosis of “health state” of our existential habitat, of the economic differences, political, ethical, religious and ideological “strains” of contemporary world, etc. We apply the term “crisis” to many spheres of our life. The Chinese expression for crisis consists of two signs: the first one means danger, the second one stands for opportunity. From our point of view, we have the opportunity to ‘re-empower’ our instincts, emotions, feelings, values and morality and to give them significance in the processes of decision making and choice of patterns of behaviour and acting. If we take into consideration that we are intellectually “insufficient” beings, i.e. we are not capable of unmediated, direct intellectual access to the world and our relation with reality is from the gnozeological viewpoint selective and “mostly metaphoric” [18:115], understanding of the role of emotions, values and the moral choices rooted in them is the crucial step in the choice of our approach to the world. Only by adopting this approach we will cease to view the world as a building set that changes according to our needs, wishes and conceptions. Understanding of intellectual and closely related information insufficiency (understood as frequent and perhaps constant information deficiency that affects *good* and *reasonable* decisions) in the situation of an accelerated development of science, possible information ‘pollution’, technological ecstasy and eudaimonism – call for the path of *self-restraint, caution* and *humility*. We need to follow the path giving us the possibility to overcome the restrictions of “one-dimensionality” of our cultural model. Habermas states that he is

“not taking the attitude of a cultural critic opposed to welcome advances of scientific knowledge” but is rather asking whether and if so how “the implementation of these achievements affects our self-understanding as responsible agents” [19:12]. We can cease to perceive feelings, values and morality as restricting and counterproductive mechanisms standing in our way towards hyperactive functionality and effectiveness.

We should rather take them into consideration as *elements helping us to understand morality and values* and guiding us towards a premeditated act; as *normative signals* in our rational decision-making process and responsible acting at present and in the future – i.e. constantly, taking into account our consideration for the future – *which has already started* (P. Sloterdijk).

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