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Transhuman and Posthuman – On
Relevance of “Cyborgisation” on
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Transhuman and Posthuman – On Relevance of “Cyborgisation” on Legal and Ethical Issues.

Abstract: I will discuss issues which can be seen as taken strictly from the science fiction literature. Nonetheless, I would like to demonstrate that those issues not so far from now will have a big influence on the ethical discourse and also the law and social philosophy. The first part aims at clarifying concept of “cyborg” and “cyborgization”. I will consider only meanings coined for scientific or philosophical purposes. I will also indicate two experiments, which bring to life “the first cyborg” – term in which the head-scientist of these experiments used to describe his effects. In the second part I will show ideas of transhumanists in the context of technological achievements mentioned earlier. I will concentrate on the human enhancement idea, underling majority of transhumanist’s branches. I will try to demonstrate that it is realistic concept. In the third part I will shift my attention to some of consequences which flow from “cyborgisation” and human enhancements mentioned in prior parts. I will present two rights seen by transhumanist’s philosophers as able to become human rights in the near future. In these frames I will consider the “morphological freedom” and the “cognitive liberty”. At the end, in the fourth part I will summarize my considerations about the influence of semi-fictitious technologies. I will try to bring on an unambiguous conclusion that aforesaid issues could in the nearest future become very substantial for every area of the theory and policy of law.

Keywords: cyborg, transhuman, cognitive liberty, morphological freedom

In this paper I would like to discuss issues which can be seen as taken strictly from the science fiction literature. Nonetheless, I would like to demonstrate that those issues not so far from now will have a big influence on the ethical discourse and also the law and social philosophy. And although its roots came indeed from fiction books it seems that we are now in the time, when this imaginary world can become real thanks to the technological progress.

I divided my paper in four main parts. The first one aims at clarifying concept of “cyborg” and concept of “cyborgisation” derived from it. I will shortly show underlying main ideas and point out historical roots of those concepts. I will not refer to literary definitions and the whole science-fiction culture context. I will consider only meanings coined for scientific or philosophical purposes. I will also indicate two experiments, which bring to life “the first cyborg” – term in which the head-scientist of these experiments used to describe his effects.

The conceptual background described in the first part allows me to focus in the second part on postulates formed by transhumanists. From the viewpoint of the first part I will try to show this movement not only as philosophical and ideological one. I will show ideas of transhumanists in the context of technological achievements mentioned earlier. I will mainly concentrate on the human enhancement idea, underlying majority of transhumanist's branches. I will try to demonstrate that it is quite a realistic concept.

In the third part I will shift my attention to some of consequences which flow from "cyborgisation" and human enhancements mentioned in prior parts. I will present two rights (or maybe better liberties) seen by transhumanist's philosophers as able to become human rights in the near future. In these frames I will consider the "morphological freedom" and the "cognitive liberty". I will describe the first one as a right which influences to a great extent the concept of the personhood. The second one will be described in the context of the augmented cognition and I will show why it could affect understanding of the responsibility.

At the end, in the fourth part I will summarize my considerations about the influence of semi-fictional technologies. I will try to bring on an unambiguous conclusion that aforesaid issues could in the nearest future become very substantial for every area of the theory and policy of law.

At the beginning it is necessary to explain the concepts I will use in this paper. So the first one will be "cyborgisation". It is evident that it derives from the word "cyborg" and mean process of changing a human into a cyborg. But what a cyborg is? It is obvious that nowadays this concept is indisputably connected with the area of science-fiction literature. But it must be emphasized that it was primarily coined for scientific purposes and its proper application does not have to refer to imaginary visions of the future.

The concept of "cyborg" was used for the first time in the paper from 1960: "Cyborgs and Space" written by Manfred E. Clynes and Nathan S. Kline. It was the time when the human being was about to put his first step on the surface of the moon. In this context of space travels they formulated a thesis that is more reasonable to change human organism to make it more accommodated to existence in outer space than to construct earthly circumstances in the space. They coined the term "cyborg": "for the exogenously extended organizational complex functioning as an integrated homeostatic system unconsciously".¹ The main feature of "cyborg" in this definition is the exogenous character of his enhancements and the fact that he functions as a whole on an unconscious level. Although the definition does not imply that it necessarily refers to the human being I will use it in my paper only in

¹ Manfred E. Clynes, Nathan S. Kline. (1960). Cyborg and space. *Astronautics*, 26.

such meaning. Moreover if we want to speak about “cyborgisation” in context of its influence on ethical and law matters it must be stressed that the “cyborg” will mean the human organism extended by use of a technology to overcome physical and psychological constraints. It is worth noting these constraints do not have necessarily to result from the form of the human body – which situations will be the most interesting, but also from limitations caused by accidents, diseases or genetic defects.

A question arises how such the real – in opposite to the fictional – cyborg would look like? Present technology do not allow to create a combination of a biological organism with electronics enhancements similar to those known from movies and science fiction. Nonetheless there exist at least several people who used to call themselves “cyborgs”. Moreover it is probable that in accordance with the above definition there are many more people who could be named “cyborgs”.

One of the persons, who used to refer to himself as “first cyborg” is Kevin Warwick – professor of cybernetics at the University of Reading. He is famous for his experiments which are called Project Cyborg. The part of this project which already brought the most spectacular results begun at 14 march 2002. That day after the operation which took few hours Warwick was implanted with the 16 mm² array equipped with one hundred electrodes. The array was able to receive signals immediately from the scientist’s nervous system and transfer them outside and also provide the communication from outer signals to his hand. Subsequent experiments were connected especially with such communication. In the first experiment Warwick’s nervous system was connected with the mechanical arm by use of the array. Thanks to that connection the mechanical arm could precisely imitate movements of the scientist’s natural hand. The second version of that experiment was carried out by use of the Internet. The scientist who was in the New York connected with his third robotic hand placed at the Reading University. Thanks to that one nervous impulse has control over two limbs in distance of over 5500 km. After the short time of accommodation to the new situation team achieved accuracy exceeding 95%.

Beside these two experiments the team carried out third one, which seems to be the most interesting. In June 2002 two electrodes was implanted into the arm of the Warwick’s wife and both nervous systems were connected. The Internet was used to transmit signals between one hand and the other. Warwick felt when his wife was moving her hand. In the double-blind trial the team get accuracy exceeding 98%. The series of experiments ended after 96 days, when

the implant was removed from the scientist's body. Currently another experiments are planned, but this time with electrodes implanted directly to the brain of the patient.²

Kevin Warwick is not the only man who used to call himself "cyborg". Another such a person is British artist Neil Harbisson. However his transformation was not aimed on adding some extra abilities, which could transcend typical human abilities. The artist wanted to use technology enhancements because he was completely color-blind. He decided to fix to his head the apparatus called "eyeborg". It is the special video-camera which is able to recognize colors and hues and then change them to the voice of the particular pitch. Thanks to that the artist learnt to recognize the whole color spectrum. His situation seems not so strange but for the one detail. He was permitted to take the passport photo in which his external "eye" is connected to his head. It could be interpreted as the formal acceptance for the synthesis of the human being with the exogenous extension – if we want to use strictly words from former definition.³

When speaking about the people with some disabilities, worth noting is the example of well known person who is not recognized as the cyborg, but quite good fits to the cited definition. This is Oscar Pistorius, the runner who is famous due to his artificial prosthetic limbs made of carbon fiber. The construction of this prosthesis allow him to achieve results almost as good as runners with natural legs. What is essential is the fact that on 16 May 2008 Court of Arbitration for Sport rules that Pistorius is eligible to compete in the Summer Olympic Games in Beijing.⁴ He, however, did not pass the Olympic pre-qualification. His result was 0.7 second worse than the Olympic minimum. Now Pistorius is preparing to the Olympic Games in London next year. And despite no one calls him "cyborg", he falls under the above definition. Especially if it is emphasized that Pistorius as a person without natural limbs would be able to take part in the Olympic competition.⁵

After defining the concept of "cyborgisation" and describing successful transformation of it from the fictional realm to the real one I will focus on the ideological and philosophical movement of transhumanism. Principles of this movement are based on body enhancements and mind augmentations by use of the newest technology. The transhumanism will provide the context for understanding the concepts of transhuman and posthuman.

This movement took its name from the idea of transhuman – a being which due to technological augmentations boosts its body and mind abilities far from standards. It becomes

² Kevin Warwick, Gasson M., Hutt B., Goodhew I., Kyberd P., Schulzrinne H., Wu X. (2004). Thought communication and control: a first step using radiotelegraphy. *IEE Proceedings Communications*, 151, 185-189.

³ Richard Brooks. (24.02.2008) Colour-blind artist learns to paint by hearing. *The Sunday times*.

⁴ Court of Arbitration for Sport. Arbitration CAS 2008/A/1480 Pistorius v/ IAAF, 16.05.2008.

⁵ <http://www.oscarpistorius.com/> Retrieved 15.04.2011.

unit of transition between the typical homo sapiens and the posit idealized posthuman.⁶ It is a quite new phenomenon so it is difficult to give a commonly accepted definition without any exceptions. Moreover definitions differ depending on the branch of transhumanism. Among many branches there are some which are well grounded on the contemporary scientific level, but there are also more futuristic factions which could be seen as somehow fictitious. On the one hand it is possible to point out beliefs that the people in near future will be able to become immortal. To support this point of view worth mentioning is Ray Kurzweil – American scientist who predicts on the nowadays scientific basis that in the several years people will be able to reconstruct their own bodies.⁷ On the other, futuristic hand “singulatarians” could take place. They claim that in the near future people will achieve another technological singularity. By singularity they mean such invention or the social change, which will make completely impossible for contemporary people to predict its implications.⁸

Notwithstanding the differences, it is possible to show some similarities between those approaches. Actually in every branch of the transhumanism there is a stress on the prolongation of the human life, the improve of the human condition, the additional development of the physical and psychical abilities or the augmentation of ways of perception. Especially important is here the position of extropians among whom Max More is worth mentioning. They are building a philosophical background for the futuristic changes. Moreover in their scope are also ethical issues connected with processes like “cyborgisation” or alteration of ways of functioning of the mind.⁹

In this context the project of “human body version 2.0” is remarkable. It is the idea of Ray Kurzweil. He shows there the vision of the human improved by the newest technological achievements. Although in this project the word “cyborg” has never been used, it is undeniable that it could be great way to describe such project.¹⁰ To emphasize that it is not only the futuristic fiction, I could refer to the another Kurzweil’s project. In 2008 he co-founded the Singularity University. It is the academy which is aimed on preparing scientists to the singularity. And the argument, that it is not only the fictional or philosophical project is the fact, that on the list of sponsors and partners of this university are for example Google, Nokia or NASA.¹¹

⁶ Sky Marse. (2008). Becoming More Than Human: Technology and the Post-Human Condition. Introduction. *Journal of Evolution and Technology*, 19 (4).

⁷ Raymond Kurzweil. (2003). *The Ray Kurzweil Reader*.

⁸ Vernor Vinge. (1993) *The Coming Technological Singularity: How to Survive in the Post-Human Era*.

⁹ Max More. (2010). The Overhuman in the Transhuman. *Journal of Evolution and Technology*, 21 (1).

¹⁰ Raymond Kurzweil. (2003). *The Ray Kurzweil Reader*.

¹¹ <http://singularityu.org/> Retrieved 15.04.2011.

In two first parts I attempted to show practical realization of the process I called “cyborgisation”. As I consider, these issues may become practical and important in near future. Now I would like to turn my attention to ethical and legal problems which arise in connection with those issues. I will focus on two liberties for which claims have been raised that they should be recognized as human rights. Those liberties are: morphological freedom and cognitive liberty. At first I will discuss the morphological freedom.

In fact the name itself shows what this liberty is about. It can be classified as a negative right derived from the right to one’s body and right to freedom. Most generally it is about one’s right to create and modify one’s body. Of course it can be seen as something very obvious, something what was typical to the whole humankind. The people from ancient times modified and beautified their bodies and very rarely any legal restrictions have been imposed. Though, nowadays it should be clear, that it is not only about beautifying.

Two types of situations fall under “morphological freedom”. On the one hand we could call this way the common feature of many bioethical problems. One can mention abortion, euthanasia or drugs issues. Every one of this problem is somehow about possessing one’s body. But the morphological freedom could also be understood in the more narrow way. Then it becomes the liberty to unrestricted use of the technology to make a positive self-transformation.¹²

Of course it does not have to be a transformation relying only on the combination of human with computer or other machine – as in prior examples. Currently it is the state of affair, which is the easiest to reach. Moreover, there is greater degree of ethical approval to such experiments, than to the second way of enhancing human abilities called the augmentative medicine. Concept “augmentative medicine” was coined as a name for new branch of medicine, which is not aimed at treating or a palliative care – as it was in the past, or on a prophylactics – as it is nowadays. This branch is aimed at improving body functions beyond common standards. Among ways in which it could be done are e.g. a gene therapy or a genetic designing of offspring.¹³

It seems that the process of mechanical enhancement of body does not affect substantially the traditional concept of personhood. Nonetheless it may influence the concept of responsibility. In particular the most interesting issue is responsibility of a person who has an artificial limb controlled only by implants inside the body or the brain. In order to recall another example (beside the example of Warwick’s experiment): in the last year DARPA

¹² Anders Sandberg. (2001) *Morphological Freedom – Why We not just Want it, but Need it.* <http://www.nada.kth.se/~asa/Texts/MorphologicalFreedom.htm> Retrieved 15.04.2011.

¹³ Max More. (1993). Technological Self-transformation. *Extropy*, 10.

delivered to clinical tests the prosthetic arm controlled in that way. Now it is undergoing human testing.¹⁴ Responsibility of person equipped in that way does not have to be obvious. The typical basis of responsibility is one's free will. But in this case we have a lot of software and hardware issues which can disturb transition of free decision between one's brain and one's artificial limb.

A greater challenge than morphological freedom is the one connected with the augmentative medicine. The question about personhood will become very essential in the time when from the technological point of view designing of offspring will become quite simple and gene therapies will make available an enhancement of adults. In the Universal Declaration on the Human Genome and Human Rights of UNESCO it is pointed out that in a symbolic sense human genome is the heritage of humanity.¹⁵ But this heritage contains also the pursue to the uninterrupted progress which drove us to the point where we are now. Critics of the morphological freedom maintain that this freedom contradicts the connate human nature. But if we agree that the basis for such nature is human genome which make as able to change that genome than it is difficult to see how those two issues should be in contradiction. So even if we accept the concept of human nature it is difficult to decline morphological freedom. Though there are further questions. If considering the person who has been designed at the genetic level by her/his parents, we must answer whether she/he has the same nature as the other, non- designed people. Or from the other point of view: how many changes have to be done, or how her/his abilities must increase to question her/his adhesion to the human kind?

However changes in human body aren't ones which cast the most doubts. It has to be emphasized that from the materialistic point of view – and it is point of view of the majority of transhumanist's advocates – making the straight difference between the body and the mind is not justified.

The cognitive liberty is not a right which necessary must be bound with futuristic concepts like posthuman or cyborg. In fact it is the liberty which is considered today as essential for the modern human. It is the situation quite similar as it was with the morphological freedom. And similarly to that freedom it can be understood it two different ways, depending on the point of view. So what is the cognitive liberty comprehended in context of the semi-future technologies?

¹⁴ http://www.darpa.mil/Our_Work/DSO/Programs/Revolutionizing_Prosthetics.aspx Retrieved 15.04.2011.

¹⁵ UNESCO. Universal Declaration on the Human Genome and Human Rights, 11.11.1997.

http://portal.unesco.org/en/ev.php-URL_ID=13177&URL_DO=DO_TOPIC&URL_SECTION=201.html Retrieved 15.04.2011.

I characterized the morphological freedom as derived from the right to one's body and the right to freedom. If we consider the cognitive liberty from the materialistic point of view it can also be inferred in such way. But it seems more appropriate to stay in the somehow dualistic framework and to say that the cognitive liberty can be derived from the freedom of thought. It can be described as the right to independent and autonomous thinking, right to use whole spectrum of one's brain and to use multiple modes of thinking.¹⁶

On the first sight this definition isn't so distant from the definition of freedom of thought. But if the accent is put on whole brain spectrum and multiple modes of thinking – it can be interpreted as very adequate to discussed issues. Cyborgisation is not necessary involved in augmentation of physical abilities like a longevity or stronger bodies. It is also about how to improve the way we perceive the world. If we outline the boundaries of this concept very wide my two of three examples suits it. The first experiment dealt with perceiving impulses from outer world by some additional “organs”. The second – with ability to recognize colors by person who is completely color-blind.

But from nowadays point of view the area of mechanical enhancements of cognition is not so important. It seems that more interesting are improvements of mind functions by use of psychopharmacological means. In the framework of morphological freedom one could locate fundamental bioethical disputes. Similarly in the cognitive liberty framework one can locate every discussions about drug policies. Advocates of the cognitive liberty very often refer to the decision of United States Supreme Court in case *Sell v. United States* in which Supreme Court imposed limits on the right to apply involuntary antipsychotic treatment to a criminal defendant.¹⁷ They emphasize that it is big step to allow everyone to chose way of mental functioning. But the concern is not only about fixing the abnormal way of functioning of mind. Many medicaments can be listed, which only aim is to augment cognition. Among them the whole class of nootropic drugs, which are able to improve human cognition, memory or attention.

Issues about psychoactive means are the most important for those dealing with cognitive liberty. But they also trigger problems with technological issues like ways of immediate influence on the brain. Among them two are worth noting. On the one hand TMS, which allow to “turn off” some regions of human brain.¹⁸ On the other a method called optogenetics, which allows in a much more precise way to activate cortical areas – method now in animal

¹⁶ <http://www.cognitiveliberty.org> Retrieved 15.04.2011.

¹⁷ Supreme Court of the United States. *Charles Thomas Sell, Petitioner v. United States*, 16.06.2003. <http://www.law.cornell.edu/supct/html/02-5664.ZO.html> Retrieved 15.04.2011.

¹⁸ Eric Wassermann, Charles Epstein, Ulf Ziemann, Vincent Walsh, Tomas Paus, Sarah Lisanby. (2008). *Oxford Handbook of Transcranial Stimulation*.

testing.¹⁹ Currently no one can use this method on large scale to change functioning of one's brain. However considering the exponential progress of technology it is impossible to exclude such ability in the future. At the time principles accented by the cognitive liberty advocates as privacy and autonomy of thoughts or permission to choose mode of mind functioning will become crucial. Also crucial will become questions about how to ascribe responsibility to a person who has chosen a different mode of thinking. Further: if somebody will have wider cognitive abilities will it be entitled to demand from her/him a greater prudence?²⁰

In this paper I tried to show that the present technology achieves effects which few years ago were associated only with the science-fiction literature. After showing the philosophical and technological background I discussed ethical and legal implications of such tremendous technological progress. By pointing out two concrete rights I wanted to show that concerns linked to personhood or responsibility may become very practical in near future.

One can have no doubts that progress in technology has a great influence on social and legal relations. However so far this evolution did not affect any elementary concepts. Hitherto the science never interferes immediately with human nature. At the beginning of XXI century we face science which can change humankind in an extraordinary way. It is possible that this change will take place very rapidly. So rapidly that ethical or legal systems will not be able to follow.

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¹⁹ Karl Deisseroth. (2010). Gdy światło kieruje mózgiem. *Świat nauki. Scientific American*, 232 (12), 38-45.

²⁰ <http://www.cognitiveliberty.org> Retrieved 15.04.2011.