

# On Upgrading Human Beings and Cyborgs in Posthumanism and the Question of Boredom.

Miriam Ommeln

Institute of Philosophy  
University of Karlsruhe (TH), Germany, 2010

## Abstract:

The chapter *Code Monkey*, a term usually used in the jargon of computer programmers, critically reflects the common presentation of the argumentation for the evolution of posthuman cyborgs, with regard to Darwin's concept. The chapter *Geek*, again in terminological reference to software developers, overcomes the position of the code monkeys into a more intricate point of view with the help of Friedrich Nietzsche and his idea of overhuman, implicating indirectly the well-known Social brain hypothesis. *The need of Secrets*, the last Chapter, shows the necessity of deception and enigma and ends up in the question of boredom in a brave new world of Posthumanism. Because there is no organ for knowledge, only a will to knowledge, it follows from the impossibility of cryptological mastery of the mind that the posthuman cyborgs are *not* desirable according to Nietzsche, who advocates and deeply affirms these facts.

**Key words:** Friedrich Nietzsche, Charles Darwin, cyborgs, the need of deception, boredom.

## I. Code Monkey

The enhancement and augmentation of human beings by means of engineering methods in the name of Charles Darwin is going to lead into an artificial improvement of our species directed toward the fusion of humans with nature.

From the *evolutionary regarded* fusion of the organic with inorganic emerges a new kind of organism, the posthuman being or something like an overbeing. This so-called cyborg combines a living organism with a machine. Another technique could be to wire the human brain directly into computers like, for example, what the computer scientists Hans P. Moravec<sup>1</sup> and Kevin Warwick<sup>2</sup> are dreaming of.

One may ask oneself if those presentations assumed the evolution of humankind, or the evolution of machines, or even more of natural laws. Although unspoken, one holds that this view of evolution takes the perspective of a human being. But, why? Is it a lack of the power of imagination? There is the deficiency in alternatives, because we have no other way of viewing things except from the human perspective; there is no other scale for speculation. Unfortunately, the imagination boggles at all the possibilities.

The materialist standpoint, equalizing the organic and inorganic, as well as humans and machines, ignores the technical and philosophical interface-problems. Furthermore, they reject any difference by arguing that the distinction between 'unnaturalness' and 'naturalness' is only in the eye of the beholder (like taste or value). Therefore, it concludes that humans are as natural as technology. Moreover, technology is almost a part of humankind itself. What does this mean? "If we are, then how could the things we make be any less natural?"<sup>3</sup>

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<sup>1</sup> Moravec 1988

<sup>2</sup> Warwick 2000

<sup>3</sup> Ust 2001, 3

A similar position is this phrase commonly uttered: “New ideas and technologies are nearly impossible to stamp out.” Really? Linking ideas and technologies together by the general concept of ‘culture’, one wonders why so many of them did not succeed, even if they were proofed to be clearly better than their competitors. The power of dominant things is not universal, and furthermore the weak contradictory elements are surviving to be virulent. As stated in Darwin’s *On the Origin of Species by Natural Selection*, the importance of coexistence of organisms in nature still remains, which is a lasting dynamic of evolution.

Much more effective and powerful than traditional breeding or genetic engineering are *self-regulated human-machine systems*, as they are seemingly both powerful enough and able to outwit and succeed within the process of Darwin’s process of selection. In all of this, the magic word is ‘self-regulating’.

Such a *cybernetic organism* is called a cyborg. The term was first coined in 1960 when Manfred E. Clynes and Nathan S. Kline used it in their article appearing in the journal *Astronautics* entitled “Cyborgs and Space”. They stated the following in their abstract: “Altering man’s bodily functions to meet the requirements of extraterrestrial environments would be more logical than providing an earthly environment for him in space.... Artifact-organism systems which would extend man’s unconscious self-regulatory controls are one possibility (...).”<sup>4</sup>

According to this view-point, *intelligent self-regulation*, as we call it today, is an unconscious process.

Hence, two solutions exist and both of them are indicated in this well-known article: The adaption of a human being to nature, or the adaption of nature to a human being. There is a limit to both solutions as result of natural laws which cannot be changed. It is possible for humans to adapt to nature and natural circumstances through evolution by means of genetic changes, as well as making nature itself suitable for humans by inventing and exploiting new technologies. Yet, it must be pointed out clearly use of technology should not be exploited thoughtlessly without an understanding of nature and natural laws.

From a humanistic point of view, the apparent pantheistic debate about “translation bodies in information”<sup>5</sup> tries with the help of a modern metaphor, the *neuronal computer network*, to overcome open question concerning enhancing our species. Information existing throughout eons of time turns out to be nothing, when taken alone in its dynamic evolution, or its possibility for potential combinations, because the key of cryptology for coding the information-combinations is missing.

Friedrich Nietzsche reflects on this issue in an anthropological-philosophical manner: „What does man actually know about himself! (...) Does nature not conceal most things from him (...) in order to confine and lock him within a proud, deceptive consciousness! She threw away the key: (...). Where in the world could the drive for truth have come from!”<sup>6</sup>

In this words, Nietzsche hints at an intentional deception and disguise of existence itself by its playing a game of cryptological attack and defend, ending up with and culminating in a confusion of communication and the gaining of knowledge. For Nietzsche, the *labyrinth* is the symbol of this high insight.

Referring to the article “Cyborgs and Space” by Clynes and Kline one may notice that Nietzsche takes into consideration not only the universe and all of existence, but also the argument of extending man’s boundaries and “unconscious self-regulatory controls” by putting unconsciousness at the very beginning of the origin of evolution, together with the ever inaccessible and the deceptive aspects of reality. And so concomitantly, the intelligence and the reason are untimely deceptive and inaccessible.

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<sup>4</sup> Clynes et al. 1960, 1

<sup>5</sup> Hayles 1999

<sup>6</sup> Nietzsche KSA 1 (1.), 877

With regard to the system-theoretical and evolutionary aspects in the article “Cyborgs and Space” its context is important, because it includes a whole perspective, that to say it opens our eyes to the universe.

H. James Birx recognizes and emphasizes this important perspective: “Human evolution is an established fact supported by science and reason; our species is linked to life, earth history, this galaxy, and the universe itself. (...) Literally, everything that exists owes its birth and death to the stars.“ And continuing: “Science is an ongoing voyage of discovery toward new horizons within this changing cosmos: the universe is its laboratory. (...) However, there is no escape from nature (...).”<sup>7</sup>

This statement and scenario is really true and describes our vivid living condition. Now, how one can deal with the limitations of human beings and move beyond them? Because, generally speaking, there is no compelling reason to accept things as they now are. In any case, every kind of moral appeal for challenging changes fades away unheard. Thinking otherwise is dogmatic for an evolutionist.

Let us have a look at those thinkers who set up the first scientific and most well-known theory about cosmology. In 1755, one such thinker was the philosopher Immanuel Kant when he wrote his pioneering work *Universal Natural History and Theory of the Heavens*. Kant’s theory presented a dynamic view of the universe, speculating on the existence of life and intelligence elsewhere in the cosmos. This was before Darwin’s evolutionary framework. Following the philosopher Herbert Spencer and on the recommendation of Alfred R. Wallace, Darwin as an evolutionist dissociated himself from the misleading and intentionalistic term ‘selection’, but instead used the phrase the “survival of the fittest” starting with the 5<sup>th</sup> edition of his *On the Origin of Species* (1869). The commonly known expression “struggle for existence” does not mean a real struggle in the literal sense, but instead: „I should premise that I use the term Struggle for Existence in a large and metaphorical sense, (...).”<sup>8</sup> If Darwin’s evolution theory is valid, then: „in my theory there is no absolute tendency to progression, excepting from favorable circumstances!”<sup>9</sup>

The circle of the philosophy of nature, which tries to make from the natural history a history of nature, is interrupted by Kant, who postulates: “Thus only the culture can be the last purpose, which one has to attach to nature in regard to humankind.”<sup>10</sup> Kant points out emphatically that thereby natural purposes are not to be attributed by any means to the causes of natural laws.

Now, let us leave the subtle argumentation of Kant without heightening it and switch over to the trans- and posthumanism visions again, which are putting human-nature and machine-nature into one another, constituting them of the very same matter and assuming that they are obeying the same laws of physics.

If nature is unconcerned about human beings, i.e., the selection does not necessarily have to progress – by the way, what does progress mean? – and if so, then one could design and realize the dream of such a complete emergence and transfer of a human to a computer, and it would be quite conceivable that this new kind of a *machina sapiens* changes gradually the moral concepts likewise, for reasons of a better adaption to the environment: for example, the values of *silicon* or *steel*, since they are without doubt more long-lived and much more able to survive than humans would ever be. In this case, the intellect of *Homo sapiens* would be useless and worthy to degenerate.

The coming up of an evolution of such a culture of ‘nature’ or, more descriptively and exemplarily, a culture of ‘*silicon*’ or of ‘*stones*’ would be still sufficient for the variety of

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<sup>7</sup> Birx 1988, 5-7

<sup>8</sup> Darwin 1859, Chap. III, 62

<sup>9</sup> Darwin *Notebook N 47*

<sup>10</sup> Kant 1902, Bd. 5, 431,30 sqq

species, since the new *machina sapiens* would be a most modest species, instead of one of the most ‘hungriest’, which occupies all niches and exploits the whole earth.

Unexpectedly, one runs into a situation where one does not know who is master and who is man. While trying to integrate brain and intellect in a Cyborg-system, it seems as if one would like to gain reason, to control it as well as to give it away all at the same time, because this self-learning feedback-system is expected to know by itself (and unconsciously) very well what it is going to do further.

Spoken from an evolutionary viewpoint, it is true what H. James Birx writes: “(...) the trilobites, ammonites, and dinosaurs clearly attest to both the creative and destructive forces of biological evolution. One may even speak of ‘living fossils’ (those forms of life that still cling to existence after an enormous period of time but are always in danger of vanishing). In fact, a single species usually never lasts more than a few million years.”<sup>11</sup>

The main ideas of every *The Transhumanist Declaration*<sup>12</sup> – which version does not matter – are overcoming age and the expanding and increasing of mental energy. Advantages among others are the increase of happiness and the reduction of existential risks. But, by the way, who really wants to live forever? Isn’t it quite a terrible thing to imagine? “And why?” Socrates would ask you. In order to feel and experience all the same again and again, just as in the *eternal recurrence of the same* as the philosopher Nietzsche would say.

Is this still Darwin, to whom one refers? Darwin technologically enhanced? An active one-sided development of one or only a few selected abilities, like a superhuman intelligence, is in accordance with a teleological, or just a theological way of thinking, and would not really correspond to an enlightened philosophy of nature without any purposes. Much too easily, it could happen that an ideological character appears, because such theories have individual and especially social implications. Darwin reminds us: „Man in his arrogance thinks himself a great work worthy the interposition of a deity.”<sup>13</sup> And: „If all men were dead, then monkeys make men. – Men make angels – ”<sup>14</sup>

A potential self-over-estimation of humans leads to a self-adulation, to an ‘old and abolished’ god in disguise. But, Nietzsche already told us about the abolishment of the idol-priest, the shatter of “old law-tables“ and he proclaimed a long time ago: “God is dead!”

## II. Geek

The examination of what the postmodern human might be, the human right after Darwin, is following the position, which is understanding the *post* like the postmodern tradition of Jean-François Lyotard<sup>15</sup>, not as a temporal, historical succession, a one-after-another, but rather as a coexist next-to-each-other and a disorder. The *post* is analyzed in a context of complexity, which is quite dynamical. Everything flows.

H. James Birx describes in ‘*Nietzsche, Darwin & Time*’<sup>16</sup> the relevance of “a dynamic view of reality”. And: „A dynamical universe rich in temporal objects, passing events, and complex relationships.”<sup>17</sup> Taking this scenario into account, the *post* can only indicated a sign of distance, which permits an all-around-perspective. The *relevance of the dynamics*, the universe and the culture shows up consequently in the postmodern smashing of the term subject as well as in the rejection of any kind of self-adulation. With regard to the superhuman

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<sup>11</sup> Birx 1988, 267

<sup>12</sup> See: <http://humanityplus.org/learn/philosophy/transhumanist-declaration>

<sup>13</sup> Darwin, *Notebook C*, 169-170

<sup>14</sup> Darwin, *Notebook B*, 169

<sup>15</sup> Lyotard 1986

<sup>16</sup> Talk given at the ‘*Nietzsche-Forum München e.V.*’, München, 25.5.2009 (will be published)

<sup>17</sup> Birx 1988, 6

or to the *Homo sapiens futurensis*, as H. James Birx formulates more generally<sup>18</sup>, and the given evolutionary and perspectivist background, it is obviously that the following question arises:

„I take the liberty of raising the question *whether we have really become more moral*. That all the world believes this to be the case merely constitutes an objection. We modern men, very tender, very easily hurt (...) really have the conceit that this tender humanity which we represent (...) represents positive progress; and that in this respect we are far above the men of the Renaissance. But that is how every age thinks, how it *must* think (...): our nerves would not endure that reality, not to speak of our muscles. (...) in itself, no morality has any value –: it would even arouse disdain. (...). Among men who still knew life differently: – fuller, more squandering, more overflowing – it would have been called by another name, (...). What was once the spice of life would be *poison* for us... (...) and we moderns, with our anxious self-solicitude and neighbor-love, with our virtues of work, modesty, legality, and scientism – accumulating, economic, machinelike – appear as a weak age. Our virtues are conditional on, are *provoked* by, our weaknesses...“<sup>19</sup>

Nietzsche states that morals is a farce. It is going hand in hand with evolution. The respective given physiological condition dictates the standards and values. Its analysis, which applies to our present time and its goals too, is frightening. Precarious are also the evolutionary consequences of this analysis: Because if it applies: „The strength to withstand tension, the width of the tensions between extremes, becomes ever smaller today; finally, - the extremes themselves become blurred to the point of similarity...“<sup>20</sup> then with Nietzsche it would mean, that the reservoir of power for self-regeneration and self-increase becomes smaller and smaller and more improbable. Including technological aids, because under these conditions they would be wrongly used respectively; they would become necessarily, now more than ever, a sign and a measuring pole for the decline, the *décadence*. Hence, it follows for Nietzsche: “The *neglected* basic fact: Contradiction between the »becoming more moral« and the increase and strengthening of the type of human.”<sup>21</sup>

How will the evolution of mind and intelligence develop in these circumstances? This question is important for the survival of humans and future posthumans, both embedded within a steadily changing environment. A call for the natural sciences and reason, as well as the recurrence to them, one may discover in all posthuman positions, as the transhumanist Nick Bostrom in his article “A History of Transhumanist Thought” declares: “Transhumanism has roots in rational humanism.”<sup>22</sup> On the other hand, Nietzsche explains on his further considerations: „Indeed, we have not any organ at all for knowledge or for »truth«: we »know« (or »believe«, or »imagine«) just as much as may *be of use* in the interest of the human herd, the species; and even what is here called »usefulness« is ultimately only a belief, something fanciful and perhaps precisely the most fatal stupidity by which we shall one day perish.“<sup>23</sup> Or also: „Look, isn't our need for knowledge precisely this need for the familiar (...). Is it not the *instinct of fear* that bids us to know? And is the jubilation of those who attain knowledge not the jubilation over the restoration of a sense of security? How easily these men of knowledge are satisfied! (...). For »what is familiar is known«: on this they are agreed.“<sup>24</sup> Nevertheless, going on Nietzsche exhorts: „What is familiar is what we are used to; and what we are used to is most difficult to »know«.“ He achieves the knowledge, that: „There is more

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<sup>18</sup> Birx 1988, 268

<sup>19</sup> Nietzsche, KSA 6, (37.), 136pp.

<sup>20</sup> Ibid.

<sup>21</sup> Nietzsche, III 491

<sup>22</sup> Bostrom 2005, 3

<sup>23</sup> Nietzsche, KSA 3, (354.), 590

<sup>24</sup> Nietzsche, KSA 3, (355.), 593

sagacity in thy body than in thy best wisdom. (...). The creating body created for itself spirit, as a hand to its will.<sup>25</sup>

Darwin had searched for an explanation for the evolution of the brain and knowledge, too. In his notebooks from 1830, we already find sentences like these: „Intellect is a modification of ~~intellect~~ instinct – an unfolding & generalizing of the means by which an instinct is transmitted. – <sup>26</sup> Or: „The mind of man is no more perfect, than instincts of animals to all & changing contingencies, or bodies of either. – Our descent, then, is the origin of our evil passions!! – The Devil under form of Baboon is our grandfather! – <sup>27</sup>

Imprisoned in the cage of the body, it may seem logical for the posthumans to increase it artificial, and thus its instincts as well its mental and psychological dimension. But in relation to what, to which purpose should it be extended? Which point of reference is to be selected? And why? The conditions of the environment – but will they change in such a way (as fast) as the humans will change, i.e., as he will adapt intentionally to the (unknown) *future* scenario?

One can move the focus away from the natural environment factors to augmented animal human *living conditions*. Nietzsche understands the struggle for life in a modified way:

„As for the famous »struggle for existence«, so far it seems to me to be asserted rather than proved. It occurs, but as an exception; (...). Assuming, however, that there is such a struggle for existence (...) its result is unfortunately the opposite of what Darwin's school desires, and of what one *might* perhaps desire with them: namely, in favor of the strong, the privileged, the fortunate exceptions. The species do *not* grow in perfection: the weak prevail over the strong again and again, – for they are the great majority and they are also more *intelligent*... Darwin forgot the spirit (...) *the weak have more spirit*... One must need spirit to acquire spirit; – one loses it when one no longer needs it. Whoever has strength dispenses with the spirit (...). It will be noted that by »spirit« I mean care, patience, cunning, simulation, great self-control, and everything that is *mimicry* (...).<sup>28</sup>

To Nietzsche, is life as well as the struggle for life a result of the “wealth”, the “absurd prodigality” and the “luxury”.<sup>29</sup> It has to be like this, because Nietzsche observes, that nature, in contrary to the human-made invented theories of economy or the cause-effect-principle, “does not manage well.”<sup>30</sup> If it would be otherwise, than nature would economize “more reasonable”, so that its “custom of house would be: few costs and a hundred-multiple yield.”<sup>31</sup> The functionalism of nature, i.e., a general higher development of the evolution combined with an increase of intellect and morals of mankind, cannot be determined, – even though we would like very much to see it otherwise with heart. Rather, it is valid for this purpose: “They always affect only a few, but they should affect everybody.”<sup>32</sup>

The human being is from the bottom of his nature a habitual liar, he *must* be, in order to adapt himself and to be able to survive. The humans are exercising this artistic skill into the sciences, arts and morals. Therefore: „For the evil is man's best force.”<sup>33</sup>

The so-called evil is already *revalued* by Nietzsche and belongs to the *highest values itself, because it is creative*: „And he who hath to be a creator (...) he hath first to be a destroyer, and break values in pieces”<sup>34</sup> Thus, it becomes obvious, that the human respectively the overman should have the following characteristics, which are worthy to expand: „He shall be the

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<sup>25</sup> Nietzsche, KSA 4, 40

<sup>26</sup> Darwin, *Notebook N* 48

<sup>27</sup> Darwin, *Notebook M* 123

<sup>28</sup> Nietzsche, KSA 6 (14.) 120

<sup>29</sup> Cf. *ibid.*

<sup>30</sup> Nietzsche KSA 1, (7), 405p.

<sup>31</sup> *Ibid.*

<sup>32</sup> *Ibid.*

<sup>33</sup> Nietzsche, KSA 4, 359

<sup>34</sup> Nietzsche, KSA 4, 149

greatest who can be the most solitary, the most concealed, the most divergent, the man beyond good and evil, the master of his virtues, the superabundant of will; this shall be called greatness: (...).<sup>35</sup>

At this point, opposed to his own thoroughly convincing thought, the superhuman has betrayed something of his secret ideal.

### III. The need of secrets

But why is there a secret at all? Why is such a secret *necessary*? Because not everyone does have a pronounced instinct for the ‘mimicry’ and the imitation in the aforementioned sense, but almost maintains mimicry to the contrary. It is questionable who of both is masked, or got rid of the mind. Nietzsche refers to the well-known ‘herd instinct’: „Why do men usually tell the truth in daily life? – Certainly not because a god has forbidden lying. Rather, because it is first is more convenient: for lies demand imagination, dissembling, and memory. (...) he must invent twenty other lies to make good the first. Then, (...) because the path of obligation and authority is safer than that of cunning (...). A child (...) will employ the lie naturally, and will always say instinctively that which corresponds to his interests.; (...), and so he lies in complete innocence.<sup>36</sup>

This kind of cunning and deception is not what Nietzsche has in mind for the posthumans, when he dreams of a superhuman, since the posthuman should expand, but not degenerate his abilities. However, the art of mimicry and imitation still holds further risks on the other hand, which the clever, great liar is faced with. One can lose the spirit, by having too much of it. During the (empathic) learning of the deception, of the ‘transferring and projecting oneself into another’ in order to manipulate him to his own purposes, one can lose one’s own ‘power to will’, one’s own egoistic interests, out of sight and mind, when one exaggerates, i.e., one loses the important “great self-control”.

Then, the mental assumption of the other one, the allegedly weaker one happens: „If someone wants to *seem* to be something, stubbornly and for a long time, he eventually finds it hard to *be* anything else. The profession of almost every man, even the artist, begins with hypocrisy, as he imitates from the outside, copies what is effective.<sup>37</sup> This process becomes intensified significantly, when the artist-liar does not find a way out of his own play, but gets strongly involved, immersed, absorbed and thus loses the game: „In all great deceivers there occurs a noteworthy process to which they owe their power. In the actual act of deception, among all the preparations, (...) the *belief in themselves* overcomes them: (...). Self-deception must be present, so that both kinds of deceivers can have a grand *effect*. For men will believe something is true, if it is evident that others believe in it firmly.<sup>38</sup>

An incisive selection occurs, when steering toward the following dilemma: „The founders of religions are distinguished from those other great deceivers by the fact that they do not come out of this condition of self-deception: (...).<sup>39</sup> The tragedy of such an evolutionary selection is implied in its range. As shown by the example of the founders of religion, whom Nietzsche never gets tired to criticize, those actually strong and great ‘higher’ men finally do *not* bring forth an enhancement and enlightenment to the masses, to their species, but they establish during long lasting periods disadvantageous and ‘low’ herd-characteristics and prevent effectively a general higher development. Falling into oblivion and been wearisome, they sacrifice themselves, their ideas and their ‘will to power’ to the masses.

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<sup>35</sup> Nietzsche, KSA 5, (212.), 147

<sup>36</sup> Cf. Nietzsche, KSA 2, (54.), 73p.

<sup>37</sup> Nietzsche, KSA 2, (51.), 72p.

<sup>38</sup> Nietzsche, KSA 2, (52.), 72p.

<sup>39</sup> Ibid.

Deception and self-deception are, from Nietzsche's perspective point of view, quite natural, obviously characteristic of the abilities of human beings, and therefore nothing despicable; notwithstanding only a few, the *great liars*, are masters of the characteristic '*pathos of distance*'. The '*pathos of distance*' determines the distance to oneself and between oneself and the others – and therefore the distance between deception and self-deception too. The will to power appears here, *likewise the so-called superman*. Nietzsche states as the quintessence: „*Homo natura*: the »will to power«.“<sup>40</sup>

A balanced relation of *defense* and *attack* in the “struggle for life”, in the metaphorical “war of all against all” (Thomas Hobbes), which the philosophers Heraclitus and later on Nietzsche extend to the whole universe by the notion “war as father of all” implies, among other things, a sensible relation between aggression and altruism.

Referring to Nietzsche's thoughts again on the approach of science and knowledge, to the ‘gay science’, as well as to nature and culture, then in general this is true: „That the world is *not* the abstract essence of an eternal reasonableness is sufficiently proved by the fact that *that bit of the world* which we know – I mean our human reason – is none too reasonable. And if *this* is not eternally and wholly wise and reasonable, the rest of the world will not be so either, (...).“<sup>41</sup>

One should especially consider the important note and hint of H. James Birx: “If our species involves for countless eons, then the only major problem may be cosmic boredom.“<sup>42</sup> Following Nietzsche, this danger does not exist for *Homo sapiens futurensis*, which would imply to also the end of the evolution, because it is true: „(...), the intellect unfolds its principle powers in dissimulation; (...). This art of dissimulation reaches its peak in man.“<sup>43</sup>

## References:

- Birx, H. J. (1988): *Human Evolution*. Charles C Thomas, Springfield Illinois.
- Birx, H. J. (2009): *Nietzsche, Darwin & Time*. Talk given at the ‘Nietzsche-Forum München e.V.’, München, 25.5.2009.
- Bostrom, N. (2005): *A History of Transhumanist Thought*. See: [www.nickbostrom.com/papers/history.pdf](http://www.nickbostrom.com/papers/history.pdf)
- Clynes, M. E./ Kline, S. K. (1960): *Cyborgs and Space*. In: *Astronautics*, September, 26-27 and 74-75; reprinted in Mentor, G./ Sarriera, F. (1995): *The Cyborg Handbook*, 29-34. Routledge, New York.
- Darwin, C. (1859): *Origin of Species*. Harvard Press, Cambridge.
- Darwin, C.: *The Works of Charles Darwin*. 1987-89. 29 vols. Ed. by Barrett, P. H./ Freeman, R. B. University Press. New York.
- Hayles, N.K. (1999): *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics*. Chicago Press, London.
- Kant, I. (1908): *Kants Gesammelte Schriften*. Preußische Akademie der Wissenschaften, Berlin.
- Lyotard, J.-F. (1986): *Das postmoderne Wissen. Ein Bericht*. Edition Passagen. Wien.
- Moravec, H. P. (1988): *Mind children: the future of robot and human intelligence*. Harvard Univ. Press. Cambridge.
- Nietzsche, F. (1967): *Sämtliche Werke. Kritische Studienausgabe*. (KSA). 15 Bde. Ed. Colli, G./ Montinari, M. Walter de Gruyter. Berlin /New York.

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<sup>40</sup> Nietzsche, III 491

<sup>41</sup> Nietzsche, KSA 2, (2.), 540

<sup>42</sup> Birx 1988, 269

<sup>43</sup> Nietzsche, KSA 1, 876



Nietzsche, F.: *Werke*. 3 Bde. (I-III): (Ed.) Schlechta K. Hanser Verlag. München.  
Ust, D. (2001): *What is posthumanism?*. See:  
<http://mars.superlink.net/~neptune/Posthuman.html>  
Transhumanism-Declaration (2009): See: Transhumanism Organisation.  
<http://humanityplus.org/learn/philosophy/transhumanist-declaration>  
Warwick, M. (28.2.2000): *Cyborg 1.0. Kevin Warwick outlines his plan to become one with his computer*. See:<http://www.wired.com/wired/archive/8.02/warwick.html>

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