



Franc MALI
Faculty of Social Sciences,
University of Ljubljana

Steve Fuller and Veronika Lipinska
**The Proactionary Imperative –
A Foundation for Transhumanism**
Palgrave Macmillan, Hampshire and
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The book *The Proactionary Imperative – A Foundation for Transhumanism* aims to provide a comprehensive intellectual basis for the emerging progressive movement of transhumanism. To achieve this goal, the authors of this extremely complex and intellectually exciting book include a very broad spectrum of ideas. It is the work of very erudite authors. In the book, readers will again encounter – as with Steve Fuller's previous books "Preparing for Life in Humanity 2.0." (Palgrave Macmillan, 2013) and "Humanity 2.0. What it Means to be Human Past, Present and Future" (Palgrave Macmillan, 2011) – a treatment of the complex (epistemological) interlinkage between science and religion. In Fuller's new co-authored book *The Proactionary Imperative*, the interlinking of traditional theological thought and modern science is argued with reference to the following characteristic of transhumanism: in transhumanism the endeavors of human beings to transcend themselves without any limits (through the human body and cognitive enhancement, even through the replacement

of our current carbon basis), have the characteristics of a "god-like" acts. In other words, to arrive at an answer of what are the ontological and epistemological bases of transhumanism, it is heuristically useful to draw on the resources of both science (genetics) and theology (Genesis). Of course, as modern secular humans we cannot deny the rational principles of the theory of evolution. Notwithstanding this, we need to take regard of a much wider spectrum of intellectual traditions (eugenic theories, theories of intelligent design etc.) if we seek to understand the essence of transhumanistic views. Namely, unlike Darwin's theory of evolution these intellectual traditions reaffirm the privileged position human beings hold as a natural creature with open and unlimited possibilities to realize their creative potential. Why should we only look at eugenics from a negative angle? Why should we not regard eugenics as the foundational science of human capital?

The book consists of four chapters and concludes with *A Proactionary Manifesto* that brings all the main points presented in the four earlier chapters together. Chapter 1 presents the emerging axial rotation of the ideological poles, from the traditional Left-Right polarity which occupied the ideological and political spectrum of the Western world in the last two centuries to the recent duality of the "proactionary" and "precautionary" standpoints. Chapter 2 deals with theology, exploring what it means to take our capacity to "play

God” seriously, for which the authors adopt the Greek term “theomimesis”. Namely, this neologism (“God-playing”) also resonates in modern science. The books authors argue that the radical version of Christian self-empowerment championed by the Protestant Reformation which originally motivated occidental scientific revolutions in the mid-17th century also remains the best starting point for motivating contemporary transhumanists and proactionarists. Such a look back into the history of occidental religious thinking makes it possible to find a lot of unexpected links between traditional (religious) metaphysical thinking and modern (secular) transhumanism. Chapter 3 turns to the scientific and technological extension of our theomimetic capacity, focusing on eugenics – the first explicitly proactionary science. The traditional eugenics was a field whose striking boldness of vision and failures in execution offer great insight for forging a future progressive ideology. Chapter 4 sketches out a legal and political framework for the proactionary principle. In this chapter, special attention is paid to the legal basis that should enable citizens to take collective responsibility for the progress of genomics. According to the book’s authors, the case of “hedgenetics” (where human genomes are treated as the basis for hedge fund investment) could appear as the legal grounding that enables citizens to take collective responsibility for their genome by virtue of sharing salient genetic patterns. This

approach described in Chapter 4 as “hedgenetics” provides a framework for wider reflexivity concerning how to solve the precarious (critical) issues of intellectual property rights in these times of new and emerging sciences and technologies. In that sense, hedgenetics could be seen as an example of a proactionary socio-legal regulation of new and emerging sciences and technologies.

Steve Fuller and Veronika Lipinska are passionate advocates of proactionary principles. For them, such principles represent a progressive ideology which offers solutions for the world of the 21st century. If we briefly summarize the main point of the proactionarist stance defined by Fuller and Lipinska, then proactionarism is a political program and ideology which embraces the risk and bold experimentation of human beings with nature and with themselves. Thus, an enormous weight is placed on endless acts of human self-transcendence in proactionarism. Proactionarism is transhumanism par excellence!

In the book’s introduction, Fuller and Lipinska reject the position of older style Leftists as well as newer style Leftists. The older style (theoretical) Leftists “...are still rapturously received on university campuses, where the likes of David Harvey and Slavoj Žižek gamely trot out late nineteenth-century solutions to early twenty-first-century problems with the dutifulness of a Beatles tribute act” (*The Proactionary Imperative*, p. 9). Indeed, the newer style Leftists

have turned from “red” ideology to “green” ideology, but are likely to end up lost in a blind alley because they uncritically accept precautionary principles. Precautionary principles always worry about who will be harmed by before who will benefit from future-oriented human actions. Fuller and Lipinski regret that all factions of (theoretical) Leftists did resign to follow future-oriented actions because the political philosophy of left parties, unlike that of right parties, has throughout their entire political history in Europe drawn on the idea that it is the future – not the past – that provides the grounds for societal legitimation. Why should this change in the modern era of tremendous scientific and technological progress?

From the point of view of recent intensive professional debates on how to cope with the complex issues of intellectual property rights within the framework of the modern genomics, it is interesting that the book attributes great relevance to solutions which partially deviate from common (legal and social) expert opinions. Namely, with regard to the legal (patent) protection of innovations in genomics two opposite (expert) views have recently surfaced. On one hand, we encounter the arguments that the owners of inventions in genomics have an exclusive property right. Biopatents are an indispensable incentive for the future progress of the most innovative potential of modern genomics. On the other hand, other views strongly criticize the use

of any kind of legal protection of invention in genomics. For the proponents of these views, the only legitimate way forward is open access to any kind of knowledge in genomics. It seems that Steve Fuller and Veronika Lipinski follow neither the “intellectual property right” discourse nor the “free access” discourse. Namely, they contend that patent experts and patent decision-makers are too occupied with the question of whether the isolation of genetic information from the natural body merely constitutes a (non-patentable) discovery or whether it is a (patentable) invention, and – in addition – with the question of who might be the owner of such patents. They suggest some kind of “third way” that would put an end to the strong polarities between the adherents of the “intellectual property right” discourse and those of the “free access” discourse. Some kind of hybrid legal protection (“hedgenetics”) between such polarities is recommended which should be based on the collective responsibility of modern societies (with or without patenting instruments) to cultivate the available human genetic potential. The core idea underlying this proactionary strategy is the expectation that modern societies will find adequate institutional mechanisms to cope with “genetic stewardship”. Here, an important role should be played by citizens. In the case of “genetic stewardship”, citizens should be empowered to adjust the environment to enhance the genome and acquire more knowledge about the

genome to put it to better use. And “hedgenetics” could become a good case providing a legal context for realizing the active participation of citizens in complex matters of new and emerging technologies.

To conclude, Fuller’s co-authored book deals with one of the most exciting topics of recent times, i.e. the challenges of transhumanism. Moving through this intellectually stimulating book will force readers to re-think fundamental questions like where as a biological species we come from and where we are going with the help of the great achievements of modern scientific-technological progress.

Toni PUSTOVRH
Faculty of Social Sciences,
University of Ljubljana

George Church and Ed Regis
**Regenesis: How Synthetic Biology
Will Reinvent Nature and Ourselves**
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“Engineering recapitulates evolution” (p. 12). George Church, genetics pioneer, Professor at Harvard and cofounder of several biotechnology companies, with the help of science writer Ed Regis, uses this leading idea to take the reader on a tour of the evolutionary history of life on Earth, presenting biological mechanisms and organisms of rising complexity that have emerged during six evolutionary epochs, and are increasingly

subject to redesign by synthetic biology with the aim of serving human needs and purposes. In *Regenesis: How Synthetic Biology Will Reinvent Nature and Ourselves*, Church’s first book, the authors interweave three levels of narrative. The first recounts the evolutionary emergence of life and its mechanisms, starting with the Late Hadean and the primordial DNA that gave rise to all terrestrial life, all the way to the emergence of mammals and finally of human civilization in the Homo Sapiens dominated Anthropocene era. The second traces the history of synthetic biology and its origins from early biotechnology to modern synthetic genomics, Do-It-Yourself Biotechnology, and iGEM, the international student competition in engineered microorganism systems, often recounting Church’s own involvement in landmark research, development and entrepreneurial activities. The third takes a more predictive and sometimes speculative approach to what applications the progress of synthetic biology might yield in the short and mid-term, but also in a possibly more distant future. Along the way, the authors tackle some fundamental questions, such as what is life, what distinguishes animate and non-animate matter, whether this leaves any room for theories of vitalism, what is the origin of the primordial DNA, as well as address some of the technical challenges and the societal ramifications of such developments, including questions of (bio)safety and (bio)security.