

The Misnomer of Transhumanism as Directed Evolution

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Abstract

Transhumanism is sometimes described as directed evolution. The suggestion that the transhumanist project is evolutionary is problematic because the enhancements countenanced by transhumanism do not track the models and processes of evolution. A significant example of this disconnect is that evolution, on most theoretical accounts, is a teleological and transhumanism is wholly teleological. Transhumanist use of the metaphor of evolution suggests an inevitability to transhumanist changes that is misleading. Transhumanists do not seek to 'manage' our evolution. They instead seek to sever us from an evolutionary past and undertake an entirely self-engineered future. When the merits of particular transhumanist enhancements persuade us, and it seems likely that some proposals will persuade us, we will be choosing to change our physical selves, and perhaps imposing those changes on our progeny. We cannot diminish the responsibilities of choosing by phrasing the option that appeals to us as 'favoured' by evolution.

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Think of the strange mutations life requires.
Only the toughest endured, themselves much altered,
Trained in the cripple's careful sciences
Of mute accommodation. The survivors
Were all, one way or another, amputees
Who learned to live with their stumps, like Brueghel's beggars.

Anthony Hecht (from *Green: An Epistle*)

Transhumanism is sometimes described as directed evolution. The combination of computer-neural interfaces and genetic enhancements, among other emerging technologies that can profoundly affect human capacities and behaviours, like memory-enhancing drugs and bioengineered prostheses, suggests the ability to manage an accelerated evolution of the human species. Indeed, Joel Garreau summarizes the changes that are contemplated as 'engineering our own evolution' (Garreau 2005: 58).

The use of the word 'evolution' can cause confusion because it suggests a continuity between its meaning in theories of evolution, as those theories derive from and elaborate upon Charles Darwin and Alfred Russel Wallace, and its meaning within a transhumanist theory. The confusion is compounded by the status of transhumanism as both a theory of human potential and an agenda for applied research and practice. There are transhumanists who clearly aim to surpass the limits of evolutionary progress and indeed rail against the limits that evolution imposes upon human development. Robert C.W. Ettinger, the founder of the Cryonic Institute and regarded as a pioneer transhumanist, insisted that the ageing process could be suspended and reversed with appropriate scientific interventions (Ettinger 1964). Likewise, the gerontologist Aubrey de Grey focuses on specific types of molecular and cellular damage associated with the ageing process that he claims can be repaired with current or anticipated therapies, to permit a potentially indefinite lifespan (de Grey 2007). Ettinger and de Grey present a variant of transhumanism that openly declares its intention to transcend the travails of the human body constrained by the slow progress of evolution. The ambitions of their projects do not comfortably co-exist with the unacceptably plodding pace of evolution. Not surprisingly, these transhumanists do not use language to describe their ambitions that suggest continuities with evolutionary theory.

Many other transhumanists are entangled in evolutionary theory and metaphors. Many are sophisticated thinkers who are acutely aware that transhumanism portends a radical break with evolutionary accounts of human development. They describe transhumanism as a transformative process whereby human development henceforth will depend upon the aspirations and skills of a species that is changing rather than natural selection or other relatively haphazard drivers of change. Transhumanists anticipate that at some point the accumulation of engineered changes will generate qualitative changes that will 'transform' the human species. The details of this qualitative leap in our evolution are vague, but the project presumes that particular interventions which are imminent or likely will somehow morph into a force comparable to evolution. A threshold number of discrete changes, for example, genetic therapies and medical treatments, will manifest in a mysterious manner an entirely new evolutionary momentum. Given the elusiveness about how discrete interventions generate an original, but undefined, mechanism for change as an emergent property, it is not surprising that descriptions of this event simultaneously rely upon and distinguish aspects of evolutionary theory. The discontinuities form the basis for the

revolutionary features of transhumanism and the continuities can mislead about the provenance of transhumanist theorizing.

Nick Bostrom points to Julian Huxley as the person who introduced the term 'transhumanism': 'man remaining man but transcending himself, by realizing new possibilities of and for his human nature' (Bostrom 2005: 2). Bostrom also cites Pierre Tielhard de Chardin as a proto-transhumanist who 'saw an evolutionary telos in the development of an encompassing noosphere (a global consciousness)' (Bostrom 2005: 5). Both references occur in an article published in the aptly titled *Journal of Evolution and Technology*; Bostrom and other prominent transhumanists serve on its editorial board. Bostrom elsewhere describes the transhumanist view that humans are 'a work-in-progress: a half-baked beginning that can be remoulded in desirable ways through intelligent use of enhancement technologies' (Bostrom 2001: np). That view was also in evidence on the *Humanity+* Website home page, which had approvingly quoted the Marquis de Condorcet¹:

Nature has set no term to the perfection of human facilities; that the perfectability of man is truly infinite; and that the progress of this perfectability, from now onwards independent of any power that might wish to halt it, has no limit than the duration of the globe upon which nature has cast us (Marquis de Condorcet nd, cited in *Humanity+* 2010)

A contemporary version of this enthusiasm for directed evolution, available on the website for the Academy of Scientific Metaphysics within a section titled 'Consciously Controlled Evolution,' and typical of various similar expressions of enthusiasm for engineering human evolution, states:

Once genetic engineering technology has matured and is safe, then we will have the knowledge to begin changing our own DNA to make future generations stronger, smarter, and more resistant to disease. Human evolution is now entering a new phase where genetic engineering will allow parents to design their own children. (Stewart 2006: Chapter 3, np)

This suggestion that the transhumanist project is evolutionary is problematic because the enhancements countenanced by transhumanism do not track the models and processes of evolution. In using evolutionary references and allusions, transhumanists, mostly unintentionally, play with an ambiguity in the meaning of the word. In a non-technical sense, something that changes from one form to another may be said to have evolved to that second form, no matter how the change was accomplished. However, the transhumanist use of the term borrows from evolutionary theory as the dominant account of how life has changed over time on this planet, particularly the branching that has produced *homo sapiens*, to appropriate both the rigour of science and the gradual progression of changes, whether by phylactic gradualism, punctuated equilibria or otherwise, which have been identified as support for evolutionary theory (Gould 2002).

A prominent example of the disconnect between evolution and transhumanism, is the role of populations in evolutionary theory, as opposed to a transhumanist restructuring of the human species. For evolutionary theory and science, the appearance of change across a population is evidence that the change promotes fitness for survival. Natural selection is the preferred mechanism of change for biology-based evolutionary theories and while there is an active debate about whether natural selection acts primarily on genes, on individual organisms or on the species, the fitness of the change is evaluated as a function of its prevalence within a population, regardless of the mechanism. Transhumanism, by contrast, identifies changes

¹ *Humanity +* <http://humanityplus.org>, last viewed May, 2010, the quote has since been removed from the site.

that it posits *will* improve the human species and argues that individuals should adopt those changes in order to improve their individual (and subsequently the species') well-being. Yet an engineered change to the human species is not necessarily an evolutionary change because the engineered change is aspirational, that is, it aims at a valued end, while an evolutionary change is descriptive, that is, it is the product of mutations and their demonstrated promotion of fitness.

Transhumanism focuses on qualities that are valuable because the group decides so, irrespective of its implications for survival aside from the group's valuing. The group might opt for a plethora of (culturally endorsed) adornments that are otherwise hindrances, for instance, many peacock feather-like embellishments that are wholly artifactual. The adornments will mostly be efforts at intelligent adaptation, but they will be artifacts, constructs of human ingenuity operating in a cultural context. This is not a prediction that transhumanist changes will necessarily cluster around quixotic adornments, but some will and, more importantly, it may be difficult to differentiate where a relationship to the challenges of survival elides into a formal, though grossly distorted elaboration of that relationship. For example, fast-twitch muscles are extremely useful for hunters and for athletes of varying sorts, but an excess of such muscles might make its bearer a freak, burdened with capacities that exceed actual needs and complicate the satisfaction of other bodily tasks. Competitive muscle builders exemplify this kind of confusion, where muscles which are certainly useful for many tasks are developed and enlarged to grotesque extremes. (As a further perturbation, the probable selective adoption of transhumanist interventions on account of their expense and limited availability raises the disturbing prospect of human subspecies arranged by market forces.)

Popular nineteenth century theories of evolution attempted to defuse the materialist implications of Darwin's account of natural selection by offering a Lamarckian and developmental gloss that preserved a hierarchical order. However, most contemporary evolutionary theory is based on biology and is largely a-teleological (Bowers 1988). There is no perfect species to which it aspires, no perfect balance of species, no perfect ecology. There is no rubric by which to measure evolutionary success other than survival. It is law-driven, but unpredictable. However dominant a particular species may seem at a given time or how well adapted to the environment that then prevails, it succeeds only if it survives the next challenge. If it does not and another species does, then that other species has prevailed, whatever its weaknesses in the prior environment. If there is an ideal for evolution, that ideal is adaptability.² Whatever form or behaviour permits the greatest range of adaptability would be preferred. Of course, a sudden shock to the environment might push beyond that range and that would end the privileged status of this maximally adaptable species.

(The a-teleological aspect of evolutionary theory troubles many religious people because it denies humans their special status as children of god, created in his/her image. The evolutionary theorist can claim agnosticism about god weaving his/her design through an evolved world, but the process as constrained by the evidence denies special status to any species. There may be a plan that arises outside of history, but the physical evidence available to human inquiry does not necessitate specific inferences about that plan. We can believe in god's design, but we should not expect to discover physical evidence that points ineluctably to such a design. Rather, the available evidence limits inferences about what is going on to descriptions of events. Science in general is similarly constrained. It cannot take

² R. A. Fisher, a pioneer in population genetics, phrased this adaptability in terms of genetic variability, the mean fitness of an organism being equal to its genetic variance in fitness (Fisher 1930)

up questions about “why” unless they are heard as questions about “how.” The physical evidence does not require that humans stand at the pinnacle of creation. A religious belief can insist upon that special status, but it should not expect reinforcement from physical evidence.)

By contrast, transhumanism is wholly teleological. While different theorists present multiple versions of the aims to which interventions should aspire, they share the perspective that the point of the interventions is to create a being, and arguably later a species, with particular desired characteristics. Even if the interventions may be justified in terms of their ability to promote survival, for example, immunity from specific diseases, or enhanced powers of concentration, or longer lasting joints, the interventions themselves are focused on a specific view of how survival can be served. For theories of evolution based upon natural selection, a species will stumble upon variations that promote survival, that is, fitness to reproduce, and their future form will express those beneficial variations. Of course, most variations will not be survival-promoting and the individuals with those variations may perish (or the variations will get lost in the genome as seeming junk DNA). Those variations that better promote survival are not chosen by the mutated individuals, they are accidents of the reproductive process. However obvious it might be to an individual that certain variations would benefit her progeny, that awareness will not produce progeny with those variations. Even a selective breeding program for large mammals, for example, humans, can only aim at limited targets and aspire to probabilistic results.

The point is not that transhumanist changes are objectionable because they stretch what qualifies as evolutionary. It may seem inevitable that many of the changes that transhumanism anticipates will be implemented and at least some of them will be widely applauded. The point is that these advances are products of human choice and for transhumanists these choices should be as expansive as possible. Transhumanist use of the metaphor of evolution suggests an inevitability to transhumanist changes that is misleading. The use of the term 'inevitability' overstates what is actually the attractiveness of a particular alternative on offer that happens to appeal to appropriately many choosers. Again, choosing germ-line changes to the human species is the seeming direction, and the prospect for eliminating a susceptibility to a disease or abnormality may make those changes irresistibly attractive. We can leave the merits of particular suggested changes to individual cases and nonetheless insist that there is nothing inevitable about these changes. While the merit of individual cases may readily persuade us, however overwhelming the evidence in any instance, it remains a choice that we are making. We cannot diminish the responsibilities of choosing by phrasing the option that appeals to us as “favoured” by evolution.

(The prospect of a designer chromosome where genetic changes would be located to better manage them could diminish the threat of permanent germ-line interventions. At least theoretically, changes to the designer chromosome would be reversible. However, this prospect of a 47th chromosome makes the artificial character and the presentist bias of transhumanist change more obvious. The potential for experimental designer genes and the widely varying directions of those experiments emphasize the culturally relative motivations, perhaps even the frivolousness, which might inspire genetic interventions.)

There are obvious reasons to be cautious about pursuing these proposed changes. If they are germ-line changes, then we are manipulating our genome with modifications that are perhaps permanent. Germ-line intervention aims at an inheritable trait and it may prove difficult to reverse the intervention if it is judged a mistake. So the foremost caution focuses on the potential permanence of the intervention. We should also have qualms about the

possible grounds for choosing the intervention. For example, people may choose characteristics – such as aggressiveness – that may be conducive to an individual’s survival, but are not necessarily beneficial to the species as a whole. Moreover, as our skills for designing and implementing modifications improve, the only limits to our modifications may be what we are persuaded is unreasonable. Yet it is not clear that we can be relied upon to identify the appropriate limits of reason or long-term desirability. At the macro-level there is increasing evidence that the rational actor of economic theory does not produce consistently rational outcomes nor does the reasonable person of tort theory and practice produce timeless standards for reasonable conduct. At the micro-level there is increasing evidence that our powers of reasoning and of making value judgments are importantly conditioned in ways of which we are only peripherally aware.

We have consistently conceded that a person’s political views are affected by how those views impact that person’s station and prospects, but behavioural economics and the cognitive sciences are making it increasingly obvious that our ‘reasons’ are less neutral than we had supposed. We suffer multiple biases of which we are not aware, which in turn affect our judgments. We often insist that we can articulate exactly the reasons that persuade us, but there is increasing evidence that many of our judgments can be predicted based on factors that do not match the reasons that we articulate. The endowment effect, cognitive framing, the confirmation bias, and the sunk-cost fallacy are examples of shoddy reasoning based upon cognitive biases we are usually unaware of.³ It is not necessary to conclude that all reasoning is therefore explainable as a function of unconscious conditions, to be able to concede that our reasoning is significantly affected by these and other unconscious conditions. Arguably an awareness of those conditions permits us to recalculate our reasons and our methods of settling upon those reasons, but only within limits. There is no Archimedean vantage from which we can leverage our future in an assuredly a-contextual manner. We are perspective-bound, all the way down, through the entire column of turtles upon which the elephants of our reason are grounded (Hawking 1988).⁴

It is worth emphasizing that the biases that affect our reasoning and decision-making are not grounds to surrender reason as the bases for evaluating our problems and identifying solutions. Being able to identify the biases that affect our reasoning and decision-making to permit a correction for those biases reveals something important about why reason is so valuable. It is not incorrigible, not beyond self-correction, at least not over the long-term. The pace of proposed transhumanist interventions, the hubris of its parameters for time and scale, should be carefully considered in light of the gradual advancements of reason. What seem to be obvious advantages to these interventions may prove less persuasive at a later time, and part of the difference may arise from reasoning biases that are not immediately apparent.

The relevance of these qualms about reason to transhumanism is the identification of boundaries for its ambitions. The earliest reach of that ambition captures what seem obvious improvements, for example, susceptibilities to illness and physical abnormalities. The long-

³ The endowment effect describes phenomena where people often demand more to give up an object than they would be willing to pay to acquire it. Cognitive framing is the tendency to select inconsistent choices, depending upon how the options are framed, for example., whether they concentrate on losses or gains. The confirmation bias is the tendency to seek or interpret information in a way that confirms one’s preconceptions. The sunk-cost fallacy is the tendency to continue an endeavour once an investment has been made, despite strong evidence that the endeavour will fail (and clearly would not be pursued if there were no prior investment).

⁴ “Turtles all the way down” is a metaphor for the infinite regress problem. Stephen Hawking (1988), among others, cited it as the response of an older woman to an astronomy lecture. She tells the lecturer that his account of the Earth’s position in the galaxy is “rubbish. The world is really a flat plate supported on the back of a giant tortoise.” The lecturer asks what the tortoise is standing on. She retorts, “[I]t’s tortoises all the way down.”

term prognosis has no obvious limits. Whatever we persuade ourselves is in our best interests and is achievable is therefore in contention. If knees can be replaced with a structure that better responds to stress and aging, then knees might be eliminated across the species. There doesn't seem to be any physical structure or function that is immune from such a consideration and redesign. Only reasoning itself would be preserved, but reasoning divorced from the exigencies of an imperfect body might not resemble the reasoning with which we are familiar. Indeed, if sexual reproduction is also subject to redesign – and there is nothing about transhumanism that suggests it should not be available for retooling – then the prospect of reason reduced to silica and computer programs might be less about how to mesh human and computer circuitry than about how to translate human reasoning into computer code. Reasoning might concede the inconveniences of a body of tissue and bone and seek the comparative reliability of wiring and software.

This suggestion may seem wildly dystopian, and I do not mean to suggest that such prospects are inevitable. What I do mean to suggest is that transhumanism offers little to resist those prospects. Transhumanism utilizes the human body in its current form as a *tabula sorde*, that is, an inadequate vessel, a substrate or platform with inconvenient characteristics that should be modified as soon as the means to do so are available. The initial interventions are phrased as tinkering, ranging from therapies that remedy deficiencies and weaknesses, for example, enabling the blind to see via the lens of a machine or correcting genetic predispositions to premature bodily decay, to modest enhancements that operate within normal ranges, for instance, adding a few inches to height. The ambition, however, reaches beyond tinkering to a complete restructuring of the human body. The worry is that the tinkering is not subject to a model of what ought to be the case that would limit its direction or range. Phrasing such modifications as directed evolution offers argumentative support that is unearned and misleading. As we leave the methods and pace of evolution to pursue purposeful modifications of our bodies and our minds, we need to emphasize the discontinuities with natural selection of this alternative orientation and practice.

The point is that transhumanists do not really seek to 'manage' our evolution. They instead seek to sever us from an evolutionary past and undertake an entirely self-engineered future. While we may not be able to resist the advantages on offer from such self-engineering, it is useful to remind ourselves that we would be surrendering whatever protections (and liabilities) are provided by the plodding pace of evolution. We have often made choices which we justified as required by compelling circumstances and recognized after the fact that we were considerably less compelled than we persuaded ourselves that we were. Often such justifications merely acted as a convenient cover for other reasons and preferences. We likely will modify ourselves in the foreseeable future, though considerably less, or at least more slowly, than some transhumanists predict and desire. Unless we think that whatever our sciences might do is exactly comparable to what natural selection might do – much as skyscrapers have been compared to a beaver's dam, constructed by living beings to adapt their environment to their needs – and thus equate self-conscious intentions with instinct, the modifications will not be evolutionary.

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