

# Posthumanism – A Critical Analysis

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## Preface

What is “man”? This age-old question is everywhere today being asked again and with increased urgency, given the current technological developments levering out “our” traditional humanist reflexes. What this development also shows, however, is that the current and intensified attack on the idea of a “human nature” is only the latest phase of a crisis which, in fact, has always existed at the centre of the humanist idea of the human. The present critical study thus produces a genealogy of the contemporary posthumanist scenario of the “end of man” and places it within the context of theoretical and philosophical developments and ways of thinking within modernity.

Even though terms like “posthuman”, “posthumanist” or “posthumanism” have a surprisingly long history they have only really started to receive attention in contemporary theory and philosophy in the last two decades where they have produced an entire new way of thinking and theorizing. Only in the last ten years or so, posthumanism has established itself – mainly in the Anglo-American sphere – as an autonomous field of study with its own theoretical approach (especially within the so-called “theoretical humanities”). The first academic publications that deal systematically with the idea of the posthuman and posthumanism appeared at the end of the 1990s and the early 2000s (these are, in particular, works by N. Katherine Hayles, Cary Wolfe, Neil Badmington and Elaine L. Graham). In conjunction with this theoretical debate, Francis Fukuyama’s book Our Posthuman Future (1999) about the importance of new biotechnologies for a return to the debate on eugenics opened up a more general philosophical and political discussion. Ever since, a much wider public has shown growing interest in the proliferating ideas and visions of “our posthumanity”. Many anxieties but also utopian hopes are projected onto new bio-, nano-, neuro- and infotechnologies. These are circulating in the traditional mass media and increasingly of course in the so-called “new”, “digital” and “social media”. Whereas

Fukuyama's contribution to the discussion about the future of the human had been motivated by rather conservative and moralistic motives based on the apparent opposition between technological development and human nature, there has been sheer delight in "transhumanist" circles at the prospect that these new technoscientific developments might transform us in a not too distant future into a new digital species with fantastic new potential (cf. Hans Moravec, Max Moore, Vernor Vinge and their followers).

The present volume understands itself as a mediating force between these two extreme positions. The kind of critical approach that is being promoted here first attempts to relativise the apparent radical novelty of the "posthumanist" phenomenon. While the current context might indeed be new and singular, the idea of posthumanism, however, relies on questions and problems that have a long history and are therefore closely connected to other past and present contexts. On the other hand, it is also important to show the truly innovative potential of a critical posthumanism. Most welcome is for example the new and extensive possibilities for co-operations between sciences (and the new bio- or life sciences in particular) and the humanities and social sciences. In this respect, the question of the relation between humans and technics, or to be more precise, the role of technology for human (and nonhuman) evolution, is of particular importance. In addition, one should not underestimate the fact that the current developments and thus also the discussion about posthumanism are taking place within the context of radical changes affecting the material economic base. This change constitutes a radical transformation within increasingly globalised late capitalism from an "analog" (humanist, literate, book or text-based) to a "digital" (posthumanist, code, data or information-based) social, cultural and economic system.

The present volume hopes to do justice to all of these complex connections by dealing with posthumanism as a "discourse", or as a combination of material, symbolic and political changes which are "constructed" within knowledge production and information politics. As with every critical analysis, the questions that are most prominent in this respect are: who is

the main beneficiary of this discourse? What does the discourse presuppose? What does it exclude? What alternatives are thinkable?

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## Towards a Critical Posthumanism

In some remote corner of the universe, poured out and glittering in innumerable solar systems, there once was a star on which clever animals invented knowledge. That was the haughtiest and most mendacious minute of “world history” – yet only a minute. After nature had drawn a few breaths the star grew cold, and the clever animals had to die.

One might invent such a fable and still not have illustrated sufficiently how wretched, how shadowy and flighty, how aimless and arbitrary, the human intellect appears in nature. There have been eternities when it did not exist; and when it is done for again, nothing will have happened. For this intellect has no further mission that would lead beyond human life. It is human, rather, and only its owner and producer gives it such importance, as if the world pivoted around it. But if we could communicate with the mosquito, then we would learn that it floats through the air with the same self-importance, feeling within itself the flying center of the world. There is nothing in nature so despicable or insignificant that it cannot immediately be blown up like a bag by a slight breath of this power of knowledge; and just as every porter wants an admirer, the proudest human being, the philosopher, thinks that he sees on the eyes of the universe telescopically focused from all sides on his actions and thoughts. (Nietzsche, 1982 [1873]: 42)

This well-known passage from Nietzsche’s “On Truth and Lies in an Extra-Moral Sense” (1873, § 1) may serve as a starting point for, but also as an anticipated summary of, the notion of “posthumanism” this volume wishes to investigate. Nietzsche’s nihilistic, relativist and provocative challenge to “man”, the “clever animal”, is directed against the pettiness of humanism inspired by Christian values and its self-inflicted state of godlessness. At the same time, Nietzsche’s critique prepares the ground for the supposedly liberating, life-affirming coming of the “overman”. It appears that Nietzsche’s “revaluation of all values”, which dismisses the traditional distinction between truth and falsehood in a moralist and humanist sense, and instead aims to describe a radically new, non-moralist and

posthumanist situation, today is within reach. Whereas Nietzsche's nihilism mocks the arrogance of the human species along with its self-proclaimed anthropocentric view of "world history", some humans, inspired by the vision of a technologically-induced self-surpassing, thanks to new cogno-, bio-, nano- and information technologies, are pushing the hubris of their species to new extremes. It is likely therefore that even though Nietzsche has repeatedly been proclaimed as a proto-posthumanist thinker, he would probably not be particularly impressed with the current widespread posthumanist techno-euphoria. To project the "missionary" aspect of the "human intellect" purely onto the machine-prosthesis is certainly not enough to produce the desired coming of Nietzsche's overman, who, on the one hand, would be humble enough to communicate with a "mosquito", to learn from it, and, on the other hand, would be powerful enough to overcome humanism's narcissistic pathos.

Yet how exactly is the philosopher to tilt his "telescope" in order to avoid recognizing humanity as already everywhere at work, either in its glory or its deprivation? This could prove to be the most difficult and therefore most important, most urgent and most "critical" role of a "postanthropocentric" and thus truly posthumanist philosophy. There are many approaches to this idea. However, a particularly powerful one lies in so-called poststructuralism and deconstruction, with their apparent radically "antihumanist" critiques. This volume therefore addresses the current technology-centred discussion about the potential transformation of humans into something else (a process that might be called "posthumanization") as merely the latest symptom of a cultural malaise that inhabits humanism itself – humanism in the sense of an ideology and a specific discourse. To perform a critique of the widespread idea of a supposedly inevitable passing of the human species with its associated apocalyptic or euphoric scenarios, it is important to again confront current forms of (techno)cultural criticism with the "antihumanism" of theory in the 1970s and 1980s. While some prophets of a coming post- or transhumanity joyfully

proclaim (once again) the “end of man”, the kind of critical posthumanism advocated in this volume seeks to investigate the possible crisis and end of a certain conception of the human, namely the humanist notion of the human, and, if possible, contribute to the accelerated transformation of the latter. Or, in other words, the underlying rationale of this volume could be: whoever cares about humans and their past, present and future might want to critically engage with humanism’s anthropocentric ideology.

This could indeed be regarded as a preliminary definition of posthumanism: it is the cultural malaise or euphoria that is caused by the feeling that arises once you start taking the idea of “postanthropocentrism” seriously. To be able to think the “end of the human” without giving in to apocalyptic mysticism or to new forms of spirituality and transcendence – this would correspond to the attitude that the phrase “critical posthumanism” wishes to describe. The word “critical” here has a double function: it combines, on the one hand, openness to the radical nature of technocultural change, and, on the other hand, it emphasizes a certain continuity with traditions of thought that have critically engaged with humanism, and which, in part, have evolved out of humanist tradition itself. The task is, therefore, to re-evaluate established forms of antihumanist critique, to adapt them to the current, changed conditions, and where possible to radicalize them.

An interesting starting point can be found in Jean-François Lyotard’s essay “A Postmodern Fable”, which takes up Nietzsche’s fable motif again. Its opening gambit runs like this: “What a Human and his/her Brain – or rather the Brain and its Human – would resemble at the moment when they leave the planet forever, before its destruction; that, the story does not tell” (Lyotard 2001: 12). Lyotard plays here with the possibility of a “disembodied” narrative. Should there still be any humans by the time our solar system is dying they will completely have to have transformed themselves technologically and evolutionarily in order to survive the explosion of the sun. Should there be a sequel to the

narrative after this most extreme of all ends, some narrating species inevitably has to escape the inferno. For Lyotard therefore some form of posthumanization seems an inevitable transformation process to enable humans to face the conditions that would have to be met in order to send some (quasi-)human form onto future intergalactic travels.

From a cosmic point of view, the prehistory to this fable is a narrative that explains how the energy that was unleashed during the big bang spread out according to the laws of entropy, and how, under very specific and highly unlikely circumstances, at a local level, systems and forms of life could emerge, despite entropy, among them planet Earth and humans. The system called “human” further displays highly improbable evolutionary characteristics like bodily and symbolic techniques (cf. tools, language). These techniques, moreover, are “self-referential”, which makes them adaptable and transferable to future generations. They are conducive to the creation of communities and social systems. Among these social systems, eventually, a particularly successful form gains the upper hand, namely a system called “liberal democracy”, against other socio-political economic organisations of society, thanks to its ability to subordinate its authoritarian control mechanisms to the idea of free creativity, which allows for self-optimisation. As a by-product, this system also creates the eschatological device of “progress”. The only obstacle that remains for this system is the aging of its solar system and with it the required self-transformation of its humans, who will have to survive under radically altered conditions:

At the time this story was told, all research in progress was directed to this aim, that is, in a big lump: logic, econometrics, and monetary theory, information theory, the physics of conductors, astrophysics and astronautics, genetic and dietetic biology and medicine, catastrophe theory, chaos theory, linguistics and potential literature. All of this research turns out, in fact, to be dedicated, closely or from afar, to testing and remodeling the so-called human body, or to replacing

it, in such a way that the brain remains able to function with the aid only of the energy resources available in the cosmos. And so was prepared the final exodus of the negentropic system far from the Earth. (Lyotard 2001: 16)

Despite its apparent “realism” this narrative is in fact no longer entirely “realist” in the humanist, literary and stylistic sense, since it is not the human who is the real hero of the story but the struggle between entropy and negentropy. Humans are merely a by-product of the story so to speak. It is thus a story without “subject”:

The human species is not the hero of the fable. It is a complex form of organizing energy. Like the other forms, it is undoubtedly transitory. Other, more complex forms may appear that will win out over it. Perhaps one of these forms is preparing itself through techno-scientific development right from the time when the fable was being recounted. (17)

Who (or what) will represent the complex system – humans, cyborgs or an entirely different form of organization – remains unpredictable. In any case, it will have to be a more complex form of life which will need to be able to survive the conditions that will reign as soon as the sun turns into a supernova. This is why the fable does not literally presuppose a “survivor”, since it is questionable whether the required form of a system of negentropic organization can still be a recognizable life form at all. It is this uncertainty, however, which propels the narrative and represents the necessity of “fabulation”, and which guarantees the inventiveness on which technological progress depends. And technological progress, in turn, is what is needed for survival. Lyotard terms this fable “postmodern”, because it is situated “after it has succumbed to the contagion of modernity and has tried to cure itself of it” (18). At the same time, however, one could argue that this narrative is

“posthumanist” if, like Lyotard, we see modernity as coterminous with Christianity, Augustine and Neoplatonism, and understand it foremost as a form of “eschatology”:

It is essential for the modern imaginary to project its legitimacy forward while founding it in a lost origin. Eschatology calls for an archaeology. This circle, which is also the hermeneutic circle, characterizes historicity as the modern imaginary of time. (19-20)

In contrast, the postmodern (or posthumanist) fable referred to is neither eschatological nor historical in the strict sense, but merely diachronic. Rather than circular in a hermeneutic sense, it is circular in the sense of a “cybernetic loop” (20). The fable also does not correspond to a “new”, final or ultimate, humanist-anthropocentric “grand narrative” of modernity the kind of which Lyotard described in The Postmodern Condition (1984) by referring to the “Enlightenment”, “Marxism” and “Liberalism”. Instead, it is rather “inhuman” (Lyotard 1991), in that it expresses at once the unlikelihood of the energetic system “human/brain” as well as its necessary finality:

The Human, or his/her brain, is a highly unlikely material (that is, energetic) formation. This formation is necessarily transitory since it is dependent on the conditions of terrestrial life, which are not eternal. The formation called Human or Brain will have been nothing more than an episode in the conflict between differentiation and entropy. The pursuit of greater complexity asks not for the perfecting of the Human, but its mutation or its defeat for the benefit of a better performing system. Humans are very mistaken in their presuming to be the motors of development and in confusing development with the progress of consciousness and civilization. (Lyotard 2001: 20)

As such, this fable is neither explanatory nor critical in a moral sense, but represents pure postmodern (or posthumanist) melancholia, after the end of the modern and humanistic principle of hope. It has to be understood in merely “poetic-aesthetic” terms, as a postmodern and posthumanist affect and as the expression of the ultimate humiliation of anthropocentrism (after Galilei, Darwin and Freud). It is not even pessimist because the idea of pessimism would still imply an anthropomorphic perspective according to which a distinction between good and evil would still be thinkable (21).

What Lyotard’s sequel to Nietzsche’s fable shows is that, on the one hand, there is no point in denying the ongoing technologization of the human species, and, on the other hand, that a purely technology-centred idea of posthumanization is not enough to escape the humanist paradigm. While popular ideas of posthuman humanity augmented by technology often continue to be influenced by ideologically naïve humanist values, traditional approaches in cultural theory and in the humanities usually remain too anthropocentric in their defense of a notion of the “human” that is not sufficiently historicized or grounded in a quasi-mystical notion of “human nature”. Required is thus an approach which takes seriously both the technological challenge as well as the radical critique of anthropocentrism. A posthumanism, therefore, which understands the human species as a historical “effect”, with humanism as its ideological “affect”, while distancing itself from both – a “critical posthumanism”, which does not, from the start, position itself “after” a humanism, which always remains to be defined (from the point of view of a superior stage of technological development, for example), but which inhabits humanism deconstructively, and for which technology and Lyotard’s principle of the “inhuman” are merely a means and not an end in themselves. A posthumanism which, precisely, is not post-human but post-human(ist).

This also seems to be Lyotard's intention in the collection entitled The Inhuman (1991), with its subtitle "Reflections on Time". The essays in this collection are aimed at humanism's arrogance and they critique the idea that humanism might still be able to teach "us" a lesson. Instead, humanism's authority, which strictly speaking is based on the resistance to analyze the "human" as such, is on the wane. Exposing humanism as a form of "prejudice" Lyotard asks: "what if human beings, in humanism's sense, were in the process of, constrained into, becoming inhuman..., what if what is 'proper' to humankind were to be inhabited by the inhuman?" (Lyotard 1991: 2). The inhuman in the human takes two forms: on the one hand, the inhumanity of the "system", which only uses humanism as its ideology, and, on the other hand, the inhuman which inhabits the human as its "secret" core, and to which "the soul is hostage" (2). This is opposed to the idea of an essential humanity on which humanism is traditionally based, for example, wherever there is reference to "humanitarian action". But where exactly would this essential humanity be? In its "savageness" (or the "initial misery" of childhood)? Or in its capability of speech, its culture or social drives ("their capacity to acquire a 'second' nature which, thanks to language, makes them fit to share in communal life, adult consciousness and reason")? Is the human in fact human because of its "nature" or its "culture"? Of course, this is not about a simple opposition between nature and culture – nobody has ever really contested their interdependence. For Lyotard and a way of thinking which is "not-quite-humanist-anymore" it is rather a question of what the dialectic between nature and culture excludes, of the remainder, the "other", the inhuman, which always presupposes the human and its properties and, at the same time, posits the human as its goal, as an unattained ideal, as original and copy, etc. The "essence" or true being of the human is in fact its "absence" [Ab-wesen-heit]: "In short, our contemporaries find it adequate to remind us that what is proper to humankind is its absence of defining property, its nothingness, or its transcendence, to display the sign 'no vacancy'" (Lyotard 2001: 4).

It seems that today this inhumanity of the system has thoroughly embraced the “absence of an essence” and the endless “plasticity” of the human with its secret inhuman core. Lyotard does not refer to “plasticity”, which has become a fashionable word especially for cognitive science in recent times (cf. Malabou 2008), but simply to “development”. The meaning, however, is quite clear: at stake is the accelerated liberalization, flexibilization, virtualization, etc. of modernity whose internal dynamics and metaphysics corresponds precisely to the “ideology of development”. This ideology of development and (self-) transformation has become automated and does no longer need any grand narratives which used to promise humanity’s emancipation. Instead it is now threatening to become the embodiment of the inhuman or even the posthuman, because, for the complex system, humans are merely a means to an end: “The interest of humans is subordinate in this to that of the survival of complexity” (Lyotard 2001: 7), which is part of the continuing cosmic struggle between entropy and complexity over the allocation of “energy”. Against this radically inhuman logic of the (cosmic) system, one has to revert to the other inhuman (the secret “remainder” of the human, which cannot be explained by either the opposition between nature and culture, or the scheme of cosmic evolution) to obtain a starting point for a critical posthumanism:

And what else is left to resist with but the debt which each soul has contracted with the miserable and admirable indetermination from which it was born and does not cease to be born? – which is to say, with the other inhuman? (Lyotard 2001: 7)

It is clear that this double inhumanity requires a parallel approach in terms of analysis: a rigorously historical materialist, and a more metaphysical deconstructive approach. The first reinvents a broadly cultural materialist methodology, however, without falling prey to its

typically anthropocentric perspectives. Humans and their humanity are historical and cultural constructs rather than transcendental concepts free from ideology and they therefore have to be placed within larger contexts like ecosystems, technics or evolution. This approach only becomes posthumanist when the human is no longer seen as the sole hero of a history of emancipation, but as a (rather improbable but important) stage within the evolution of complex life forms. The second approach cares about the other inhuman, about the “other” inhabiting the human, which constitutes its singularity but also its indeterminacy. This could indeed be called a psychoanalysis of humanness, a kind of anamnesis aimed at working through the repressed which were lost on the way towards becoming human. Posthuman and posthumanist therefore also means this: to acknowledge all those ghosts, all those human others that have been repressed during the process of humanization: animals, gods, demons, monsters of all kinds (cf. Graham 2002). Both approaches share the conviction that a traditional humanist worldview and understanding of the human have become untenable if not irrelevant, either because of external, mostly technological, economic or ecological influences, or because of internal metaphysical and ethical reasons. The external forces can be seen as either enabling or threatening, or as both at the same time. The internal forces might best be understood as benevolent or “strategic” misanthropy (cf. Cottom 2006), which for the love of the human species opposes human hybris and instead demands a self-critical but not necessarily self-pitying humilitas.

From time immemorial [seit Menschengedenken] – this wonderfully romantic and nostalgic expression, which captures the tragic undertone of greatness regarding everything human within the discourse of humanism – thus receives an entirely new meaning within critical and cultural theory at the beginning of the 21<sup>st</sup> century. For one, it points to the fact that there was a time before humans (and humanity), and therefore a history without the human, and, on the other hand, it hints at the possibility of a time after the human (and humanity). This is no evolutionary platitude or mere apocalypticism, as Michel Foucault’s

approach in The Order of Things (1970) demonstrates. Instead, this is where the critique of “representation” which has become so influential in the past decades within theory takes its point of departure. Anthropocentric humanism is first and foremost of course human self-representation (cf. Kant’s “What is man?” as the starting point of a (neo)humanist philosophical anthropology). The regime of knowledge which accompanies the rise of the humanist paradigm (or “episteme”) within modernity is called “realism”. Realism is based on the fundamental principles of similarity, the transparency of the medium and on meaningful identity – which means that a situation that was once present or still is can, without major loss, endlessly and “realistically” (that is, true to its reality and originality) reproduced and thus made present again (re-present-ation). Moreover, this can be reproduced within any “subject” who feels individually addressed and who identifies with the reproduced situation, by which it comes into its own so to speak, and by which it also countersigns the truth of the representation as such. This means that a crisis of realism is also a crisis of its concept of subjectivity. By detracting the subject as “decentred” – since it is defined both as interchangeable and as uniquely and individually identifiable (i.e. supposed to underwrite the idea of self-identity) – the notion of transparency on which the principle of representation relies also loses its legitimation. Instead, the medium of representation, including symbolic language of course, develops a dynamic of its own. This, in an extremely simplified form, is the point of departure for so-called poststructuralism: on the one hand, the impossible identity of the subject with itself, on the other hand, Derridean “différance” at work in symbolic representation, which always promises truth but constantly defers it (“différer”, to defer) and therefore always differs from it(s)self (“différer”, to differ). The result is a constantly promised but structurally unattainable form of self-identity which conceals or attempts to repress its own difference. Its main “agent” – the free universal and at the same time singular and unique individual – thus exposed or undone, “liberal humanism” itself becomes incredible as a grand narrative

(cf. Lyotard), as ideology (cf. Althusser), as myth (cf. Barthes), or as historical and political discourse (cf. Foucault).

The most important lever of a poststructuralist critique of humanism is the primacy of language (or the medium, or “technics”, in general) over subjectivity and thus over identity. Catherine Belsey’s influential manifesto, Critical Practice (1980) can be seen as representative of this critique of “liberal humanism”:

Common sense proposes a humanism based on an empiricist-idealist interpretation of the world. In other words, common sense urges that “man” is the origin and source of meaning, of action, and of history (humanism). Our concepts and our knowledge are held to be the product of experience (empiricism), and this experience is preceded and interpreted by the mind, reason or thought, the property of a transcendent human nature whose essence is the attribute of each individual (idealism). (Belsey 1980: 7)

This humanism of common sense transposed onto art, literature and aesthetics and ultimately onto all forms of cultural production represents the basis for realism’s hegemony as far as reading is concerned: “[The theory of expressive realism] is the theory that literature reflects the reality of experience as it is perceived by one (especially gifted) individual, who expresses it in a discourse which enables other individuals to recognize it as true”, as Belsey explains (7).

In this sense, humanism is the idea by which constant identification with a quasi-mystical universal human “nature” produces great cultural achievements, which serve to promote the cohesion of humanity in general. Consequently, it is precisely this idea which has been attacked by postmodernism and poststructuralism in their respective critiques of humanism. In terms of ideology and politics this humanism is termed “liberal” in the sense

that it presupposes a bourgeois capitalist subject who promotes “tolerance” in the face of seemingly “superficial” difference (like gender, race, culture, location, history) in the name of the universal principle of “humanity”. This strategy serves as a politics of appeasement which protects the values humanism has declared as universally valid, by calling any attack on these values “extremism”, “intolerance” or simply “regression”. The cultural politics of humanism’s ideology thus remains the target for any posthumanist critique inspired by postmodernist and poststructuralist principles, which, instead, have been stressing alternative values like “particularity”, “difference”, “multiplicity”, and “plurality” as much as the “singularity” of cultures (in the plural) and nonhuman forms. Accordingly, a poststructuralist and postmodernist critique emphasizes the radically local and temporal context-specificity, negates the immanence of signification and instead stresses the politically conflictual construction of meaning. It also criticizes the supposed transparency of mediality (realism in language, painting, media and any image-based technology) and instead emphasizes the fact that any medium has its own dynamic, its own power to construct identities and to “position” subjects. It also stresses the changeability and relativity of human nature and individuality as well as the relativity of values. But it also turns against any idealistic form of transcendence, accentuates the inseparability of form and content, the radically determining function of context and an understanding of truth as process. Instead, it insists on the “materiality” of thinking and the importance of “embodiment” in agency.

As seen in Belsey, freedom, universality and the principle of individuality of the humanist subject are being questioned, as much as its notion of truth and representation. A critical posthumanism is consequently the only logical theoretical and philosophical radicalization of this position, since it is not likely that humans can do without representation, nor without identity. The entire effort of posthumanist critical and cultural theory therefore goes into the construction of a post-realist and post-phenomenological form of hermeneutics and a post-subjective form of agency.

In this way, Foucault's often cited phrase of the "end of man" can be seen in an historical, discursively critical and not necessarily in a jubilant apocalyptic sense:

One thing in any case is certain: man is neither the oldest nor the most constant problem that has been posed for human knowledge.... man is an invention of recent date. And one perhaps nearing its end. If those arrangements were to disappear as they appeared, if some event of which we can at the moment do no more than sense the possibility – without knowing either what its form will be or what it promises – were to cause them to crumble, as the ground of Classical thought did, at the end of the eighteenth century, then one can certainly wager that man would be erased, like a face drawn in sand at the edge of the sea. (Foucault 1970: 386-7)

This disenchantment has two immediate implications: firstly, the historicization of the human as an object of investigation is likely to exceed the framework of philosophical anthropology and the so-called "humanities". Secondly, according to many cultural theorists, philosophers but also scientists, the scenario depicted by Foucault has in a sense already become reality, for example, in the form of an evolutionary transition towards "posthumanity" (understood as a replacing of the species homo sapiens by a representative of a superior but possibly merely intermediate stage within further "human" development, i.e. the so-called "robo sapiens", or cyborg, or in the ultimate form of a transhumanity or, basically, "artificial intelligence").

More will have to be said about the ways in which contemporary institutions concerned with human knowledge or knowledge about humans will have to adapt to this situation, or to what extent they might already have done so. However, it seems likely that the "humanities" will have to transform themselves into what could be called

“posthumanities”, in connection with the posthumanising trends described above, if they want to continue posing the question of “what is human?” with some authority. Lyotard’s twofold notion of the inhuman, Foucault’s notion of “man and his doubles” (1970: 303-43), and the whole variety of interdisciplinary challenges described by Derrida as part of the “university without condition” (Derrida 2001a), as well as the demand for a new postanthropocentric or “post-speciesist” approach (cf. Wolfe 2003, and 2010) are pointing towards the current transformation of what is arguably the most humanist of institutions, namely the university.

So, is the “time of the human” (cf. Zons 2001) definitely gone? And how could this be “humanly” possible, i.e. recognizable for humans themselves? In fact, the distinction that can be drawn between “man” and “human” shows that the end of one of these concepts in no way automatically entails the end of the other. This becomes very clear if one recalls one of the high points of the poststructuralist critique of humanism, namely the Colloque de Cerisy organized by Jean-Luc Nancy and Philippe Lacoue-Labarthe, between 23 July and 2 August 1980, called Les Fins de l’homme: autour du travail de Jacques Derrida (Nancy & Lacoue-Labarthe 1981). The point of departure for this conference was Derrida’s eponymous essay in Margins of Philosophy (1990), “The Ends of Man” (originally given as a speech in 1968), in which Derrida, through a reading of Heidegger and Sartre, plays on the double meaning contained in the word “end” – in the sense of “purpose” and of “finality”. Derrida moves on to deconstruct the “phenomenological ontology” at work in Sartrean existentialism and its reliance on “human reality” and Heideggerian “being-there [Dasein]”. Already Heidegger’s “On Humanism” (1978 [1949]) mentions the “destruction” of the metaphysical foundation [Grund] on which every humanism with its question of the “essence of man” is based. Consequently, Derrida takes up the challenge to think the idea of the “end of man” outside the framework of a Hegelian dialectic [Aufhebung] and metaphysical teleology:

The challenge for thinking today is an end of man not structured according to a dialectic of truth and negativity, an end of man that does not represent a teleology in the first person plural. (Derrida, in Nancy & Lacoue-Labarthe 1981: 144; my translation)

Derrida could be said to be already arguing here for a posthumanism which uses neither “I” nor “we”, which neither uses the finality of the singular human (e.g. in the idea of a “being-towards-death”, in existentialism) nor the teleology of any notion of humanity (idealism) to “anthropocentre” the human so to speak. Instead, Derrida uses a notion of the human as a singularity that is radically open towards the nonhuman other of futurity, beyond any metaphysical horizon and any determinedness. Neither dialectic, completion, surpassing, nor renewal, nor disappearance, nor any question regarding the “essence” of the human, but the move from the question “What is man?” to “Who is man?” thus becomes the new focus:

This is exactly the question our epoch has forgotten. The epoch of the complete domination... of anthropology, which continues to pursue, in blind and indefatigable fashion, the question of “What is man?”, and whose most extreme advance, as we are gradually becoming aware, lies in the age of technology. (Nancy, in Nancy & Lacoue-Labarthe 1981: 13; my translation)

It is thus becoming clear that the intensification of technologization, understood as the engine of posthumanization and greeted enthusiastically by some proponents of post- or rather transhumanism, while condemned by technosceptics, cannot itself escape humanist metaphysics or anthropocentrism. This remains the case at least as long as our understanding of technology forces us to ask the question “what is man?” at a metaphysical-

ontological level – a level that even the negation or the apparent surpassing of the question is unable to achieve. Only a deconstruction of the “human” and “technology” promises a change with regard to the metaphysics that is at work in the idea of the “disappearance of man”. A critical posthumanism therefore has to question humanism even in the form of its own critique, as Lacoue-Labarthe and Nancy already pointed out in Les Fins de l’homme:

Between a “disappearance of man” that today is so well known that it again threatens to be misunderstood, and a general critique of humanism, which has been embraced so enthusiastically that it itself has become questionable in turn, and the abominable, naïve and reactionary forms of humanism, which so many other discourses embrace for lack of alternatives or mere spitefulness, it could well be that the question concerning “man” has to be asked in entirely new philosophical, literary, as well as ethical and political terms, namely in the form of a question concerning the end. (1981: 20; my translation)

After the end of man, therefore, is also before man, but in between finality and renewal there might be a possibility to think “man” or rather, the human, otherwise. This is the ambiguity which inhabits every “post-”.

The claim that something is reaching or has reached its end is of course not a claim like any other, and especially not, where such a venerable tradition as humanism is at stake, and, with it, that which is held to be the essence of our species, namely “our” humanity. There is no question, however, that the notion of humanity itself has a concrete history and that, in fact, it is the effect of a combination of humanism as an ideological discourse and modernity as a socio-historical formation. The radical critique of humanism and humanist tradition (at least since the Renaissance and its rediscovery of Greek and Roman Antiquity and Neoplatonic Christianity), from a posthumanist point of view, thus takes precedence

over the question “what is man?” To “position” oneself “after” such a tradition – post-humanism – means (in strict analogy with postmodernism and the idea of postmodernity) to embrace a conscious ambiguity that lies in two possible forms of accentuation: the undeniable experience that a certain humanism has reached its end (post-humanism); and the certainty that this humanism because of its own plurality and slipperiness cannot just be classified without remainders and repressions but needs to be “worked through” in a critical deconstructive sense (hence, post-humanism).

A third, much more “descriptive”, form of accentuation, however, is also thinkable: posthumanism is all this and more, namely the entire discourse, critical or less critical, enthusiastic or sensationalist, ironic or alarmed, which embraces the “posthuman” as a possibility and thus brings it to life, so to speak, as a discursive object: posthuman-ism. This angle, nevertheless, is precisely the one that seems predominantly driven by technology. It also seems to increasingly correspond to the public face of a “popular” posthumanism, a more or less sensationalist mixture of the arts and culture sections in newspapers, popular science magazines, futurologists, the wider intelligentsia, marketing gurus, and other lobbyists, everything, in short, that might be termed “third culture”, as Slavoj Žižek maintains, in recollection of C.P. Snow’s “two cultures” debate (science versus literature and the arts, or the humanities versus the sciences), namely as a product of “cognitivist popularizers of ‘hard’ sciences”:

The Third Culture comprises the vast field that reaches from the debaters of evolutionary theory (Dawkins and Daniel Dennett versus Gould) through physicists dealing with quantum physics and cosmology (Stephen Hawking, Steven Weinberg, Fritjof Capra), cognitive scientists (Dennett again, Marvin Minsky), neurologists (Oliver Sacks), and the theorists of chaos (Benoit Mandelbrot, Ian Stewart) – authors dealing with the cognitive and general social

impact of the digitalization of our daily lives – up to the theorists of an autopoietic system who endeavor to develop a universal formal notion of self-organizing emerging systems that can be applied to “natural” living organisms and species and social “organisms” (the behavior of the markets and other large groups of interacting social agents). (Žižek 2002: 20)

Even if Žižek’s list of names is somewhat one-sided and no longer quite up to date it nevertheless explains that for the public or in the “cultural imaginary” the consequences of technological interventions in the human and human nature today are everywhere to be seen. Žižek also demonstrates that many cultural theorists or proponents of cultural studies are so fascinated by technological phenomena that they tend to forget to question the authority of scientific metaphors and to verify their truthfulness. While the cognitive science approach can often be shown to be searching for “ultimate answers” and “true natures” in fairly naïve metaphysical ways, the predominant institutionalized relativism of values, cultures and histories may be stopping cultural studies scholars from providing a convincing alternative explanation of the relationship between humans, nature, culture and technology. This means that for the project of a critical posthumanism current, past and future technocultural conditions need to be taken seriously, even while their inevitability needs to be contested. While Žižek’s antidote consists of the usual provocative analysis based on a mixture of psychoanalysis and Marxism, the present study favours, in the main, deconstruction.

The first target in both cases, however, is the pervasive “technological determinism” in most scenarios involving the posthuman. As Raymond Williams (1989) explains, technological determinism is grounded in the assumption that a new technology emerges more or less spontaneously because of technological development, experimentation or simply “invention”. Subsequently, this new technology is “introduced” into society which

then leads to society's transformation. What is normally omitted is that a concrete technology is always already embedded within a socio-cultural context, which means that it has a previous cultural history, so that it cannot just emerge in some kind of value-free environment. On the contrary, the specific technological solution selected for a perceived problem usually depends on premises, which are usually not just systemic or intrinsic to science and technological development but also depend on social, cultural and even personal factors. Technologies are always connected to their social uses whether these are by the military, the economy or even if they "merely" serve some kind of idealist-humanist purpose like "saving the planet". In this "transformational" sense, technology is eminently political and politicizing. An ideology that proclaims the "inevitability" of technological development is thus often combined with a certain cultural pessimism. The polarization between a technophobic and a technophile faction, accordingly, is quite endemic within technological development, since it corresponds to the deeply engrained human desire for renewal, on the one hand, and the security of consolidation through repetition, on the other. Technologically induced utopia, just like nostalgia or dystopia, tends to neglect the contemporary material conditions and the true economic and political interests at work, with their resulting forms of social injustice and repression. In addition, technological innovation is usually underdetermined in the sense that it is deeply ambiguous. The moment when a new technology appears is usually a moment of decision (if not "free choice"). Alternative uses of technologies always exist. A classic case is the internet which evolved from its strictly militaristic use into by far the most significant and socially transformative medium of Western hypercapitalist information societies within a few decades. As for every introduction of technological innovation, changes to the system also incur changes within cultural relationships. In the case of the internet these are new interpersonal relations, identities and communities based on "avatars" (i.e. graphic-virtual placeholders) and above all new forms of consumption; but there is also a potential for political change through for

example electronic voting systems and new forms of interactivity, new possibilities for surveillance as well as instant (or realtime) global communication, new forms of e-learning and many other possible present and future uses.

The task here is therefore to critically evaluate this technological change in its multiplicity and ambivalence in view of cultural change and, in this particular case, a potential “replacement” of a humanist value system with a posthumanist one (which nevertheless remains to be defined in detail). That technological development at the end of the 20<sup>th</sup> and at the beginning of the 21<sup>st</sup> century has been accelerating and intensifying – at least in most parts of the Western world and its sphere of influence – seems undeniable. The borders between science, culture and technology have been eroded to such an extent that it has become customary to refer to contemporary culture as “technoculture” and to contemporary science as “technoscience”. Aronowitz and Menser (1996) already described the new task for cultural studies of science (or, “critical science studies”) as the study of practices and effects of science with its systems and objects; or as a critical investigation of the socio-cultural context in which sciences are embedded, for example globalization, militarization, medicalisation and their effects on large parts of our lifeworlds; and, ultimately, as an analysis of the discursive and ideological role of “Big Science” in public as a special form of cultural practice (7-8). In a technoscientific culture science is no longer one cultural political component among many, but it becomes the dominant institutionalized economic and ideological power, which fundamentally influences the way people live together, the way they form identities and the forms of embodiment available to individuals, without, of course, necessarily being able to determine these completely. The word “critical” in “critical posthumanism” names precisely this: the task of analyzing the process of technologization, based on the idea of a radical interdependence or mutual interpenetration between the human, the posthuman and the inhuman. This interpenetration happens at a political, economic, philosophical, technoscientific as well as a cultural level.

However, critical and cultural theory, and cultural studies, will not of course be in the position to define what constitutes human “being” either. A more serious and intensified form of interdisciplinarity between human, social, natural, cognitive and bio- or life sciences thus forms a major imperative for the future posthumanities – or whatever name will be given to the institutional framework in which the new forms of critical knowledge production about posthuman and anthropocentred humans and their environments will take place.

Without doubt contemporary breakthroughs in bio-, nano-, cogno- and infotechnologies have pushed the influence of technology on (techno)culture under the current political and economic conditions of technoscientific capitalism to a level never witnessed before. There are new “phenomena” like a completely new, digital (as opposed to an analog, “material”) culture or “cyberculture”, the progressing prosthesis of the human, the emerging autonomy of artificial intelligence, which may be about to move beyond human control or even beyond human comprehension. Welcome, therefore, to the radicalized, autopoietic information society governed by complexity? Aronowitz and Menser proposed a three-dimensional analytical framework for questioning the “technocultural”: first, at an ontological level – what “is” technology? At a pragmatic level – what does technology “do”? And, at a phenomenological level – What “effects” does technology have? (1996: 15). Seen from an ontological point of view posthumanization shows that human beings have always been “technological” through and through, whether as a result of tool use or of the “recursivity” of symbolic language as ultimate, “ontologizing” tool (language would thus have to be understood as the ineluctable human “prosthesis”), or as the contemporary physical amalgamation of technological object and human subject (cyborgization) – hence, there would be no humanity without technics (i.e. the ontological involvement between humans, techniques and technologies). This is what allows Bruno Latour to see the social not as opposite but as in relation to the object world

and “nonhuman” actors, and which thus calls for a combination of social theory and the history of technology. It is the interaction between human and nonhuman actors which really constitutes the social, while technology plays the role of a “stabilizer” in this process, which connects actors and observers within social “assemblages”. In this sense, technology can be understood, according to Latour, as “society made durable” – or, social organization can be seen to last only because of its technologies (Latour 1991). Seen pragmatically, technology is also always part of a process of material embodied adaptation, a kind of “biopower” in the Foucauldian sense – a process which starts long before modernity. In addition, technology has always formed either a bridge across or a breach of the boundaries between “nature” and “culture”. In the age of complete mutual interpenetration of these two there is no nature and culture thinkable anymore (if there ever was) but only “nature(s)culture(s)”, so much so that being a “subject” means being “natural-cultural-technological”, and being a “social animal” means being a “techno-social animal” (Aronowitz & Menser 1996: 21). Phenomenologically, technology triggers a process of “mediation” between humans and their environment. In the same measure as technology understood as tool changes and constitutes social realities it also makes social reality accessible. At the same time, through feedback processes, technology also provokes transformations within the understanding of the self as a user. However, as with all media, be they social, technological, communicative, image-based etc. (a differentiation which is almost impossible to maintain today), the poststructuralist critique of realism referred to above applies. On the one hand, the medium is its own message (following McLuhan) – which means that automatic self-legitimation is built into every medium (a medium is first of all always keen to portray itself as inevitable and at the same time as transparent and value neutral); on the other hand, a medium creates exactly that kind of reality which it subsequently pretends to “merely” and “faithfully” depict. The same is the case with technologies – they tend to make themselves inevitable and invisible at the same time. What

technologies therefore produce at a phenomenological level is thus in the Marxist sense a form of (self-)alienation; in a deconstructive or postmarxist sense, however, it is an alienation process from a self that has always been an illusion and thus has always (already) been alienated from it(s)self. An alienation of alienation, or différance, or a, paradoxically, absolutely necessary supplement – in this sense technology represents a privileged form of the (Lyotardian notion of the) “inhuman” which has always already inhabited the core of the human.

There is another important aspect to a critical (deconstructive) posthumanism: many people working within the history and philosophy of technology (technics), critical and cultural theory, sociology and critical science studies see posthumanism, either in parallel with or as opposed to postmodernism, as the next big challenge and therefore as the next wave of intellectual “fashion” that one needs to be seen to catch. There is without doubt a fashionable and popular posthumanism, but there is also a serious and philosophical one. In analogy to the debate about postmodernism the present critical introduction aims to investigate both aspects of posthumanist discourse. Similar to Wolfgang Iser’s approach in Unsere postmoderne Moderne [Our postmodern modernity] (1991) one could refer to our current situation as an investigation into “our posthuman humanity”. Comparing postmodernism to posthumanism one notices significant similarities but of course also differences. Both have their intellectual roots in a critique of modernity and the Enlightenment. Both take advantage of a certain liberation of thinking as the result of a critique of reason, a return to speculative philosophy and the relativization, localization and contextualization of a perspective that is conscious of its own arbitrariness and contingency. Both presuppose a radical openness and plurality of meaning as precondition for any singularity (e.g. an event or a subject) to achieve its full meaning. And just as for postmodernism, there is a populist or “diffuse” posthumanism alongside a conceptually rigorous one. Posthumanism in fact partly takes over from postmodernism, but it also

undoes some radical postmodernist aspects. And there is of course also a partial temporal overlap between the two and a parallel co-existence. This is why this study proposes an approach where both postmodernism and posthumanism are placed side-by-side, as a reading of each other. The idea that posthumanism functions merely as postmodernism's successor would indeed be too simplistic. This is not to deny that there have been signs of a turning away from postmodernism, but precisely in order to avoid a simple "backlash" and political regression after the supposed end of postmodernism, the move towards posthumanism should be made with as much vigilance as possible. There is for example a danger that after the presumed end of grand narratives (cf. Lyotard 1984) – which was, after all, one of the cornerstones of the postmodern world view – the ongoing discussion around human nature and the role of technology in its transformation might be in the process of turning into a new hegemonic narrative – a new narrative ever more capable of portraying itself as inevitable, indispensable and credible. This, of course, goes against the postmodern ethos, which is based on radical plurality and the democratic co-existence of heterogeneous visions or "language games". While posthumanism can be seen as an acceleration and accentuation of some aspects of modernity, these aspects nevertheless are mostly on the side of a rationalisation process emerging from the Enlightenment and coinciding with the accelerating process of capitalization. In opposition to this, a return to some postmodernist readings could lead to a much needed deceleration and demystification (cf. Barthes), which would lead to more variety and plurality within posthumanist approaches. Welsch's concept of "transversal reason", or Lyotard's "paralogic", which are trying to do justice to the idea of a plural form of rationalities, could thus be used to counteract the current threat of predominant technoscientific reason. One could even argue, from a cynical point of view, that the postmodernization (in the sense of a move towards hypercapitalism, neoliberalism and postindustrial society) of the economic base is being intensified by current processes of globalization, virtualization and further technologization, and might thus merely be using

the ideological superstructure of a “posthuman scenario” to detract from the consequences of an ever increasing gap between rich and poor and the further concentration of power and capital. This does not mean that there is no actual posthumanizing process occurring, but it would be the task for a critical posthumanism to develop alternative, more egalitarian, democratic and just models for a future posthuman(ist) society.

One could start, for example, by differentiating – as Paul Marie Rosenau (1992) did for postmodernism – between an “affirmative” and a “sceptic” posthumanist position. Within the affirmative spectrum posthumanisms or group of posthumanists there would be, in turn, positions ranging from unreflected euphoria to technocultural pragmatism, while the variety within posthumanist skeptics would range from catastrophists to, precisely, critical deconstructive posthumanists. Already in Welsch there is an awareness of the tension between postmodernism and what he calls the “technological age” as competing diagnoses of the present (1991: 215ff.). Welsch sees three possible relations between postmodernism and what he calls the “technological age”: negative, positive or critical. The connection is negative if seen mainly within the German debate about postmodernism. For Habermas, for example, who equated the postmodern with “unrestricted affirmation of technological development”, this position would correspond to “neoconservatism” seen from the point of view of a socially and culturally radically transformational “project of modernity”. A positive view of the relationship between postmodernism and technological age dominates large parts of the Anglo-American debate, especially where influenced by Lyotard’s notion of the postmodern. An exception, however, may already be found in Fredric Jameson who is rather ambivalent in his attitude towards postmodernism, including postmodernism’s relationship with technology. Welsch is right of course in pointing out that postmodernism’s own fundamental experience is technologically induced (cf. postindustrialism, virtuality, Baudrillard’s idea of the “simulacrum” and “teleontology”, as well as McLuhan’s “global village”, and Lyotard’s information society). On the other hand,

already in Lyotard do we find a critique of the homogenizing effects of new informational media in terms of the production of and access to knowledge. For us therefore both Welsch and Lyotard can be seen as allies for a critical posthumanism, which does take technological change seriously both at an ontological and epistemological level, but questions the claim towards exclusivity of such an explanation in order to resist any “automation of techno-logic” (Welsch 1991: 224).

What has changed, however, since this classic moment of postmodern debate, or since the “postapocalyptic” 1980s and 1990s, is that a new “ghost” announcing the “end of times” has started haunting popular and intellectual circles alike, namely the figure of the posthuman in all its forms. This time it really seems the “end of all ends”, not – as during the Cold War – the self-annihilation of some more or less abstract notion of “humanity”, but the end of humans as biological species and the dissolution of human “nature” from the inside so to speak. Symptoms of this phenomenon of dissolution and species anxiety abound and examples concerning the technologies of virtualization and digitalization, or “new and social media”, or the general transformation of data into electronically storable digital “information” can be easily found. Whether it is the question of how many “bytes” a human brain can store and compute, or what exactly the relationship is between virtual, “actual” and “factual” reality (e.g. in the case of “virtual rape”), or to what extent the “digital revolution” represents social progress or merely another instrument of global surveillance, there is hardly any aspect of life and its daily routines that is not affected by these technological developments. What all these technocultural practices with their new possibilities of interactivity, self-representation, communication and “identity work” have in common, however, is that they produce new forms of subjectivity, which at least in part are dissociated from material forms of embodiment. They constitute not only an additional dimension to life, but the new digital virtuality has tangible effects on and transforms “actual” reality – which means, as will be argued in the subsequent chapters, that the very

notion of materiality and the associated ontology of our humanist world view is being questioned.

The new image of the human painted by the neuro- and cognitive sciences can be summarized in the provocative phrase: “the mind as machine”, which is beginning to change the way humans see themselves, even where this does not automatically entail a sudden change in daily life practices. Popular science magazines, however, are busy spreading the word and the new ideology of the “plasticity” of the human brain and the human self and thus prepare humans for the required intensified plasticity of “global capital flows”. Global virtual hypercapitalism needs an equally plastic and flexible individual subject. Thus, for example, The Economist (23 December 2006) in a special issue with the title “Who do you think you are? A survey of the brain”, informed its readers of the latest neuroscientific insights into the human brain and its extreme “adaptability”. The New Scientist (7 October 2006) speaks of “Mind fiction: your brain just can’t help telling tales”. The French newspaper Le Monde a few years ago introduced a regular feature called “futures” in their Sunday-Monday edition, which analyzed the effects of technologically induced social change with articles by prominent scientists, cultural critics, artists and experts in technopractice. For example, in the 11-12 November 2006 edition, there is an article entitled “Training one’s brain at will?”, which explains how implanting electrodes or the use of new neuromedical substances help so-called “brainbuilding” and augments intelligence. The German weekly Die Zeit published an entire series on the topic “The Search for the Ego”, which presented the new understanding of what it means to be human today. On 16 August 2007 for example, Ulrich Bahnsen asks (p. 29): “Components of the soul: doctors repair psychological illnesses by inserting micro chips and probes directly into the brain. Is mind just biology?” The trend has been continuing and intensifying ever since. Here are some recent examples: The New Scientist (15 October 2011) promotes a more wholistic approach in “The Thinking Body: There’s more to your mind than the brain”; in a

special issue, The New Scientist also proposes “The deep future: A guide to humanity’s next 100,000 years” (3 March 2012), while the Scientific American (September 2012) attempts to go “Beyond the limits of science: how we will transcend today’s barriers to get smarter, live longer and expand the power of human innovation”. The connection between posthumanizing technologies and politics is made explicit in a recent issue of Foreign Policy (September-October 2011), with a special report on “The Future is now”, while the connection to the economy is the focus of Marketing Week (20 October 2011) with its title “Brain teaser: How 21<sup>st</sup> century technology is causing ‘brain change’ and why it matters to marketers”. Many more examples could be listed to show the extent to which this popular form of posthumanism has been developing, intensifying and has become an intrinsic part of globalization – an aspect which is only beginning to receive the appropriate attention in academic circles (cf. Monique Atlan & Roger-Pol Droit 2012).

However, not only the human brain as the supposed seat of the human “mind” is self-transforming under the microscope of neuromedicine, cognitive science and biotechnology, but other cornerstones of human nature have been eroded. Parts of the biosciences or “life sciences” have been producing anorganic, artificial life forms on the basis of a new “postbiological” notion of life. This amounts to an entirely different understanding of cyborgization than the one usually promoted in popular film versions in which Arnold Schwarzenegger stars as the hypermasculine human-machine terminator. It is not only that these new forms of knowledge question the fact that humans are located at the end of Darwinian evolution, but in connection with new gene technology they also enable entirely new forms of (de-essentialising) “hybridity” within human “nature”. Not only does the spectre of cloned humans arise with increased force but entirely different possibilities also emerge through new forms of genetic engineering and gene splicing: chimeras, “nanovisions” of artificial life (nanobots), which can function constructively – preserving life – or destructively – should they become uncontrollable and turn the entire world into

chaotic “grey goo”. But also artificially created viruses are thinkable, which can be used to benefit medicine but might also be used as biological warfare and for new forms of bioterrorism – a possibility hinted at in the Times Higher Education (17 May 2012): “Bio-Luddites square up to friends of Frankenstein” (16-17). The article discusses the “designer baby” question and the kind of biologically induced futures which are pictured in Francis Fukuyama’s influential book Our Posthuman Future (2002), or in Jürgen Habermas’s The Future of Human Nature (2003). On the other hand, creating a microorganism that will help to produce new forms of bio-fuel promises to solve humanity’s energy problem. The extent of popular unease about the ambivalence of technological developments involving “eugenics” can be seen in the discussion about genetically modified foods. Detracted as “Frankenstein food”, on the one hand, while seen as a cure of world poverty and hunger, gene technology symbolizes the crisis of humanism and the radical posthuman underdetermination of the “new human” to come. As one of the gurus of the gene technology scene, Craig Venter, explained in his speech at the BBC’s annual Richard Dimbleby lecture (2007):

I have called this lecture A DNA-Driven World, because I believe that the future of our society relies at least in part on our understanding of biology and the molecules of life – DNA. Every era is defined by its technologies. The last century could be termed the nuclear age, and I propose that the century ahead will be fundamentally shaped by advances in biology and my field of genomics, which is the study of the complete genetic make-up of a species. (Venter 2007)

The century of the gene, therefore, but also the century of neuro- and cognitive science and thus equally the century of the brain. The particular challenge for science currently is to connect the diverse strands of innovative technologies, namely digital, and

nanotechnologies, neuro-cognitive medicine, robotics and digital mechanics and genetics in order to make the new image of the human more palatable for the public and for potential investors and for politics; and there is no lack of initiatives.

Bionic hands, implants for epileptics, “smart drugs” – these are signs that human prosthesization and cyborgization have been advancing. They coincide with digitalization and virtualization of the cultural environment and life practices of humans and their others. The anxious question is whether the next step of human evolution on its supposed way to posthumanity will create new forms of injustice, discrimination, exploitation and repression, or whether the stage of posthumanity will in turn lead to the complete disappearance of the human species. Maybe in embracing technology too enthusiastically we have already created our own successor species? Maybe the “machine” is only waiting for our definitive demise? Is the cyborg merely one but an irreversible stage within this handover of power? These questions all concern the issue of co-existence. If one takes the phrase “artificial intelligence” literally there is indeed no intrinsic necessity for AI to continue to function according to humanist or even human principles. How to behave therefore towards artificial intelligence once it appears or indeed becomes “autopoietic”? Ethical as well as political questions arise: should there be rights (and responsibilities) for “machines”? Do machines have identity, culture or their own aesthetic? This discussion also becomes inevitable because the “machine” is merely one form of the traditional way humans have been differentiating themselves from their “other” or rather “others”. New technologies not only pose the question of the human anew and with increased urgency, but they challenge the entire humanist system of categorization and exclusion. The moment the human “disappears” its repressed “mirror images” of identity return to haunt and the entire history of anthropocentrism is haing to be rewritten: the “object” world, the “animal” world, the entire “cosmos” (cf. for example Richard Dawkins’s approach, or also Martin Rees (2003), the eminent astronomer, who suggests that the 21<sup>st</sup> century might well be “our

last”). The entire ghostly ontology (or hauntology, following Derrida, 1994) suddenly visualizes how “teratology” – the creation of monsters, the representation of monstrosity, inhumanity, animality, objectification, fetishisation but also spiritualization and religion – can be used to inscribe and uphold a system of differences and hierarchies, supported by a mystical notion of human “nature” with its insistence on uniqueness and exceptionalism – a “device” which sanctions and perpetuates processes of inclusion and exclusion. This alone should be a reason for any critical posthumanism not to underestimate the factor of technological change. However, it should also prevent it from idealizing it. The fragmentation and pluralization of the human principle (as a result of the dissolution of traditional boundaries between human and animal, or between superhuman, subhuman and inhuman) energizes a critical rereading of humanist history. At the same time it demands a new way of aesthetic engagement with the conditio humana or indeed the conditio posthumana, which opposes the simple ideologization that prevails within the public debate on eugenics, for fear or desire (or indeed euphoria), of a coming transhumanity (used here and throughout this volume in opposition to the notion of “posthumanity”).