Transhumanist Visuality: A Critical Iconology of the Technohuman Condition

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A thesis submitted to Auckland University of Technology
in fulfilment of the requirements for the degree of
Doctor of Philosophy (PhD)

2016

School of Communication Studies

Abstract

The dream of human perfection, protection and immortality is possibly as old as humanity itself. Creative works of fiction that imagine eternal life have been traced back over four thousand years to the epic of Gilgamesh and beyond. The science fiction genre has constantly played with visions of extending human potential, of embarking into the universe, and of living forever. In contrast to the fictitious tales of literary and visual arts, the recently emerged transhumanist movement pronounced the ultimate fulfilment of human potential, the far-ranging enhancement of human capability, and the definite abolishment of death as factual and imminent. Through the insights and techniques of the new sciences – in particular the convergence of synthetic biology, artificial intelligence, nanotechnology, robotics and genetics – the evolution of humanity according to transhumanist belief will greatly accelerate and lead to a technohuman condition in which technology fully absorbs what today is known as the human species. The brave visions by transhumanism of a superior posthumanity appear in today's popular culture as images of cyborgs, superhumans and new technological beings that portray human future as inescapably technological. In order to illuminate the role of popular culture imagery in the design, definition and actualisation of a shared future vision, this research scrutinised the visual regimes of what was proposed as "transhumanist visuality". More fundamentally, this study concerned the role of the "cyborg image" in the propagation of the transhumanist agenda in public awareness.

The examination of transhumanist visuality involved one thousand images from the public domain of which six hundred were systematically analysed using content analysis alongside a critical iconological framework. This way, both quantitative and qualitative concerns for interpreting visual data were considered. The findings revealed a presence of purposeful iconographic registers that often uncritically supported transhumanism's belief in the autonomy of technology and in technosciences as the sole key to human future. However, in contrast to the promises of human absolution through technology, it was observed that transhumanist visuality celebrated a narcissistic self-image but did not offer a future lifeworld. Further, the imagined posthuman stereotyped the instant gratification values of contemporary consumer culture mixed with a projected humanistic ethos that maintained – and further urged – a definite anthropocentric worldview. Overall, the findings of this study evidenced an obsession with the self rather than practical visions of the future. The relevance of these findings lies with a recognition of the ways in which popular culture images of the cyborg, often unknowingly, underwrite a technological ideology that serves the narrow interests of an elite more than the avowed progression of humanity.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Gudrun Frommherz

Acknowledgements

I am deeply indebted to my supervisors, Dr. Petra Theunissen and Dr. Michael Heim. Petra earns highest respect for taking on my unwieldy mind and gently nudging it towards clarity and form. Mike has been a companion to my academic journey for almost 20 years, guiding me with counsel, inspiration and insights whenever I failed to see the opening of new spaces in emerging patterns.

My gratitude goes to AUT and the School of Communication Studies who supported this research in more than one way. In particular, I thank the Vice Chancellor of the University for his support of this study through a generous study leave award.

I thank all authors of images used in this study, the known and unknown artists who through their creative work have made this study possible and also necessary. Special thanks to those artists, who have shared their images with me, and those who allowed fellow observers of a changing humanity access to their visions and insights.

My thanks also goes to my colleagues at AUT, especially to the Digital Media team for willingly filling the many gaps in attention and care I left while focusing on my studies. I thank Dr. Frances Nelson, Abhishek Kala and Matthew Guinibert for taking over my leadership responsibilities during my leave. Dr. Helen Sissons closely accompanied my voyage and she is the one witness to all the little steps, big doubts, necessary detours and unlikely successes. She supported me with passion and patience, and with a generosity at heart as only the fewest of friends would.

My biggest thanks goes to my family who has been steadfast encouragement and support during the too many years of research and study, long nights and short weekends, missed holidays, and absence at important events in their lives. This study is for you.

Intellectual Property Rights

All of the images in this study were sourced from the Internet and ownership as well as copyright regulations widely varied; many images are unknown of their origin, others are in the public domain, and again others are proprietary. The images for the purpose of this study were used for a non-commercial scholarly purpose only, which is governed by the fair use policy that limits intellectual property rights for a “limited and ‘transformative’ purpose, such as to comment upon, criticize, or parody copyrighted work” (Stanford University Libraries, 2005-2015). Images in this thesis were printed in very small format and in low resolution and hence are not suitable for further deployment.

Chapter 1: **Introduction**

1.1. Overview

When transhumanism first surfaced in isolated public debates during the mid 1990s, a number of eclectic ideas about human enhancement were attached to a small and scattered group of individuals, each with a different perception of the state of the human condition and with a varied outlook onto human future. Since then, transhumanism has evolved into a broad cultural movement that is increasingly visible both in popular culture and as a nascent scholarly field. Transhumanist themes are now present at many conferences on emerging technologies, appear in public commentaries on the future of humanity, produce a considerable number of publications both fiction and non-fiction, provide material for movie productions, and circulate as the "cyborg image" and other imaginings of human futures through popular visual culture. By the end of 2014, transhumanism had organised itself into a political party with plans to stand for the 2016 Presidential Election in the United States. Transhumanism today claims to have representations in over one hundred nations and on all continents of the world.

The cultural movement of transhumanism strives for a technology-enabled future of greatly enhanced human faculties – physically, cognitively, and emotionally (Bostrom, 2005). Transhumanists believe in the autonomous evolution of technology and in humanity's mandate to utilise technological capability for human improvement (Bostrom, 2003a, 2003b; Kurzweil, 2005; More, 1990, 2004, 2010; Vita-More, 2004, 2012a; S. Young, 2006). The transhuman condition is seen as the harbinger of a higher posthuman species with unprecedented potential (Ettinger, 1974; FM-2030, 1989; Vinge, 1993; More, 2010). In order to realise higher human promise, transhumanism focuses on self-enhancement that aims at direct personal benefit from technological interventions such as cosmetic surgery, prosthetic extensions, cognitive-emotive augmentation, and life extension. The technological discourses of human enhancement are surrounded by visual imaginings and explorative designs of the augmented human, which circulate through the Internet and other public spaces. Many of these images are cyborg visualisations in a broad sense: sketches of the technologically transformed body, man-machine designs, and visual proposals of a greatly enhanced humanity.

In its popular culture manifestations, transhumanist imagery has evolved from a few cyborg fantasies pre-transhumanism to a vast body of technohuman visuals that appear across popular media in the form of advertising commercials, game themes, sci-fi movies, fashion trends, and cyborg images that together form a critical mass of an incipient visual culture genre that may be described as *trans-humanist visuality*. Transhumanist visuality as proposed in this study consolidates diverse visual expressions of hopes and fears with respect to human future, visual proposals for a posthuman condition, and playful designs of future embodiment into a class of images that grapple with visions of a man-made technogenesis, the co-evolution of humans and technology. The art historian W. J. T. Mitchell (2003) observed,

> … the spectre of the "living machine", the re-animation of dead matter and extinct organisms, the destabilizing of species identity and difference, the proliferation of prosthetic organs and perceptual apparatuses, and the infinite malleability of the human mind and body have become common-places of popular culture. (p. 486)

At present, a number of transhumanist technologies are nascent (e.g., gene therapy) while others are entirely speculative (e.g., mind uploading). With these enabling technologies yet to emerge as practical applications, a blueprint for trans-human designs does not (yet) exist. Nevertheless, imaginings of the posthuman are increasingly visible in contemporary popular culture ranging from amateur images on the Internet, sci-fi wallpaper, and online Photoshop contests to commercial stock photos, music labels, film posters, comic art, tattoo designs, book jackets and magazine covers, and they appear in game titles and movie blockbusters. The recent consolidation of transhumanist ideas into a broad movement and the emergence of technohuman themes in popular culture seem to go hand in hand. It appears that the transhumanist worldview inspires the production of a cyborg culture and, conversely, that the proliferation of technohuman themes in visual culture notably aids the popularity of the transhumanist meme. Although a majority of these images are not directly authored by transhumanist sources, they nevertheless transport transhumanist thought, present technology-driven aspirations for a pervasive transhumanism, and in this way aid the construction of *technological posthumanism* (Zimmermann, 2011).

1.2. The visuality of transhumanism

This study proposes that transhumanism is necessarily visual, because "only the image can incarnate" (Mondzain, 2009, p. 28) the imagination, hopes, dreams and apprehensions that are attached to the deliberate redesign of the human condition by transhumanism. Unlike other modes of knowing that are reflective and analytical (such as language), the visceral truth-value of the visual, the instant persuasion by images, and the immediate conviction of the visual mind (*cf*. Le Bon, 1896; Jay, 1988; Walton, 1990, Downing & Bazargan, 1991; Levin, 1993; Jameson, 2003; Mitchell, 1986, 2005) carry and propagate transhumanist ideology with an intensity that reasserts that "seeing is believing" (Ihde, 1998, p. 95) and leaves no doubt of the "reality" of transhumanist projections. The function of the image as "the omnipresent raw material of our cultural ecosystem" (Jameson, 2003, para 6) constructs human futures that are taken for real because they are visible (Walton, 1990; Ihde, 1998). The image, because it is rooted in concrete sensory experiences, translates conceptual, abstract ideas of future humanity into an intuitive knowledge of this future (*cf.* Gombrich, 1961; Jay, 1988, 2002; Freedberg, 1989). Mitchell (2005) thought of pictures as "our way of gaining access to whatever these things are" (p. xiv).

When Yi (2010) called upon "the necessity of an imaginary/imaginative approach to posthumanism" (p. 3), she recognised the profound powers that images of envisioned future have on suggesting imagination as reality. Gonzáles (1995) affirmed that, "[t]he image of the cyborg has historically recurred at moments of radical social and cultural change" (p. 270) and that it reveals "the existence of a shifting consciousness that is made concrete only in moments of contradictory experience" (p. 271). Likewise, Sasaki (2011) acknowledged the historic role of aesthetics to "construct a new world" (para 4) in times of uncertainty and change, and Mitchell (2005) defined images "as the terrain on which political struggle should be waged, the site on which a new ethics is to be articulated" (p. 32). Similarly, Rancière (2006) recognised changes in the visual arts as reflecting transformations in society, and that new visual regimes are "implicated in an overall vision of a new human being lodged in new structures" (p. 16). The collection of recent *Art in an Age of Uncertainty* by transhumanist proponent Andy Miah (2008) highlights the role of the visual when exploring "new forms of interaction with the future" (*blurb*).

It is proposed that transhumanist visuality not only expresses a nascent sense of human transformation through emerging technologies but also *embodies* the posthuman as "living images" (Mitchell, 2003, 2005). Neiva (1999) summarised,

> Images simulate situations that help us reach decisions, whether political or scientific. Personal identities spring from pictures that certify and authorize us. Images help to build us up. (p. 75)

Consequently, the interest of this study in the images of the cyborg results from their potential to "embody, rather than represent," (S. Kemp, 2008, p. 86), "thereby converting the possibility of a 'posthuman' future into an *actuality*" (Verdoux, 2009, p. 49; emphasis in original). Mitchell (1986) noted that images constitute

> … a history that parallels and participates in the stories we tell ourselves about our own evolution from creatures 'made in the image' of a creator, to creatures who make themselves and their world in their own image. (p. 9)

This study proposes that images and the imaginary preconceive and prefigure human future in a way that compels this future to eventuate as those expressions it simulates (*cf.* Mitchell, 2003, 2005; Verdoux, 2009; Flusser, 2011).

Contemporary popular culture often has been called *the age of the image* (Apkon, 2013) or the *visual age* (Gombrich, 1961; Mirzeoff, 1998; *cf*. Mitchell, 1994; Elkins, 2003). In a culture that consequently orients itself through visual sense making, the image of the cyborg might appear an unsurprising phenomenon at a time of technology rewriting humanity. However, the image of the cyborg also seems to deliver a useful stratagem for transhumanism to communicate with the general public in familiar and effective modes. Visuals that can be instantly grasped, processed, circulated and recalled in the public consciousness function as an accessible and instantaneous format for spreading transhumanist ideology in seemingly playful and non-confrontational ways. Transhumanist Zoltan Istvan (2014b) conceded that pop culture and entertainment titles have done much to popularise transhumanism and thus aided its agenda for remodelling humanity. In more than one way, the image of the cyborg encourages psychological familiarisation with the unspeakable of human transformation (Anolik, 2004), visceral acclimatisation to the brutal monstrosity of the human machine (Bolton, 2014), and emotional adjustment to the disorienting uncanniness of technological embodiment (Botting, 1996, 2005). If it were not for broad public visibility of a technologically elevated human condition, consciously or subconsciously associated with future-oriented trends such as transhumanism, the transhumanist movement would have been unlikely to have gained traction beyond isolated discourses in future studies and short-lived science fiction productions.

1.3. Aims of the study

This research aims to make a contribution to the description and understanding of the suggested *technohuman condition* (Allenby & Sarewitz, 2010) from a visual point of view. The study presupposes that the design and the characteristics of human future are supported by a visuality that compels broad human technologisation. Selected concepts from the scholarly fields of visual culture studies, visual communication, art history, media studies, philosophy of technology, and technology and society studies contribute to the discussions in this thesis. On a broader scale, relevant sociocultural effects of emerging transformative technologies and human enhancement has been researched in various domains: in media theory[1], literature studies[2], futurology[3], critical cyborg studies[4], gender studies[5], philosophy of technology[6], bioethics[7], and the political economy of the future[8]. A discussion of the role of images in the conceptualisation of a posthuman future, however, remains largely limited to isolated discourses of fringe visual subcultures[9] and to some works of *high art* (Gans, 1999)[10]; little work has been done that studies and theorises emergent transhumanist visuality as a wider – and as a normative – cultural phenomenon (*cf*. Mitchell, 2007). Still less work has been done to trace the question of how exactly this new visuality constructs the posthuman, not merely conceptually but literally as an embodied reality.

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[1] For example, Sobchack (2004), Hansen (2006), Munster (2006), Poster (2006), and Wegenstein (2006).
[2] See Haraway (1991), Bukatman (1993), Hayles (1999), Vint (2007), Schneider (2009).
[3] See Toffler (1970), FM-2030 (1989), Kurzweil (1999, 2005), Bostrom & Cirkovic (2008).
[4] See Haraway (1991), Gray, Mentor and Figueroa-Sarriera (1995), Menzel (2001), Zylinska (2001, 2002), A. Clark (2003), Benford and Malartre (2007), Bar-Cohen (2009).
[5] See, for example, the work by Mulvey (1989), J. Butler (1990, 1993, 2004), Haraway (1991), Balsamo (1996), Wyer, Barbercheck, Cookmeyer, Öztürk and Wayner (2014).
[6] See Heidegger ([1953]2000a), Borgmann (1985, 1999), Ihde (1990, 1998, 2002, 2010a, 2010b), Heim (1993, 1998), Ansell-Pearson (1997, 2001), Lévy (1998), Fink (1999), Bostrom & Savulescu (2009).
[7] Refer to Harris (1992), Waldby (2000), Kass (2002), Stock (2003), MacDonald Glenn (2007), Atkinson, Glasner & Lock (2009), Waters (2009), Zylinska, (2009), Agar (2010, 2014), and Gordijn & Chadwick (2010).
[8] For example, Gray (2002), Fukuyama (2003), J. Hughes (2004a), Miller & Wilsdon (2006), and N. Rose (2007).
[9] See González (1995), Di Filippo (1998), Newitz (2001, 2002, 2008), K. Baker (2007), Grundmann (2007), Christian (2009), J. Bailey (2011).
[10] See Rutsky (1999), Wood (1999), Hauser (2003), Smith (2005), Kac (2007), Popper (2007), Miah (2008).

This study aims at the investigation of the ways in which futuristic images of technohuman themes conceptualise, foresee, and literally pre-*figure* human future. This investigation follows the premise that images are never innocent (Mitchell, 1986; H. Foster, 1988; Ihde, 1998; Midalia, 1999; Wurzer, 2002; G. Rose, 2012), but that they embed themselves as believable realities – actual, imagined, fictional or otherwise – in the mind of the spectator. Transhumanist visuality, in this sense, might assist a pre-realisation of human enhancement as a technological fact. Thus, the focus of the inquiry is into the reflexive relationship between the cyborg image and transhumanist ideology, between what these images encourage us think about human future and how they influence our thinking of these imaginings. Concretely, this study asks the question of how transhumanist visuality constructs a desirability of its agenda in popular visual culture, and how it seeks to ascertain the public perception of a likely posthuman future.

Hence, this study follows two main research questions:

> **RQ1**: How does contemporary popular visuality imagine and depict the posthuman?
>
> **RQ2**: In what ways do the iconographies of popular cyborg images aid transhumanism's agenda for a technohuman future?

The first research question inquires into the iconographic qualities, visual strategies, and the construction of posthuman identity in the cyborg image. It traces the explicit or implied future world of transhumanism, its metaphysics and values as they appear in cyborg imagery. The second research question links the iconographies of the cyborg image to the transhumanist agenda and inquires how these images underwrite a cultural view in which human progression inevitably leads to technological forms of human existence.

The two research questions build upon each other and were designed to assist an analysis that wants to lay open the often blind assumptions in transhumanist visuality about the predictability of technological progression. With this aim, this study seeks to problematise the role of images in the construction of human future, and it takes a critical perspective with respect to the "blue sky" proposals of transhumanism. Instead of naively conceiving the cyborg image as a new and unique phenomenon arising from the visions and possibilities of today's scientific advancements as transhumanist technophilia implies, the study also considers the historic antecedents of transhumanist visuality, and it attempts to reveal not only what was put on display in cyborg imagery, but also those aspects of the human condition that were purposefully or subconsciously left out. In her discourse of *How We Became Posthuman*, the literary critic Katherine Hayles (1999) has warned that the pathway to posthumanism might be marked by unnoticed cultural and epistemological erasures if human progression is seen as nothing more than an increasingly accelerating forward movement, solely driven by human will and technological faculty. Against this background, the analysis of visual data in this study aims at observing not only the visible subject matter in the cyborg image but also the invisible and that which was plainly absent. Mitchell (1986, p. 39) affirmed that, "[w]e can never understand a picture unless we grasp the ways in which it shows what cannot be seen". In this sense, the image of the cyborg might point to "the invisibility of the genetic revolution [and] its inaccessibility to representation" (Mitchell, 2003, p. 495).

The inquiry into the visual expressions of transhumanism in this study involved about one thousand images of which six hundred were systematically analysed. The content analysis of the six hundred images sought to deliver a general overview of the trends and tendencies in transhumanist visuality. Following the descriptive account of the iconographies of the cyborg image, several of the emerging themes were interpreted in relationship to transhumanist discourses and in context to the interactions between transhumanist thought and the larger cultural-historic streams in which the movement is embedded.

The overall approach to the inquiry into the iconographies of transhumanist visuality is interpretative. This inquiry draws on the iconological framework devised by Erwin Panofsky (1962, 1970, 1991) and Tom Mitchell (1980, 1986, 1994), a critical-interpretative perspective that is indebted to the art historic tradition more than to the discipline of visual studies. Conventionally, art history took the image – its inherent forms, shapes, subject matter and themes – as the site of inquiry, which it then placed into the historic contexts with other works of art, with the cultural currents at the time of production, and in relationship with its place in history (Hatt & Klonk, 2006). In contrast, visual studies predominately focuses on a work in its immediate sociocultural contexts, and looks at intentionality and reception (Elkins, 2003). It is the aim of this study to investigate transhumanist visuality from the perspective of the image itself, as it wants to observe how images inherently construct and enforce particular readings and connotations of their messages. In contrast to visual culture methodologies that often draw on language-based systems – such as semiotics – for the analysis of visual matter, iconology is grounded in the recognition of the visual as a particular kind of knowledge, a unique epistemology that could not be absorbed into the structures and mechanisms of other intellectual activities such as language (Mitchell, 1986).

Following the interpretative approach to image analysis, this inquiry does not seek to theorise, neither to generalise, but to look for trends and tendencies as they emerge from a prevalent reading of transhumanist images. The one thousand images in this study, albeit a sizable collection, do not make a claim of comprehensiveness or representativeness. Each image means to speak for itself – even where comparisons between images are attempted – as the full data set stands on its own. It was not a goal of this study to apply the findings that emerged from the data analysis to transhumanist visuality as a broader genre. Also, many possible aspects of transhumanist visuality, for example its dissident biopunk branch or its critical technophobic aspects, were left out of the data interpretation, as the study looked for the advocatory tendencies in transhumanist visuals and not for an all-inclusive description of the phenomenon of transhumanist visuality.

The technique of interpretation generally involves the researcher's prerequisite skills and insights, and, as a methodology, does not lay a claim on neutrality and objectivity. Instead, the researcher's foreknowledge of the subject matter and her skill in the art of interpretation are purposefully utilised in order to enrich insights into the data and to tease out meaning in images that may be opaque to a less involved interpreter. Auerbach (1953) succinctly described the position of the interpreter when he commented on his approach to the mimetic analysis of ancient texts:

> The method of textual interpretation gives the interpreter a certain leeway. He can choose and emphasize as he pleases. It must naturally be possible to

> find what he claims in the text. My interpretations are no doubt guided by specific purpose. Yet this purpose assumed form only as I went along, playing as it were with my texts, and for long stretches of my way I have been guided only be the texts themselves. […] Studies of this kind do not deal with laws but with trends and tendencies, which cross and complement one another in the most varied ways. (p. 556).

The foreknowledge of the researcher in this study is informed by her formal education in visual communication, fine arts and media studies, as well as her practice as a digital media educator for many years.

1.4. Significance of the research

If transhumanists have it their way, humanity will undergo radical transformation, aggressively promoted and proactively pushed into the mainstream by ideologies of unrestricted right to the self, by the assurance of a technological determinism, and the certainty of a technohuman condition. Transhumanist thinking posits that there is only one way to human survival, which is not merely *through* technology, but by reconfiguring humanity *as* technology. Against such assurance of the inevitability (and desirability) of the technohuman condition (Sandberg, 2001; Bostrom, 2008; Allenby & Sarewitz, 2010; Kelly, 2010), this study explores how transhumanist visuality seeks to ascertain transhumanism's perspective of certitude. It is hoped that the insights of this inquiry will aid a more detailed understanding of the role of the cyborg image in the construction and circulation of transhumanist ideology in order to recognise the complexity and totality of the worldview that transhumanism imposes.

Against bold promises of alleviating human suffering and generally improving the condition of the species, transhumanism so far has delivered very few proposals for how these profound transformations ought to occur. Although transhumanism sketches wondrous scenarios of true human potential, it has failed to provide practical strategies for their implementation, to engage considerations of the far-reaching consequences beyond a few obvious ones, or to devise plans of managing social equality. Hayles (2011) cautioned:

> When advanced technologies come together with reproduction to reconfigure metalogical[11] dynamics at every level, from the individual to the family to the nation-state and globalized society, it is impossible to predict

[11] Iain Banks (2000) describes the nexus of sociological, philosophical and psychological considerations as "metalogy".

> accurately all the consequences or to trammel them up, as transhumanist rhetoric implies, using reason, technology, and science. (p. 225)

Instead of *broadening* human potential as promoted by transhumanists, there is a significant risk of *narrowing* the human condition to that of a purely instrumental existence (Hayles, 1999, Agar, 2010, 2014, J. I. Bailey, 2014) accessible to and controlled by a small technocratic elite (*cf*. Fukuyama, 2002; N. Rose, 2007). In response to transhumanism's sweeping proposals for a better humanity, Hayles (2011) warned that "[i]magining the future is never a politically innocent or ethically neutral act" (p. 225) and that transhumanism's proposal for improving the human condition is also a battle for ideological hegemony (e.g., S. Young, 2006).

Still, the aspiration by transhumanism to achieve "better humans" (Buchanan, 2011; Hauskeller, 2013) echoes humanity's eternal dream of transcending its animal-being and biological liability. Ideas of self-improvement, extension of lifespan, and mitigation of vulnerability to disease, age and death are likely to appeal to many people, especially those who battle limitations to their wellbeing (e.g., Bostrom & Roache, 2009; Lilley, 2012). Many of transhumanism's promises appear plausible, benevolent and desirable, and hence may be favoured as a pathway that leads beyond perceived boundaries to fulfilling human potential. Drawing on wishful tales of ultimate human transcendence, transhumanism portrays a technoscientific future where all suffering has been alleviated and individuals live to the full of their extended potentials. In contrast to such hopes, the transhumanist scenario of a technohuman future makes no provision for any other possibility of human self-realisation but technological enhancement, and forgoes conceptualisation of alternative ways of thinking about being human and of human future. J. I. Bailey (2014, p. 52) noted: "The work of these transhumanists helps us see the concrete reality of the danger, that is [the inability] of thinking of any other way human beings might relate to themselves".

The study of the contemporary visual expressions that spawn from the trans-humanist worldview seeks to show how popular culture visuality participates in the construction of a *totalised philosophical system* (S. Young, 2006) that provides only a single view on the human condition. It is the aim of this study to make a contribution to the recognition of the covert cultural currents that stir towards a singular perception of humanity, at least so in those cultures that willingly or unknowingly participate in a technological worldview. Although there is much discourse on the broad technologisation of society (e.g., Marx, 1909; Ellul, 1964; McLuhan, 1964; Mumford, 1967, 1971; Winner, 1977; Postman, 1992; Vinge, 1993; Kelly, 2010), transhumanism has not yet been systematically reviewed as a visual phenomenon. Despite the profound effect that visual imagination, pictures, and topographical mental models have on the construction and understanding of cultural history (Ihde, 1998; Mitchell, 2003, 2005; Flusser, 2011; Sasaki, 2011), transhumanism as a *visual* ideology remains underappreciated. Even the transhumanist Natasha Vita-More (1992, 1995, 2003, 2008), who has actively campaigned for a new aesthetic and art of transhumanism, seems to have overlooked the potential of popular culture to drive, formulate, support or undermine her initiative of devising a creative-aesthetic posthumanism. The popular visuality of transhumanism, the appearance of its views, values and ethics in the images of everyday, might prove to constitute a key player in the survival, continuation and success of the transhumanist movement. This research makes a contribution to filling the gap of the visual appraisal of transhumanism by critically observing emerging trends in contemporary cyborg imagery and by contextualising transhumanist visuals to their historical relations. In doing so, the study seeks to reveal some of the underlying human desires and hopes, which persisted through cultural history and now seem to provide a fruitful soil to implant the superficially novel visions of transhumanism. The immense visual power that transhumanist ideology has through its arousing of the age-old dreams of human escape from death and flight from earthly confines is of prime interest to this research. It appears that transhumanism, willingly or not, draws on a long history of imaginings of human pre-eminence that endows the movement with urgency far beyond aesthetic and/or functional enhancement of individual subjectivity. The discussions in this study seek to help lay open the role of cyborg visions in the *meme wars* (S. Young, 2006) of transhumanism. In doing so, the study also seeks to uncover an absence of the consideration of alternatives, of variation and choice on the pathway to posthumanity.

1.5. Scope and limitations of the study

This study aims to produce a first structured overview of transhumanism's popular visuality and hence the research is broad but not necessarily comprehensive. Although this study has clearly defined objectives and a definite focus, it does not attempt to deliver a final appraisal of transhumanist visuality. Instead, this study wants to be understood as a point of departure towards a scholarship of human future as a visual phenomenon, and thus data, analysis and interpretation seek to construct a formative iconological description of the cyborg image, which then may inform further studies that draw on the insights of this thesis.

Because of its broad approach, individual aspects of analysis and data interpretation might not receive as much attention as they deserve. There is a risk that some discussions appear truncated or glossed over, and that important trajectories arising from data analysis are not followed. One example of thematic truncation is the limitation of immediate focus on advocatory images, i.e., images that show the potential of the posthuman over risks and possible failures, something that may marginalise critical trends in transhumanist visuality (e.g., subversive or dystopian themes). Although the focus of the research is on a self-promoting visuality of transhumanism, critical images of what is called “troubled” or “ruptured” embodiment in this study are still accounted for during content analysis, but are not further interpreted in the discussion chapters. As this study is interested in analysing transhumanism’s strategies of utilising the natural tendencies of the human visual mind (*cf.* Le Bon, 1896; Gombrich, 1961; Panofsky, 1962; Berger, 1972) for propagating its agenda, images of concern and critique of technohuman themes, albeit vital for summarising transhumanist visuality as a wider historic-cultural phenomenon, are of no immediate import for establishing the problem of visual propaganda in transhumanism. The consideration of cautious and disapproving cyborg images is beyond the scope of this research and warrants a separate study. Despite a focus on a positive reflection of transhumanism in popular visual culture, the discussions in this study nevertheless seek to provide a reasonably stable platform to embark on a subsequent genre-focused investigation of contemporary and emerging cyborg visuality.

A further limitation also arises from the challenge that was inherent when delineating and describing transhumanism as a visual genus. Albeit the phenomenon of transhumanist visuality is fairly stable and consistently applied throughout the research, the absence of reliable identifiers (and boundaries) of defining transhumanist visuality might variously shift the viewpoint of what was to be included into the data collection and what left out. Also in this case it should be remembered that the study does nowhere aim to be conclusive. Despite limitations within the scope of a single study, it is believed that this research provides enough material and interest to fine grade subsequent inquiries into the visual dimensions of posthuman future studies.

1.6. Structure of the thesis

There are four distinct parts to this thesis, which together comprise nine chapters. Part one introduces the aims, rationale and significance of the study and situates the thesis within related scholarly fields (chapter one). A review of relevant literature that informs this study is part of this section (chapter two). Part two introduces the methodological design of the study, the data for analysis, the interpretative framework (chapter three), and delivers a summary of the findings from quantitative data analysis (chapter four), which provides the basis for all of following qualitative data interpretation. Part three delivers the main interpretative sections, overall four chapters organised by themes that arose from the content analysis of images (chapters five to eight). Lastly, part four summarises the outcomes from the data interpretation and concludes the study by answering the research questions (chapter nine). Implications arising from the study and recommendations for further research wind up the thesis.

Many chapters present image samples that illustrate the claims made in a section. Most commonly, sample images were organised in clusters that allow summative insights and/or comparisons wherever relevant. Images are numbered sequentially in their appearance in the relevant chapter and are prefixed with the number of the respective chapter. This helps to locate images wherever they are cross-referenced from a different section in the thesis.

Chapter 2: **Literature Review**

2.1. Introduction

A review of literature relevant to laying out a platform for the discussions in this study is necessarily broad, for the phenomenon of transhumanist visuality involves a number of disparate considerations and discussions, some of which have a long-standing history. Transhumanist visuality as a contemporary phenomenon in popular culture involves concerns that belong to fields spanning from art history to biotechnological innovation, that consider the image as cultural object and as episteme, reflect on images of the body and emerging concepts of distributed subjectivity, revive philosophical questions of the human visual mind and relate ideological theories of the visual. The spaces between these areas of inquiry are vast and therefore this review of literature is selective and indicative rather than inclusive. Nevertheless, the review intends to cover sufficient ground to well situate the interpretation of visual data without leaving too large a gap in the argumentation for transhumanism's visual agency. The following review concentrates on three main areas, 1) transhumanism as a technocultural movement (sections 2.2 and 2.3), 2) transhumanism as an aesthetic consideration (section 2.4), and 3) theories of the image as they are relevant for a discussion of transhumanism as a visual phenomenon (section 2.5).

2.2. Transhumanism as cultural movement

Transhumanism as an "intellectual-cultural movement" (World Transhumanist Association, 1998) is a confluence of various forging factions[12] with the common ideal "to better the human condition, to work toward making the world compatible with our needs and concerns, and to consider the emerging and unprecedented possibilities, challenges, and dangers of the future" (Vita-More, 2000, para 3). In 1990, the extropian Max More, who later would become one of the key drivers of the transhumanist movement, commented:

> Transhumanism is a class of philosophies of life that seek the continuation and acceleration of evolution of intelligent life beyond its current human form and human limitations by means of science and technology, guided by life-promoting principles and values. (reprinted in More, 2013a, p. 3)

[12] Organisations and associations that assisted the founding of the World Transhumanist Association include Alcor Life Extension Foundation, Upwingers, Foresight Institute, Extropy Institute, Aleph Sweden, Transcedo Netherlands, World Future Society, Immortality Institute, Betterhumans, Singularitarians, Institute for Ethics and Emerging Technologies, and various local transhumanism chapters.

Transhumanists see humanity as an ever evolving species that, from an enhancement point of view, is yet at the beginning of its potential (Ettinger, 1974; FM-2030[13], 1989; Transhumanist FAQ 3.0, 2008; More, 1990, 2010). In this sense, *trans*-humans are transitional (or semi-enhanced) beings between biological-evolutionary humans and superior *post*-humans. These posthumans, according to transhumanist reasoning, will fundamentally challenge the central assumptions of humanity (Hassan, 1977; Bostrom, 2003a; Sorgner, 2009) with a shift in the human paradigm as profound as the historic emergence of humanism itself (Garreau, 2005) or as fundamental as the "rise of human life on Earth" (Vinge, 1993, para 3).

Transhumanism as a cultural movement dates to the 1980s when several entrepreneurs, academics, cultural thinkers, and new science researchers formulated the first definitions of the modern version of transhumanism. Transhumanism claims that its philosophy reaches back to Plato and Aristotle (More, 2009) and that it takes inspiration from rational humanism formed during the Renaissance and the Enlightenment (Bostrom, 2005). The transhumanist Vita-More (2000, 2008, 2012a) has maintained that the term "transhumanise" was first mentioned by the Middle Age poet Dante Alighieri in *Divine Comedy* (c.1308-21), echoed by palaeontologist and Jesuit theologian Teilhard de Chardin in *The Future of Mankind* (1959), and then by playwright T. S. Eliot in his reference to human suffering in *The Cocktail Party* (1950). Biologist Julian Huxley (1957) delivered an entire chapter on *Transhumanism* where, in an evolutionary context, he described future "man remaining man, but transcending himself, by realising new possibilities of and for his human nature" (p. 17). Charles Darwin, Friedrich Nietzsche, and Richard Feynman have been mentioned as the "heroes of transhumanism" (Olson, 2011; *cf*. Sorgner, 2009, 2010; More, 2010). The first account of transhumanism as a cultural phenomenon is generally associated with futurist Fereidoun M. Esfandiary's (1972) description of a new evolutionary being along with his futuristic lifestyle questionnaire in *Are you a Transhuman?* (FM-2030, 1989).

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[13] Name at birth: Fereidoun M. Esfandiary (1930-2000). Esfandiary legally changed his name to FM-2030 around the mid-1970s to express his ideas of fluid personality and escape from "tribal collectivism" (1989). The year 2030 in his new name was meant to denote the time when humans will have mastered their own immortality (to coincide with his 100th anniversary). FM-2030 did not live to see this development and rests suspended in cryopreservation until his dream for immortality should become technically possible.

Since then, the appearance of the term *transhumanism* in recent press "has sky-rocketed" (Istvan, 2014a, para 1). In publications available on Google books[14], use of "transhumanism" has steadily increased since the 1950s; it first grew in popularity during the second half of the 1960s, almost quietened during the 1980s, and then saw a sharp growth from the late 1990s onwards (figure 2.1). The rising occurrence of the term in English published material since 2000 suggests that transhumanism as a cultural phenomenon entered broader scholarly awareness and public consciousness roughly around the beginning of the 21st century. The rise in popularity of transhumanism coincided with a moment in time of saturated dissemination of information and communication technologies and a prevalence of technological consumerism especially in liberal world economies (*cf*. Baudrillard, 1998; Miles, 1989; Green, 2001; Suarez-Villa, 2009, 2012).

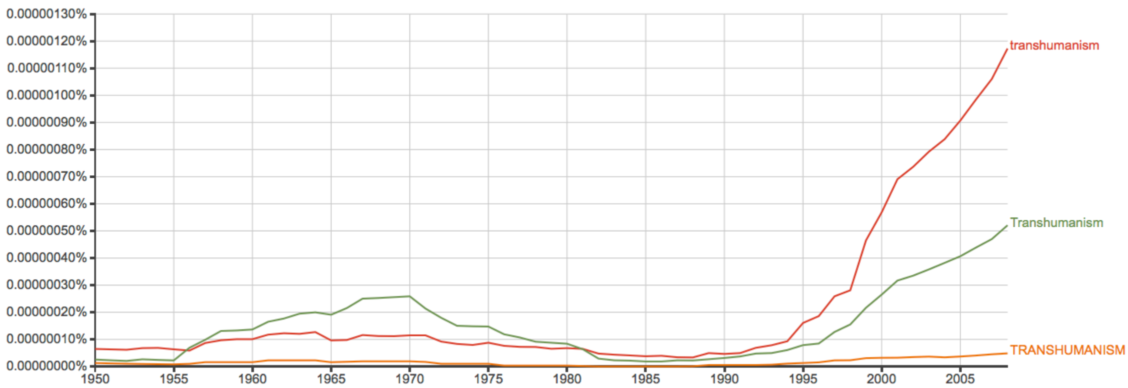

Figure 2.1: Google books Ngram Viewer for the keyword "transhumanism". Date range: 1950-2008.

Despite claims of an historic debt to ancient Greek thought (Bostrom, 2005; More, 2009), contemporary technological transhumanism is quite distinct from the larger posthumanist discourses of humanity transcending its humanistic heritage (*cf.* Foucault, 1970; Haraway, 1991; Hayles, 1999; Badmington, 2000; Rutsky, 2007; Vint, 2007; Wolfe, 2010). Today's "techno-posthumanism" (Zimmerman, 2011) conceptualises the future of humanity in purely instrumental terms, i.e., by seeking practical tools from emerging technosciences in order to self-engineer human progression. The concept of a "participant evolution", i.e., the deliberate and purposeful redesign of human faculties through technological means in order to drive, control and accelerate human evolution, was first proposed by the cyberneticists Clynes and Kline (1960) in their seminal article *Cyborgs and Space*.

[14] http://books.google.co.nz/

The authors argued for an artificial evolution in order to allow man to adapt to the non-biological conditions of extraterrestrial environments. In 2006, the transhumanist Simon Young further developed the idea of a designer evolution when he outlined transhumanism as a “totalised philosophical system”. He proposed transhumanism as an all-inclusive value system that compounds human knowing, rationality and ethics into a homogenous, monolithic “*new world picture*” (p. 17; emphasis in original). The new and “miraculous technowonderland” (p. 20) of transhumanism, Young (2006) affirmed, would “positively overflow[…] with fabulous products and services, endless opportunities for growth, development, self-expression, and joie de vivre” (p. 366). Arguing against postmodernism’s moral confusion as he saw it, Young (2006) sought to evoke an absolute “evolutionary ethics” (p. 22) as a unifying force to re-ascertain man’s centrality in the world and science as the exclusive mode of knowing and operating this world. Transhumanism, believed Young (2006), would offer a pathway towards renewed certainty of human predominance and would positively support humanity’s “innate Will to Evolve” (p. 19). An attitude of “techno-can-do-ism” (p. 20), would free humanity from its biological limitations and allow full transcendence through science in an emerging “Self-Enhancement Society” (p. 20).

A close reading of formative transhumanist publications[15] suggests that above any other proposition, transhumanism is committed to three fundamental presuppositions: 1) that human biology is the single most limiting factor to accelerating human evolution, 2) that principally, if not exclusively, it is technosciences that enable human progression, and 3) that technological enhancement applies to the *individual*, i.e., augmentative competences serve as *technologies of subjectivity* (*cf.* Foucault, 1978; N. Rose, 1989; 2007; Rabinow, 1994; Hayles, 1999, 2011; Verdoux, 2009), as instruments of personal self-modification and self-transformation. Hayles (2011) remarked that transhumanism posits “social, technoscientific, and economic realities […] as if they are undertaken for the sole benefit of forward-thinking individuals” (p. 218). “Who or what will be left behind, and what global

[15] These publications include *Transhuman Manifesto* (Vita-More, 1983), *Are you a Transhuman?* (FM-2030, 1989), the *Extropians FAQ* (More, 1989), *Transhumanism: Toward a Futurist Philosophy* (More, 1990), the *Transhumanist Arts Statement* (Vita-More, 1992), *The Coming Technological Singularity* (Vinge, 1993), *Technological Self-Transformation* (More, 1993), the *Extropic Art Manifesto* (Vita-More, 1997a), *Transhumanist Declaration* (1998), the *Transhumanist FAQ* (1999/2008), *Morphological Freedom* (Sandberg, 2001), *The Proactionary Principle* (More, 2004), *A History of Transhumanist Thought* (Bostrom, 2005), *Designer Evolution* (S. Young, 2006), *True Transhumanism* (More, 2009), *A Cosmist Manifesto* (Goertzel, 2010), and *The Philosophy of Transhumanism* (More, 2013a).

conflicts might result from class and economic disparities are seldom discussed" (p. 219). For example, transhumanism's general recommendations for becoming posthuman focus on personal measures such as pursuing personal development through cognitive and mental exercises (FM-2030, 1989), leading a healthy lifestyle and avoiding risks (to the body), saving money for future life-extension treatments or, alternatively, signing up for cryonics[16], and generally contributing to the development of transhuman technologies via donations, advocacy or a career in the field (Transhumanist FAQ 3.0, 2008).

Although there is a notable emphasis on posthuman embodiment, especially so in transhumanist visuality, transhumanism generally distinguishes between three enhancement domains: the somatic sphere (the body), the cognitive sphere (the mind), and emotional enhancement (Bostom, 2008; More & Vita-More, 2013). The Transhumanist FAQ (2008, *Won't it be boring…,* para 6) clarified that transhumanism is about "genuine changes to the human condition, including increased intelligence and minds better suited to the achievement of happiness". However, in contrast to elaborate imaginings of "becoming posthuman" (Boston, 2008), transhumanism's proposal for enhancing human subjectivity remains largely mute on the questions of how individually "better humans" (Dvorsky, 2008a; Buchanan, 2011; Hauskeller, 2013) might improve the general human condition or how increased personal prowess and wellbeing might reshape social communities locally and/or globally. Instead, transhumanism's splendid scenarios of posthuman subjectivity seem flavoured with social prejudices and cultural values that betray transhumanism as a snobbish cultural ideology. For example, Bostrom (2008) wrote about becoming posthuman (excerpts):

> You continue to find the gossip magazines you used to read amusing, albeit in a different way than before; you discover that you can get more out of reading Proust and *Nature*. ... Instead of spending four hours each day watching television, you may now prefer to play the saxophone in a jazz band and to have fun working on your first novel. Instead of spending the weekends hanging out in the pub with your old buddies talking about football, you acquire new friends with whom you can discuss things that now seem to you to be of greater significance than sport. … You still listen to

[16] Cryonics describes the contemporary technology to preserve deceased (human and animal) bodies at low temperature in the hope that these organisms can be revived and cured in the future. Technologies of cryonic resurrection are currently not available. Worldwide at present, there are roughly 250-300 human bodies in cryopreservation.

> music – music that is to Mozart what Mozart is to bad Muzak[17]. (Bostrom, 2013, pp. 31-32)

Similarly, FM-2030 (1989) described transhumans as (excerpts):

> People who change their names[18] if they no longer identify with – or have outgrown – their given and inherited names. … People who are transglobal – who travel and live all over the planet and who are open enough to be reconditioned by new contacts. (p. 39)
>
> People with high-tech attention spans have little patience for low-tech activities such as reading long documents or balancing monthly bank accounts. … Books are hopelessly slow for our times. If an author cannot get it together in one or two hundred pages[19] – forget it. The author is not addressing today's world. (p. 46)
>
> [T]he more backward a society the more the emphasis on reproduction – family – marriage. The more advanced a society the less emphasis on reproduction and the shakier family and marriage. … We are learning to love in new ways – more freely more openly more creatively. (p. 117) … We are steadily moving toward shared or collaborative procreation and collaborative parenting. (p. 162)

Whereas transhumanist visions of the posthuman tend to vividly echo long-standing dreams of the superhuman (e.g., Halacy, 1965; Ettinger, 1974; Harris, 1992; Vinge, 1993; Bostrom, 1998; Kurzweil, 2009; Munkittrick, 2010) and debatably also Nietzsche's overhuman (e.g., Pearson, 1997; Sorgner, 2009; More, 2010; Zimmerman, 2011), transhumanist discourse does not seem to provide clues to how reading Proust, playing the saxophone, changing one's name or having a non-traditional attitude to marriage may assist humanity to transcend its (human) limitations and to evolve into a more advanced being (*cf.* Bostrom, 2005).

Today's modern transhumanism is by no means a singular movement let alone a uniform philosophy. Core transhumanists and those influenced by extropianism[20]

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[17] Muzak is a collective term for "easy listening" popular music typically played as elevator music or as background tunes in shopping malls etc.

[18] Transhumanist pioneer Fereidoun M. Esfandiary has changed his name to FM-2030, Max T. O'Connor is now Max More, Nancie Clark has become Natasha Vita-More, and Swedish transhumanist Niklas Boström has internationalised his name to Nick Bostrom. Bernhard (2001) called the name-change ritual in transhumanism a rite of passage.

[19] FM-2030's book from which these quotes are taken spans 227 pages of "light" reading. Likewise, Ray Kurzweil's (2005) canon on the singularity spans over 600 repetitive pages, and Simon Young's (2006) rather populist writing on human-designed evolution exceeds 400 pages.

[20] Extropianism is a proto-transhumanist movement founded by Max More in 1991 as Extropy Institute (discontinued in 2006 as an independent entity when it became fully absorbed into the World Transhumanist Association/H+). The term extropy wants to be understood as an antonym to entropy in order to describe the supposed human capacity for unlimited growth and improvement. Extropians believe that humans ultimately will live forever, and they are guided by the principle of *perpetual optimism* toward human future and in

tend to emphasise radical self-enhancement and life-extension as the primary objective of transhumanist agency (technological or technoprogressionist transhumanism)[21], others seek to grasp the technohuman condition in more quintessential terms (philosophical transhumanism)[22] or from a theological perspective (religious transhumanism)[23]. Some desire to mould transhumanism as democratic citizenry (democratic transhumanism)[24] or see it as a creative domain for conceptualising the future (aesthetic transhumanism)[25], while still others take a historical perspective and understand transhumanism as a rupture in historic humanism, which posited man as a natural subject independent both of spiritual inheritance and of technological mediation (critical posthumanism)[26]. In contrast to terrestrial or here-and-now transhumanism, some proponents consider posthumanism as a cosmic affair (cosmist transhumanism or transcendental posthumanism)[27] that involves a redefinition not only of humanity but also of the metaphysics of the universe. Many of these positions overlap or complement each other; certainly, boundaries are blurred, and reliable definitions are almost completely absent. Notwithstanding variations in transhumanist thought, in broad terms it is the unwavering belief in humanity's destiny to evolve to beyond-human levels, the rejection of "all involuntary limitation" (Twyman, 2015a, para 4) to the human condition, a steadfast confidence in technology to assist this progression, and a DIY – do it yourself – attitude to radical enhancement (Agar, 2010), that defines a diverse assortment of optimistic future ideas as *transhumanism*.

2.2.1. Critical reception of transhumanism

Critique of transhumanism is manifold, flows from a variety of different perspectives and is driven by significant concerns informed by a number of positions and interests. Initial critical responses to the transhumanist movement during its formative years in the 1980s-1990s mainly came from cultural-philosophical

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particular by More's (2004) *Proactionary Principle* that advocates for an aggressive approach to technological innovation.

[21] See Ettinger (1974), Vita-More (1983), Drexler (1986, 2006), Moravec (1988, 1999), FM-2030 (1989), More (1993, 2009), Drexler and Peterson (1991), Broderick (2001), Sandberg (2001), Kurzweil (2005), Stock (2002), S. Young (2006), de Grey (2008), and Dvorsky (2011).

[22] Mainly Bostrom (2002a, 2002b, 2003b, 2003c, 2005, 2008), More (2004, 2013a), and Pearce (2007).

[23] For example, Terasem Faith (2004), Mormon Transhumanist Association (2006), Hughes (2007), Cannon and Goertzel (2011), and Redding (2012).

[24] See Hughes (2002b, 2004a), Dvorsky (2008a), Istvan (2014a, 2014c).

[25] Vita-More (1992, 1997a, 2010, 2012a) and Miah (2011).

[26] For example, Badmington (2000), Graham (2002), Pepperell (2003), and Wolfe (2010). Also refer to Munkittrick (2010).

[27] See Bostrom (2003c), Tipler (1994), Kurzweil (2005), Goertzel (2010), and Chu (2014).

positions that questioned transhumanism's proposal for *participant evolution* (Clynes & Kline, 1960; Hughes, 2004a; S. Young, 2006), commonly for ethical[28] or religious[29] concerns, or for practical reasons of technological risk considerations[30]. The early transhumanist movement generally refused to engage with such critique rejecting it as ill-informed, technophobic, luddite, carbon-chauvinistic, backward or otherwise unqualified[31] (e.g., Moravec, 1988; FM-2030, 1989; More, 1993, 2010; Hughes, 2004; S. Young, 2006; Blackford, 2008a; Vita-More, 2009b; B. Murphy, 2014). Tirosh-Samuelson (2008) commented, "transhumanists have cultivated an acerbic, polemical style that ridicules their critics, dismissing them as 'bio-Luddites' or 'bio-Conservatives' and brushing them off with clever, but not very substantive, arguments" (para 4).

Over the past decade, critical appraisal of transhumanism has become more sophisticated as the transhumanist agenda now is more systematically analysed (e.g., Richards, 2002; Ihde, 2008; Grassie, 2011; Hayles, 2011). Although there continue to be many voices that fundamentally reject transhumanism as an undesirable or impractical model of the future (e.g., Cole-Turner, 1993; Kress, 1993; Joy, 2000; Habermas, 2003; Fukuyama, 2004; Baille & Casey, 2005; Dupuy, 2009; Hayles, 2011), there is an increase in discourses that comment on selected transhumanist concepts with the aim of evaluating rather than rejecting wholesale the transhumanist vision of human progression (e.g., Hefner, 2003; Peters, 2003, 2008; Allenby & Sarewitz, 2010; Agar, 2010, 2014; Lilley, 2012). More than in the past, the present critique of transhumanism tends to work from the "inward out", i.e., seeks to defuse transhumanist ideology via its own arguments, instead of plainly dismissing transhumanism as boosterish (Bernhard, 2001) but naïve (Peters, 2008), as irrelevant (Joy, 2000), dubious (Hefner, 2003) or dangerous (Fukuyama, 2002, 2004). This more differentiated critique of transhumanist ideology has prompted some transhumanist proponents to respond more

[28] See Duster (1990) Kass & Wilson (1998), Rifkin (1998), Danovsky (2000), Joy (2000), Fukuyama (2002), Kass (2002), McKibben (2003), and Agar (2014).
[29] See C. S. Lewis (1943), Noble (1999), Bainbridge (2005), Waters (2006), Horn (2010), Messerly (2012), FIAMC (2013), Gillette (2014).
[30] See Dublin (1992), Bostrom (2002), Stock (2002), Rees (2003), and Arkenberg (2010).
[31] For example, in her presentation at the 2009 MetaNexus conference, Natasha Vita-More (2009b) declared that her non-transhumanist co-speakers would not be able of grasping transhumanist ideas "because they are not transhumanists" (12:48) and could only revert to "preconditioned viewpoints" as they would be "restricted of a fuller, richer, deeper understanding" (12:50-12:55). She continued to assert that non-transhumanists would merely "judge from a distance" and hence not be able to appreciate transhuman experiences (12:55-13:06).

purposefully to its critics (*cf*. Tirosh-Samuelson, 2011). In 2011, the Metanexus Institute[32] published a volume on transhumanism[33] that placed key transhumanist ideas in juxtaposition to counterpoints and critical discussion. This volume was possibly the first structured collection of differentiating transhumanist discourses presented from a nonaligned perspective.

Helped by more thorough scholarly evaluation and critique, transhumanism as a cultural movement today seems more visible and established than ever. Over the past few years, academic discourse of transhumanist themes has significantly increased (Hayles, 2011) as it permeates from the humanities (mainly ethics, philosophy, literature studies and to a lesser extent anthropology) and science and technology studies into ever more scholarly disciplines (e.g., cultural studies, gender studies, political studies, economics, media studies, art and design, leadership studies)[34]. In May 2014, the Californian transhumanist Zoltan Istvan declared that "today, the transhumanist movement is on the verge of going mainstream" (2014b, para 1), and in October the same year he founded the Transhumanist Party (TP-US) that is supporting his 2016 run as a US presidential candidate. Since then, transhumanist parties have formed in the UK and the EU (TP-EU)[35]. In fact, Istvan has set up a global network of transhumanist parties (TPG)[36] with umbrella organisations spanning all continents and regions worldwide[37]. In light of the new broad re-grouping of transhumanism, blogger Canauzzle (2014) confirmed that transhumanism "is unstoppable now" (para 1).

2.3. Transhumanism's technological philosophy

Writing in 1993, the American mathematician and science fiction author Vernor Vinge predicted that "[w]ithin thirty years, we will have the technological means to create superhuman intelligence. Shortly thereafter, the human era will be ended" (para 1). Vinge defined this rupture in the evolutionary continuity of humanity as technological singularity (commonly referred to as *The Singularity*). According to

[32] "Founded in 1997, the Metanexus Institute is a not-for-profit organization dedicated to promoting scientifically rigorous and philosophically open-ended explorations of foundational questions" (Grassie, 2014).
[33] Hansell, G. R. & Grassie, W. (2011). *H± Transhumanism and its Critics*. Philadelphia, PA: Metanexus Institute.
[34] See the works of Fairholm (2004), Grundmann (2007), Miah (2008), Yi (2010), Geraci (2012), Hughes (2012), and Kneeling (2012).
[35] The TP-EU includes member groups in Austria, Croatia, France, Germany, Greece, Italy, Netherlands, Poland, Romania, Russia, Serbia, Spain, Sweden, Turkey, and UK.
[36] http:// http://transhumanistpartyglobal.org/
[37] North America (TP-NA), South America (TP-SA), Europe (TP-EU), Middle East & Africa (TP-MEA), North Asia-Pacific (TP-NAP), and South Asia-Pacific (TP-SAP).

this prediction, the envisioned event of the singularity would occur around the year 2023. Other predictions envision the year 2045 (Kurzweil, 2005; Grossman, 2011) or any time within the next 100 years (A. Stuart, 2012) as the turning point of humanity changing to a posthuman condition[38]. Whatever the envisioned date, the prognosis of humanity's transformation into an existence that will "vastly exceed the refinement and suppleness of what we regard as the best of human traits" (Kurzweil, 2005, p. 9) is solely based on a conviction that nascent technological acceleration will propel humanity beyond any historic concepts of biological evolution (More, 1993; Stock, 2002; Kurzweil, 2005; S. Young, 2006). Transhumanism's trust in the inevitability of such accelerated evolution is firmly rooted in the promise of emerging "enabling technologies" that they believe will remedy all that is at fault with the human condition.

2.3.1. Enabling technologies of the new sciences

The enabling technologies of a posthuman future are believed to be an affordance of the new sciences that started to form around the turn of the millennium. The "new" in new sciences largely refers to the introduction of second-order cybernetics into the natural sciences (*cf*. Ashby, 1952, 1956; Bateson, 1972; Drischel, 1973) and to social and cultural processes alike (*cf*. Wiener, 1954; K. Bailey, 1994; Fairholm, 2004; R. K. Sawyer, 2005). Fairholm (2004, p. 369) posited the new sciences to "mainly compris[e] ideas found in quantum physics, autopoietic[39] theories found in biology, chaos theory, and complexity science". Technological innovations in the new sciences, relevant to transhumanist aspirations, include nanotechnology, biotechnology, genetics, information technology, cognitive science, artificial intelligence, and robotics (Mulhall, 2002; Roco & Bainbridge, 2003). The combination of these technologies has been variously referred to as NBRIC (nano, bio, robotics, info and cognitive sciences), NBIC (nano, bio, info, cogno), GRIN (genetics, robotics, info and nanotechnology) or GNR (genetics, nano, robotics). Collectively, these emergent fields are sometimes summarised as superbiology (Stock, 2002; S. Young, 2006), a term that identifies the human body as the

[38] In recent years, there has been increasing critique of the idea of a singularity, which either dismiss the possibility of a singularity point altogether (e.g., Pinker, 2007; Moore in IEEE Spectrum, 2008; Lanier, 2013; McGinn, 2013) or postpone such event into the far future (e.g., Hofstadter, 1979; 2007). Critics of the singularity include Gordon Moore who developed *Moore's Law* (1965) that is generally used as one of the strong arguments for an impeding technological singularity.

[39] Autopoiesis refers to the reflexive relationship between structure and processes in a living system that "continuously regenerate and realize the network of processes (relations) that produced them" (Maturana & Varela, 1973). In simple terms, *autopoietic* means 'self-creating' and 'self'-replicating'.

site of technoscientific transformation. The practical application of superbiology is thought to occur by means of human enhancement technologies (HET) that aim to intervene in organic processes and significantly enhance human appearance and faculty (Hughes, 2004b; E. A. Williams, 2006; Bostrom & Savulescu, 2009). Transhumanists generally propose that the convergence of these fields delivers sufficient means to initially enhance and then re-engineer the self towards higher capabilities and immortality (Moravec, 1988, 1999; Kelly, 1994; Stock, 2002; Kurzweil, 2005, 2013; de Grey, 2008; Atkinson, Glasner & Lock, 2009; Bar-Cohen, 2009; Bostrom & Savulescu, 2009), which will ultimately result in the emergence of a significantly improved species, the posthuman.

Transhumanist and Lifeboat Foundation[40] member Michael Anissimov (2002-2014) enlisted cybernetics/cyborgs, virtual reality (VR), artificial general intelligence (AGI), mind uploading, molecular manufacturing (nanotechnology), self-replicating robots, gene therapy, cryonics and space colonisation as key transhumanist enabling technologies of the near future. The World Transhumanist Association (Bostrom, 2000) added superintelligent machines (Bostrom, 1998; Moravec, 1999), lifelong emotional wellbeing through re-calibration of the pleasure centres (Pearce, 2007), personality pills (Kramer, 1993), vastly extended life spans (de Grey, 2008), and reanimation of cryogenically suspended patients (Merkle, 1994; Tipler, 1994; Hughes, 2001) to this list. Many of these technologies are still speculative while others are already in use (e.g., cybernetics, VR, cryonics, Prozac). At present, the nascent technologies of transhuman enhancement are supported by 20th century technologies such as nutritional supplements, functional foods, smart clothing, biomedical screening, genetic diagnosis, preventive medicine, cosmetic surgery, organ transplants, prosthetics, sex change, remedial pharmacology, and assisted reproduction (*cf.* Stock, 2002; Grundmann, 2007; N. Rose, 2007; Schlich, 2010). The philosopher of technology, Don Ihde (2010b), unnoticed by many (and notably also by transhumanist technophilia), recognised today's high-tech biomedical imaging as an important enabling technology. Imaging technologies, observed Ihde (2010b), generate much of the normative

[40] "The Lifeboat Foundation is a nonprofit nongovernmental organization dedicated to encouraging scientific advancements while helping humanity survive existential risks and possible misuse of increasingly powerful technologies, including genetic engineering, nanotechnology, and robotics/AI, as we move towards the Singularity" (*Mission Statement*, lifeboat.com).

understanding of those submicroscopic structures that are the target for manipulation by 21st century superbiology.

2.3.2. Technological determinism and the singularity

Transhumanism's faith in human enhancement technology is firmly rooted in the premise of technological determinism, i.e., the understanding of technology as a self-governing force, and the idea of technological progress as ever perpetuating and inevitable (*cf*. Moravec, 1988; More, 1990, 1993, 2013a; Bostrom, 1998, 2003b, 2005; Kurzweil, 2005; Bostrom & Savulescu, 2009). Drusek (2006) described technological determinism as the "claim that technology causes or determines the structure of the rest of society and culture" (p. 84).

Chandler (1995) identified two leading characteristics of technological determinism: 1) *technological autonomy* by which technology evolves independent from larger cultural developments and 2) a *technological imperative* by which technology shapes cultural and economic processes in a way that compels further technology. Technological determinism holds that technological advancement occurs in a self-perpetuating dynamic, because "[s]ince it was possible, it was necessary" (Jacques Soustelle, cited in Ellul, 1964, p. 99). Lawson (2004) contended that the normative determinism of technological evolution creates a state of affairs where "norms of efficiency and productivity" override ethical and moral criteria with the consequence that "society adopts the technologist's standards of judgement" (p. 34), which then creates a perceived need for more technological development.

Chandler (1995) further defined the normative traits of technological determinism as *reductionism, mechanism, universalism*, and *progressionism*. *Reductionism* in science aims at the scrutiny, explanation and definition of complex phenomena based on their smaller or more principal compositions or processes. While reductionist science, by consigning complexity to essential functions, tries to find "good (enough) explanation" of otherwise "hideously complex" (Agar, 2014, p. 90) realities, it has been criticised for abstracting natural events to simplistic versions thereof. *Mechanism* describes the conceptualisation of all processes in technical ways, i.e., the reduction of chaotic life processes into organised systems that essentially function like a machine. The French philosopher of technology, Jacques Ellul (1964), envisioned the mechanical metaphor to affect all aspects of life and society and consequently to convert human communities into what he called "The Technological Society". *Universalism* assumes absolute laws, values and standards that apply to all instances of a particular phenomenon, thus replacing specifics with universally valid characteristics. Universalism mostly opposes relativism in which an absolute standpoint or an absolute truth is impossible because events are thought to change with circumstance, perspective and perception. *Progressionism* presupposes that human society is continually moving toward higher complexity in a "natural" and inevitable process of development (Mumford, 1971). Basalla (1988) noted that progressionism creates the perception that technological developments would inherently bring "marked improvement", which results in the assumption of "the betterment of our material, social, cultural and spiritual lives, thereby accelerating the growth of civilisations" (p. 211). In this respect, Ray Kurzweil, possibly one of the most outspoken transhumanist progressionists, produced a series of publications (1990, 1999, 2004, 2005, 2009, and 2013) that delivered a decisive argument for autonomous technological evolution and techno-progressionism. Kurzweil's (1990, 2001, 2005, 2013) *law of accelerating returns*[41], for example, attempted to rationalise technological progression as a natural law that drives the dynamics of quickening scientific innovation. Based on this "law", Kurzweil (2005) mapped the evolution of the universe in six historic stages: 1) the atomic epoch of physics and chemistry, 2) the DNA epoch of biology, 3) a neural epoch of brains, 4) a technological epoch based on intelligent design of hard- and software, 5) the merger of technology with human intelligence, and ultimately 6) a time when the universe wakes up. The latter two stages reflect Vinge's (1993) prediction of a technological singularity, where technology creates "entities with greater than human intelligence" (Vinge, 1993, para 3) and consequences that can no longer be comprehended from the present vantage point.

Vinge's idea of the singularity has been readily adopted by transhumanism as a rationale of and motivation for an outspokenly *proactionary* (More, 2004) approach to technological advancement. Rapid development of new technologies

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[41] Kurzweil (1999) described his *law of accelerating returns* as a logarithmically increasing, autonomous force of technological progression: "as order exponentially increases, time exponentially speeds up (that is, the time interval between salient events grows shorter as time passes)" (p. 30).

in order to halt and then reverse human entropy (More, 1989) is one of the central agendas of transhumanism (More, 1989; Bostrom 2003a, Transhumanist FAQ 3.0, 2008). The political programme of the recently formed Transhumanist Party is exclusively based on aggressively driving technological progress. Its founder Zoltan Istvan (2014c) declared the creation of a "cultural mindset in America that embracing and producing radical technology and science is in the best interest of our nation and species" (para 4) as one of the leading goals of the party. Believing in technology as a fundamental evolutionary force (*cf*. McLuhan, 1967; Kelly, 1994, 2010; S. Young, 2006), transhumanists regard the pursuit of technological progress as humanity's very responsibility (Sandberg, 2001; More, 2004, Bostrom, 2008). Anissimov (cited in Kurzweil, 2005, p. 299) asserted, "[o]ne of the biggest flaws in the common conception of the future is that the future is something that happens to us, not something we create". The singularity as the strong argument for uncompromising scientific advancement and free technological innovation provides the "event horizon" (Hawking, 1988) of transhumanist thinking, a boundary of transhumanist imagination about future humanity beyond which everything is *post* and outside their immediate concerns. In spite of its decisive future-oriented rhetoric (e.g., Drexler, 1986; Moravec, 1988; More, 1990; Drexler & Peterson, 1991; Vita-More, 1997b, 2010; Bostrom, 1998, 2008; Sandberg, 2000a; Hughes, 2001, 2004a, 2007; Anissimov, 2008; Miah, 2008; More & Vita-More, 2013), transhumanism has remarkably little to say about human life, society and the lifeworld post singularity (Grundmann, 2007; Hayles, 2011). Instead, transhumanism's technological vision seems to stall at the imagined point of rupture where technology and humanity can no longer be reliably distinguished (Vinge, 1993; Kurzweil, 2005). Resulting from the relatively short-range perspective for a futuristic philosophy, transhumanism seems to describe a way of life rather than a vision of human future.

2.3.3. Technological embodiment: the image of the cyborg

The term "cyborg" is generally attributed to Clynes and Kline (1960) when they described a "cybernetic organism", i.e., the fusion of disparate living or lifelike systems into an integrated organism. In this fusion, both human body and augmentative technology are each understood as cybernetic circuits (Ashby, 1956; Forrester, 1968). Cybernetics, the science of communication and control (Wiener, 1948), concerns itself with the structure of self-regulating systems and, more specifically, with the relationships between a system's internal organisation and its external interactions with the environment. Cybernetics bases its definitions of communication and control on the premise that systems function informationally, i.e., that they are structured and regulated information-processing entities (O. Mayr, 1970) "that can flow between substrates but [are] not identical with [their] material bases" (Hayles in Borgmann & Hayles, 1999, para 4). An important outcome of the cybernetics project has been the reformulation of humans as "information-processing entities who are essentially similar to intelligent machines" (Hayles, 1999, p. 7). Cybernetics, thus, enforces a technical-informational paradigm on the discourses of the structures of life (biology): the premise that material objects can be understood as informational patterns (Wiener, 1948; Bateson, 1972; Hayles, 1994, 1999), the presupposition that humans and machines possess the same structural and processual logic that would allow science "to construct the human in terms of the mechanical and the mechanical in terms of the human" (Hayles, 1994, p. 451).

Gray, Mentor and Figueroa-Sarriera (1995) identified four main origins of cyborg technologies: military, medical research, entertainment, and industrial production. The cyborg, however, also appears in contemporary cultural life as an image of contested identities (Haraway, 1991; Bukatman, 1993; Gonzáles, 1995; Hayles, 1995; Balsamo, 1996), as a mythology (Birkholm, 2007a), and as a site of future discourse (Vint, 2007; Schneider, 2009). The cyborg today comes with its own theoretical discipline: cyborgology (Gray, 2002), and with an associated cultural momentum: cyborgism (Gray *et al*., 1995). Although the pioneer of cyborg studies, Donna Haraway (1991), denied any ancestry of the cyborg, i.e., regarded the cyborg as a being without an origin story, Hayles (1995) contended that the cyborg is an historic being: "Standing at the threshold separating the human from the posthuman, the cyborg looks to the past as well as the future"; it is an "amalgam[…] of old and new" (pp. 322-323). Accordingly, the cyborg has been traced back to the legends of automata and autonomous systems, from Ovid's (1922) *Pygmalion*, to *Golem* (Idel, 1990), the alchemical *Homunculus* (Sudhoff, 1933) and the modern Prometheus, *Frankenstein* (Shelley, 1818). At the same time, the cyborg often serves as a visual model when arguing for a technological future (*cf.* Clynes & Kline, 1960; Halacy, 1965; Moravec, 1988; Seltzer, 1992; Rutsky, 2007; Pickering, 2010; Riha, 2010).

It was mainly Haraway (1991) who developed the notion of the cyborg as a sociocultural *image* during the 1980-90s. Haraway's (1991) cyborg did not simply refer to a "technoid mixture of human and machine" (Volkart, 2004, para 2) but problematised the conventional boundaries between natural and artificial, animate and inanimate, self and other, imagination and actuality, and questioned established notions of subjectivity, agency and power. Instead of focusing on the technological transformation of the human body, Haraway's cyborg was about *transgression* – a destabilising of physical, psychological, epistemological, sociocultural, and political boundaries. By highlighting the frontiers of human subjectivity and alerting to the sociocultural transformations that cyborg identity invites, Haraway (1991) emphasised a political dimension of cyborgism above its purely ontological significance. In Haraway's (1991) conceptualisation, the cyborg primarily mirrored a culture's consciousness and its "quintessence" (p. 153) and only secondarily described a technology. In agreement with Haraway, Gonzáles (1995, p. 267) affirmed that contemporary "visual representations of cyborgs are [...] reflections of a contemporary state of being" (p. 267) that point at "the under-lying but unrecognised structure of a given historical consciousness" (p. 272).

Several writers in the field have argued that we are all cyborgs already because of the profound interdependence of humans and technology (Haraway, 1991; A. Clark, 2003; Kroker & Kroker, 2005; Allenby & Sarewitz, 2010; Case, 2011). This broader understanding of the cyborg variably includes infrastructural (e.g., cities) or social (e.g., societies) networks of communication and control to form cyber-netic organisms together with their human "parts" (Geyer, 1991; Kelly, 1994; Sawyer, 2005). In a narrower morphological classification, cyborg embodiment encompasses *biomorphic* entities on the one hand and *bionic* systems on the other hand. Biomorphic cyborgs take the human body as a site of technological modification, which, in their remedial and normalising application (Gray *et al*., 1995), include internal and external human extensions such as implants and prostheses. In contrast, bionic entities regard the technological system as a site of organic design.

Unlike biomorphic cyborg images that display technologically modified human organisms, bionic entities are technological systems conceptualised on the basis of biological structures and/or processes (e.g., neural networks or the computer virus). A*ndroids*, i.e., humanoid robots, though technically cybernetic organisms, are not classified as cyborgs for they lack original human constituents as part of their technological embodiment. Androids are entirely technical and synthetic, albeit they are keen to mimic human behaviour (Ishiguro, 2005; Benford & Malartre, 2007). The cyborg then may indeed be considered a boundary image between man and machine, human and non-human, organic and mechanical, natural and artificial, virtual and material, and between life that implies death and reanimation that promises immortality. Importantly, this boundary image may be approached from either side of the threshold between biological life and animate technology, envisioned as an *image of technological man* on the one side (*cf.* McLuhan, 1964; Moravec, 1988; Stone, 1994; Zylinska, 2002; A. Clark, 2003) and as an *image of living technology* on the other side (*cf.* Mitchell, 2003; Kelly, 2010).

2.4. Aesthetic transhumanism and transhumanist art

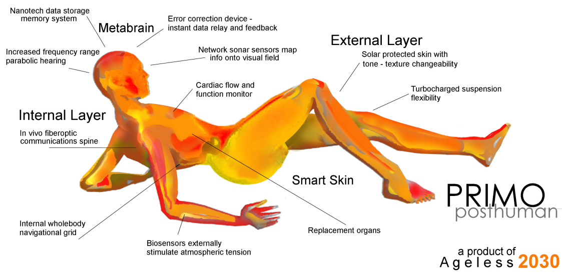
Transhumanism as a philosophy of technological self-transformation not necessarily implies a creative-artistic conceptualisation of future. However, the transhumanist Natasha Vita-More defined transhumanism as an aesthetic domain, and she claimed that exploring human future is above anything else an artistic concern (Grundmann, 2007). Drawing on her background as a visual designer, Vita-More early on in the transhumanist movement recognised creative-imaginative engagement with questions of human transformation and technological identity as a core area of transhumanist interest. She composed the *Transhumanist Arts Statement* in 1982[42], the *Extropic Arts Statement* in 1997, and authored a number of papers on transhumanist arts and culture (1995, 2003, 2007, 2008, 2009a, 2010, and 2012a, 2013). She proposed a new approach to art through what she described as "emerging and speculative media" (ESM) (2012a), created and maintains the *Transhumanist Arts & Culture* website[43] and has regularly spoken on the topic of transhuman creativity and posthuman aesthetics at various conferences in the fields of human enhancement and technological innovation.

[42] A majority of sources claim 1982 as publishing date of the Transhumanist Arts Statement, including Vita-More's own reference at, e.g., http://www.transhumanist.biz/transhumanistartsmanifesto.htm ("written 1982, revised 2003"). In the reprint of her 2011 paper on transhumanist aesthetics, Vita-More (2013, p. 25) stated that "1992 (revised 2002)" is the correct date.
[43] http://www.transhumanist.biz/

Vita-More (2009b, 2012b) rejected a general perception that cyborg imagery, futuristic movies, and science fiction literature would be part of transhumanist culture[44]. Supporting this position, More (2011) contended that "transhumanists generally look down on the cyborg concept as primitive and unhelpful", and he snubbed critiques that transhumanism would "mechanize the human body" as "straw man constructions" (p. 143). What Vita-More and More disdained is a perceived narrowing of the transhuman to biological-nonbiological cyborg hybridity (Olson, 2013). Instead of lingering on questions of substrate, they avowed, transhumanists seek enhancement also in purely biological terms (e.g., through genetic intervention or nootropic drugs) – or for that matter by any viable technique that promises self-improvement and longevity.

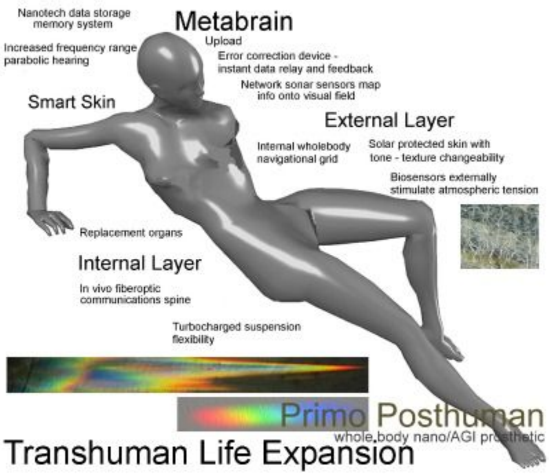
Innocent of such rather fine-combed technical boundary disputes between cyborg and transhuman, popular cyborg imagery often reflects transhumanists' visions of the enhanced transhuman or the superior posthuman rather closely, i.e., the cyborg image posits transhumanism as "Science Fiction coming true" (Grundmann, 2007, p. 86). The cyborg image, while not fully embraced by some transhumanists, is nevertheless generally accepted as the closest visualisation so far of posthuman embodiment (Grundmann, 2007). Vita-More (2004) herself called the cyborg an aesthetic predecessor of the future posthuman. In the *Transhumanist Arts Statement* (1982/2003) she declared that transhumans "are designing the technologies to improve and extend life […]. We are designing the technologies to enhance our senses and understanding" (para 3) – a definition that essentially describes cyborg design. Vita-More's design proposal of the future body, and a prototype of transhumanist aesthetics, *Primo Posthuman* (figure 2.2), presents recognisable cyborg designs. Vita-More (2004) went so far as to suggest, that the image of the cyborg as described by Donna Haraway would well articulate the transhuman.

[44] Vita-More (2012b) argued about cyborgism: "It's a different concept. The cyborg is not self-directing evolution. And it's not self-directed enhancement. And there's no mention in cyborg theory about psychology, about philosophy, about living longer in the future. Whereas the transhuman, by its very definition, it's about human transition. And altering our biology for living longer. And improving, or elevating the human performance, both in our physiology and in our cognition." (14:25-17:03)

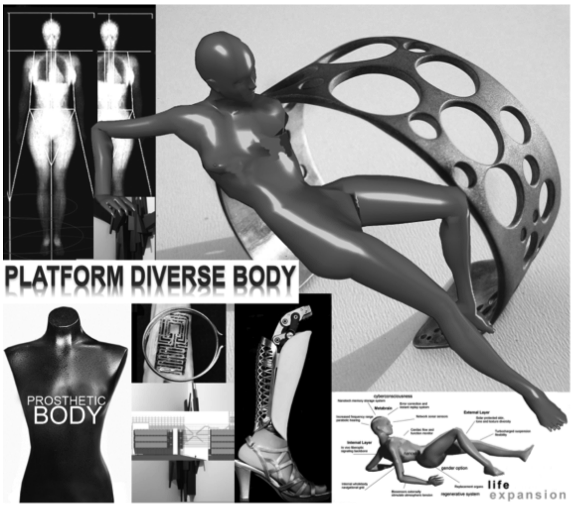


2.2.1: *Primo Posthuman* (2002/2004)

2.2.2: *Primo 3M+* (2002)



2.2.3: *Primo Posthuman* (1997)



2.2.4: *Primo Platform Diverse Body (2013)*

Figure 2.2: *Primo Posthuman*, Natasha Vita-More (1997-2013)

Consequent to an as yet missing "true" posthuman form (Grundmann, 2007, Vita-More, 2009b), the broader discussions of transhumanism, in public discourses as well as by transhumanists themselves, regularly draw on popular culture sources for an outline of transhuman subjectivity and the posthuman condition (Istvan, 2014). As a demonstration in point, the very article by the transhumanist tech-writer Nikki Olson (2013) that sought to rebuff the cyborg as a transhumanist project, presented examples and images of cyborgs in order to argue for the trans-human. Against transhumanist attempts to shield themselves from an association with pop culture, Istvan (2014b) confirmed that, "science fiction movies and novels [...] have done much to promote transhumanism and the inevitable tech-dominated future" (para 3). Movie blockbusters like *Transcendence* (Pfister, 2014) and *Avatar* (Cameron, 2009), novels such as *The Inferno* (Brown, 2013), *Nexus* (Naam, 2012) and *The Transhumanist Wager* (Istvan, 2013a), and the video games *Deus Ex: Human Revolution* (Eidos Interactive, 2011), *BioShock* (2K Games, 2007) and *Halo* (343 Industries, 2001-2014) "have significantly increased visibility of transhumanism" (Istvan, 2014b, para 3). Based on commonly existing interactions between emergent cultural ideas and visual accounts thereof (*cf*. Marcuse, 1964; Grundmann, 2007), the appearance of transhumanist themes in popular visual culture, in visions of human future and the cyborg body, and in imaginings of enhanced human capacity may account for the cultural-visual production of what is proposed as *transhumanist visuality*.

The necessity of artistic and design-based engagement with human transformation, Vita-More (2008) argued, results from the still speculative character of transformative technologies that do not yet produce real-world transhumanist experiences. Vita-More (2009a, para 1) suggested that transhumanist aesthetics would serve as "a means by which we can gaze onto the topography of human enhancement and into the core of transhumanist experience". Aesthetics, in her understanding, enable personal transformative experiences, and it would be art's role to initiate and actualise these experiences through simulation of sensory-cognitive-emotional stimuli as a mode of foreknowing transhumanist existence. The *Transhumanist Arts Statement* explained: "Our aesthetics and expressions are merging with science and technology in designing increased sensory experiences" (Vita-More, 2003, para 2), and the *Extropic Arts Manifesto* clarified, "I am the architect of my experience" (1997a, para 3).

Vita-More (2009b) considers aesthetics as "an intellectual mirror of what we think and an emotional mirror of how we feel" (4:30-4:36). She argued that although future experiences such as transhuman subjectivity cannot readily be visualised as yet, they still could be viably conceptualised. In her understanding, transhumanist art is conceptual rather than concrete whereby exchange of ideas would be more relevant than the creation of artefacts. Transhumanist art, affirmed Vita-More (2009b), can prefigure eventual technological embodiment and can explore technohuman identities long before technologically embodied experiences are factually possible. She averred that transhumanist artists as "the creators, users, and players of our own engineering" (1997a, para 7) would normatively design human future by creating technological realities and a cultural momentum that predefines what this future would be.

Vita-More's understanding of the creative arts as agents of socio-political change and as weapons in the movement's meme wars (*cf.* S. Young, 2006) appears buried in celebrations of what she had termed "emerging and speculative media". The envisioned political impact of transhumanist art and the ideological dimension of transhumanist aesthetics commonly appears obscured in new media spectacles, which themselves are staged as the subject matter of transhumanist art. The hailing of transhumanist art as anything "from lasers, holograms, lumino-kineticism, light art and photography to cinematography; from conceptual and performance art to video; from computational design and computer design to virtual communities, robotics and artificial intelligence" (Vita-More *aka* Nancie Clark, 1995, para 1) indicates a sweeping reverence for spectacular technologies and dazzling media effects.

Besides brave new media, Vita-More (2003, 2010) included as inspirations for extropic art and transhumanist aesthetics a variety of creative genres including abstract art, performance art, conceptual art, kinetic art, expressionism, futurism, dada, cubism, fluxus, techno art, science fiction and communications art. More recent art movements that suggest affinities for transhumanist themes include bioart, carnal art, biopunk and code art, art-science, AI sculptures, rendered reality, post-digital hybrid art, and several other emergent genres in the creative technologies (Vita-More, 2012a; Leonardo Gallery, 2013). Following on from this, transhumanist aesthetic sentiments seem attracted to an eclectic assortment of innovative artworks and artists[45], which at times rather indirectly relate to transhumanist agency. What distinguishes transhumanist art from other genres, Vita-More (2007) affirmed, is a "focus[…] on a positive, meta-creative and enlightened view of human potential, aesthetic design in technology, the prevalence of science, and aestheticism in the future architecture of life" (para 3). "For the first time in history, transhumans as artists want to live indefinitely, want to live in space, want to augment our intelligence, want to grow more desirable, brighter, more creative" (Vita-More, 2010, para 9).

[45] Vita-More (2003) mentioned performance artists Stelarc and Orlan, music performer Laurie Anderson, singer-song writers Bjork and David Bowie, video artist Bill Viola, digital media artist Karl Sims, erotic-feminist writer Anaïs Nin, the nootropics pioneer Timothy Leary and the artificial intelligence scientist Marvin Minsky, among several others, as pioneers of transhumanist art.

Notwithstanding Vita-More's (2003, 2007) assurance of a transhumanist art period[46], it might be premature to argue for transhumanist art as a defined genre. In spite of some theorising about transhumanist art, practical outcomes of creative transhumanism are yet notably scarce (Grundmann, 2007). Instead of forming a coherent art movement, transhumanist aesthetics seem to be held together by weak consensus about "transhumanist principles, visions, goals and sentiments" and by eclectic attempts at "combining intelligence and emotion in unexpected" and future-directed ways (Sandberg, 2000, para 3). According to Vita-More (2003, para 1), any creative work that communicates posthuman thought may be art in the transhumanist sense even if their creators are not artists as such[47]. Sandberg (2000, para 3) noted that transhumanist art "seeks to make self-transformation and living itself into an art". In this sense, transhumanist aesthetics seem programmatic to the larger transhumanist agenda of human transformation and technological progress. As a consequence, it is sometimes transhumanists themselves who contextualise individual artefacts or artists as "transhumanist" whereby linkages between particular artistic themes, technological formats and transhumanist ideology emerge in retrospect within the discourses of art and technology rather than by artistic intention. For example[48], Stelarc's critique of the limitations of the body (Paffrath & Stelarc, 1984) repeatedly has been utilised within the context of the transhumanist arguments for bodily enhancement, *automorphism*[49] and *morphological freedom*[50] without explicit endorsement by the artist (*cf.* Miah, 2003; Manoj, 2008; Grundmann, 2007). Miah (2003), for example, named Stelarc as "one of the only 'strong poets'" of transhumanism and claimed that Stelarc would deliver "strong transhumanist, artistic statements" (para 17). Stelarc himself hardly ever commented on transhumanism, though he produced in the form of performances, artefacts and texts much thinking about the technologi-

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[46] "Today Transhumanist Arts is both an organization and an art period, reflecting creative ideas and artistic projects developed during the period of transhumanity" (Vita-More, 2010, para 1).

[47] "Transhumanist Arts include creative works by scientists, engineers, technicians, philosophers, athletes, educators, mathematicians, etc., who may not be artists in the traditional sense, but whose vision and creativity are integral to transhumanity" (Vita-Moe, 2003, para 1).

[48] Further examples of explicitly or implicitly "transhumanising" existing art can be found on Sandberg's (2010) webpage *Transhumanities* (http://www.aleph.se/Trans/Cultural/Art/), Humanity+'s pages on *Transhumanist Artists* (http://hplusmagazine.com/category/arts/transhumanist-artists/), Vita-More's art collection at http://www.transhumanart.com, or De La Torre's collection at the Singularity HUB (http://singularityhub.com/2010/06/07/the-art-of-transhumanism/).

[49] *Automorphism* refers to a sub-genre of extropian art that understands human life as art and aims at continual self-transformation.

[50] Sandberg (2001) developed *morphological freedom* as a proposed human right as an extension of the right to one's body. *Morphological freedom* addresses the right to modify the own body according to personal and subjective desires.

cally transformed body (*cf.* Stelarc, 2000). Although transhumanism's creative-aesthetic affiliation is not always clear, there are a growing number of artists who are outspoken about their affinity to transhumanism[51], and Vita-More (2003, para 2) claimed that "hundreds of people around the world" have signed the *Transhumanist Arts Statement*. Istvan (2014b, para 2) contended that transhumanist artists "have recently been increasing in popularity and numbers", and he asserted that "metal-welding sculptors, futurist-oriented video game developers or techno-musicians" would now create transhumanist art on a daily level.

2.5. Theories of the image

When considering the *visuality* of transhumanism, the role of the image in imagining human future and its function in helping the actualisation of these imaginings is an important consideration. Layton (1991), for instance, has argued for a direct relationship between the evolution of cultures and the history of the image. Nevertheless, the specific roles of images throughout cultural history and within societies have significantly changed since the dawn of humanity (Arnheim, 1969; Boehm, 1994; Bredekamp, 2003, 2010; Elkins, 2008, 2011). The media philosopher Vilém Flusser (2011) sketched five broad historic epochs, in each of which the significance of the visual in human experience profoundly varied. From prehistoric experiences of the world as immersed "four-dimensional space-time continuum" (p. 6) (first rung) to a conceptualisation of the world in objects (second rung), to the first recordings of visual experiences as cave paintings (third rung), from which arose the function of images as a medium of exploring man's relationship to his surroundings (fourth rung). Then, with the emergence of written texts that aimed at explaining and understanding the world, the earlier significance of images as experiential forms gradually diminished. Lastly and very recently, contended Flusser (2011), images would have started to re-emerge as pictorial mediations of the world (fifth rung), a renewed visual reality that however would be distinct from prehistoric imaging. While the prehistoric image expressed lived experience in visual form, modern visuality, through its simulative powers, perceptually *produces* the present and *pre-conceives* the future. Perhaps

[51] Contemporary artists who openly identify themselves as transhumanists include the model and performance artist Rachel Haywire (Los Angeles), visual artist Singularity Utopia (cyberspace), bio hacker and graphic artist SniffCode (USA), designer Jenny Tillotson (London), multimedia artist Sarawut Chutiwongpeti (Bangkok), bio artist Linda Wallace (Canada), experimental artist David Zaig (Jersusalem/London), disobedience activist Russell Higgs (London), and transhumanist spokespersons Anders Sandberg (Stockholm/Oxford) and Natasha Vita-More (Scottsdale, AZ).

for the first time in the history of the human visual mind, speculated Flusser (2011), images now pre-visualise the future and seek to ascertain their actualisation as living simulations (Mitchell, 2003, 2007, 2009).

2.5.1. Picture theory and the iconic turn

Although images might almost be as old as humanity itself, the original questions of what images are and how they construct and transport meaning are still relevant. The use of the concepts of *image* or *picture* for signifying visual import beyond the image's immediate pictorial form has often been, throughout the histories of art making and art criticism, taken for granted and assumed as unproblematic (Elkins, 2011). A few scholars, mainly from the mid-20th century onward, attempted to question received ideas about what images are and how their relationship with the human mind changed throughout cultural history (e.g., Panofsky, 1962, 1970; Belting, 1990; Flusser, 1984, 2011; Boehm, 1994; Mitchell, 1994; Elkins, 1998, 2011). From the effort to query the ontology of the image arose a new theory of the picture ("picture theory" or "image theory") that aimed to problematise a wider spectrum of the imaginary ranging from the external pictorial object (the material picture and its varying concepts of representation) to the internal virtual image (the act of imagining or mentally envisioning). Most importantly, picture theory placed the visual at the centre of meaning making and assumed an inherent visual logic or *scopic regime* (Jay, 1988) in images that was independent of abstract mediation through language and rational contemplation.

Mitchell (1989) suggested three central domains in which the image arose as distinct phenomena: the image as picture (image object), the image as likeness (pictorial verisimilitude), and the mental image (the imaginary). A principal differentiation between the materially visible on the one hand and semblance on the other hand reaches back to Plato's distinction between *eidolon* and *eidos*, between sensory form and abstract idea (Cassirer, 2008). This differentiation, throughout the history of theorising the image, has been variously utilised to define polarities between painting and poetry (*cf*. Lessing, 1766; Wittgenstein, 1958), image and word (*cf*. Foucault, 1973; Goodman, 1976; Barthes, 1977; Mitchell, 1980; Jay, 1994; Flusser, 2011), aesthetics and semiotics (*cf*. E. Burke, 1787; Goodman, 1976; Elkins, 1998; Halsall, Jansen & O'Connor, 2009), spatial and temporal (*cf*. Lessing, 1766), natural and conventional (*cf*. Gombrich, 1961; Rollin, 1976), literal and symbolic (*cf*. Schapiro, 1973), and between “body and soul, world and mind, nature and culture” (Mitchell 1989, p. 49). A close reading of Mitchell’s work (1980, 1989, 1994, 2003, 2005, 2007, 2009) suggests that the binary relationship between the material and the virtual, between the form and essence of the image may remain a central problem in visual studies even after the pictorial turn (Mitchell, 1994) sought to convert this binary relationship into a “dialectical picture, the figure of the ‘imagetext’” (p. 9).

Relevant to modern studies of the visual, image theory categorised the pictorial into three broad historic approaches: 1) the exegetic image of art historic interpretation, 2) the semiotic image embedded in linguistic textuality, and 3) the pictorial image aiming for its own “models of spectatorship and visuality” (Woodrow, 2010, p. 67). Mitchell’s (1980, 1994) theoretical work suggests that a first paradigmatic shift from image explanation to image analysis occurred during the 1980s, influenced by French critical theory and semiotics, where image theory moved outside of classic art history and “favoured theoretical arguments held together by constellations of examples as opposed to close-reading of single images” (Woodrow, 2010, p. 66). Seminal works of the 1980s that approached the image as a wider sociocultural phenomenon (*cf*. Foster, 1983; Bryson, 1988) present a collection of visual discourses that conceive the image as a system of codes, a grammar of “scientifically” reading and decoding visual meaning. The linguistic paradigm remains prevalent also in contemporary approaches to visual analysis such as modern semiology (e.g., Barthes, 1972, 1977; Bal & Bryson, 1991; Bal, 2001; Jewitt & Oyama, 2001), visual cultural studies (e.g., Mirzoeff, 1989, 1999; Evans & Hall, 1999; Lister & Wells, 2001), social semiotics (e.g., Hodge & Kress, 1988; Knowles & Sweetman, 2004), or visual discourse analysis (e.g., Kress & van Leeuwen, 1996, 2001; Levine & Scollon, 2004; Bateman, 2008). These approaches, though embracing the image as a unique entity to some degree, assume the logic of a formal code that registers the compound messages of an image (Jay, 1994). With the semiotic approach to visual meaning, visual analysis replaced the descriptive method of art history; the image became another form of a “text” that could be read and systematically decoded.

A second paradigmatic shift in understanding the image occurred in the 1990s (Woodrow, 2010) under what was formulised as *pictorial turn* by Mitchell (1994; Boehm & Mitchell, 2009), *iconic turn* by Boehm (1994; Boehm & Mitchell, 2009), and *visual turn* by Jay (2002). This turn emerged from a vague recognition of the transformation of the image from cultural text to cultural context, and in this sense the pictorial turn marks the transition between the fourth and fifth rungs in Flusser's (2011) cultural model of the image, whereby images no longer express or describe human experience but constitute autonomous agents of meaning. The pictorial turn meant to bring about a focus on pictoriality (vs. texturality), a "true" visuality where images supplant words (Mitchell, 1994; Nancy, 2005) and have a life of their own (Mitchell, 2005; Costello & Willsdon, 2008). According to Boehm, the iconic turn is a response to the "narrowing of what classical philosophy had termed *'logos'*" (Boehm & Mitchell, 2009, p. 105; emphasis in original) resulting from a position of language as the ultimate medium of knowledge. Boehm sought to recover the logos of the image by recognising the pictorial as a "meaning-generating process" (p. 105) in its own right and by acknowledging the existence of an inherent "iconic intelligence" (p. 106, 110). However, Boehm also emphasised that the iconic is not "a *withdrawal* from language" (p. 107; emphasis in original) but that aesthetics "was broadened to encompass the discursive and the cognitive" (p. 108) while "making pictorial logic the point of departure" (p. 109). This pictorial logic points to the visual order of an image, an order that is marked by what Boehm (1992) named "iconic difference". Iconic difference addresses the ontological distinctiveness of language and pictures, the formal differentiation between these two systems but also their inherent relationships (e.g., through the imaginary or phenomena like "verbal images" and metaphors).

Mitchell (1994) confirmed that the pictorial turn is "not a return to naïve mimesis" or "a renewed metaphysics of pictorial 'presence': it is rather a postlinguistic, postsemiotic rediscovery of the picture as a complex interplay between visuality, apparatus, institutions, discourse, bodies, and figurality" (p. 16). Mitchell (1994) saw the urgency for a pictorial turn in his observation that visual experience now occurs "on every level of culture, from the most refined philosophical speculations to the most vulgar productions of the mass media" (p. 16). Textuality, he affirmed, is no longer a suitable model for profound visual literacy in a pervasive visual culture. In order to problematise the phenomenon of visuality (as compared to the analysis of individual images) Mitchell (1994) proposed a secondary class of images: the *metapicture*, which he described as "pictures about pictures", "pictures that are used to show what a picture is" (p. 35). Metapictures, hoped Mitchell (1994, p. 82), "reflect on the intersections of visuality, language and similitude, where they engage in speculation and theorising on their own nature and history". With this second-order picture that points to its own pictoriality, and of the visual as both a psycho-physiological and a cultural phenomenon, Mitchell (1994, 2003) foreshadowed a cybernetics of the image, conceiving the image as a vital, autonomous and autopoietic entity, an image that may act as subject rather than object. Mitchell (2003) also explicated the cybernetic capacity of images when he drew together bios and virtuality, analogue and digital, "the messy" and the calculable, chaos and control, while at the same time he noted a loss of control in both the creator and the beholder with respect to the new, *embodied* image.

2.5.2. Simulation and simulacrum

Mitchell's (2003) recognition of the cybernetic paradigm of the technovisual reflects, to some degree, Baudrillard's (1994) concept of the simulacrum. The simulacrum describes the simulation of a simulation (and not of a lifeworld actuality), replacing that reality with an abstraction of the idea of reality whereby the abstraction (which is an image) of reality is the first simulation (which is a creation, a construct) and the simulation thereof constitutes the simulacrum. As Baudrillard (1994) put it, the simulacrum is a copy without an original, an image of an image. Deleuze (1990) described it as "an image without resemblance" (p. 257). Baudrillard (1994, p. 2) pointed out that in the process of simulation, the difference between "the real and its appearances, of the real and its concepts" disappears. Thus, the concept of simulacrum fundamentally challenges the notion of mimesis in the imaginary, and of truth of the visual more generally. Baudrillard (1994) noted the "*radical negation of the sign as a value*" in the simulacrum, which "envelops the whole edifice of representation itself as a simulacrum" (p. 6; emphasis in original). In other words, all references of the simulacrum to the real are fictitious. Whereas representation aims at *imitating* the real, the physical world and all experiences that arise from it, the simulacrum *simulates* its own (non-referential) realities. Hence, the simulacrum can be considered cybernetic for it generates and replicates its own simulations. Mitchell (2009, p. 138) observed that images possess an "incorrigible tendency to take on lives of their own, to behave like viruses that spread and mutate faster than our immune system can evolve to fight them off". The conceptualisation of images as cybernetic entities may then endow the visual with its own communicative agency – a concept that fittingly corresponds to transhumanism's understanding of technology as a sovereign being: an autonomous technology that is heralded and celebrated via the living image (*cf*. Hayles, 1999; Mitchell, 2003). The same analogy between autonomous technology and autopoietic image is visible in publications such as Mitchell's (2005) *What Do Pictures Want? The Lives and Loves of Images* and Kelly's (2010) *What Technology Wants* with the tag line: "Technology is a living force that can expand our individual potential – if we listen to what it wants". In this sense, the simulacrum is a vital concept in the emergence of transhumanism as a visuality.

2.5.3. Visuality

The concept of *visuality* emerged from the field of visual studies and addresses the socialisation, institutionalisation and commodification of vision as a socially constructed reality (Foster, 1988; Mirzoeff, 2006). Visuality (as distinct from *vision* and also from *visualism*) describes the sociocultural dimension of the visual, i.e., the interaction between the visual as ocular perception, as social construction, and as a view of and on history (Foster, 1988). Unlike the reference of the term "visuality" to the social significance of visuals, the term *vision* refers to the physiological-psychological ability to see and to grasp the world in visuals (Arnheim, 1954, 1969). Further, in contrast to the sociocultural phenomenon of visuality, *visualism* addresses the function of visuals as epistemologies, i.e., knowledge that is constructed and evidenced in visual modes (Ihde, 1998, 2010a). Unlike the visual epistemology of visualism, *visuality* describes the visual dimension of a culture, i.e., it recognises society and its relationship to the world through the creation of visuals. In this sense, visuality delivers an ontology that corresponds to the epistemology of visualism.

Foster (1988, p. ix) contended, "visuality [suggests] sight as a social fact". He specified that, "how we see, how we are able, allowed, or made to see, and how we see this seeing or the unseen therein" as a function of the visuality of an age. Foster

(1988) regarded visuality an *optical unconscious* (Benjamin, 1931) that grasps the human-world relationship in and as visual experiences. In this definition, the concept of visuality does not plainly capture physical perception enabled by the human visual system nor does it merely interpret visual information according to (conscious or subconscious) cultural values. Instead it produces *scopic regimes* (Jay, 1988) that mould a society's relationship to the visual and, conversely, generates a visual subjectivity in its members (Mirzoeff, 2006). Visuality, in this sense, recognises human self-identity as a *visual condition*. Visuality as a social dimension converts what was the contemplative beholder in art history into a *visual subject* as "a person who is both the agent of sight [...] and the object of discourses of visuality" (Mirzoeff, 2006, p. 54).

Nichols (1981) explained that visuality refers both to a collective sociocultural experience as well as literally to an ideological view (or vision)[52] of the world. He defined ideology as something inherently visual, i.e., as "the image a society gives of itself in order to perpetuate itself" (p. 1). In this sense, visuality is never neutral but always is embedded in an ideological dimension (Jay, 1988; Mitchell, 1989; Downing & Bazargan, 1991; Haraway, 1991; Ihde, 1998; Forth, 2010). Visually enacting and confirming an existing view of the world and of history, argued Hayles (1999), would need to draw on a comprehensive archaeology of vision that included the missing accounts of unwritten histories, marginalised views, and forgotten events, i.e., images and visions that are generally *not* recounted in the collective visual mind. Visuality and visualism, i.e., the visual life of a society and the epistemologies it creates, always also reflect what is concealed even if only by conspicuous omission, and by the ways in which that which is there can be seen – by the selective memory of history, by the choice of creative technologies and techniques, and by the distortions that technological production of images implies (Ihde, 1998; Hayles, 1999; Mirzoeff, 2006; Forth, 2010; Flusser, 2011).

2.5.4. Mimesis

In the history of the image, the concept of mimesis – or representation of reality – occupies a central position (Halliwell, 2002). Transhumanist visuality that seeks to model realities of the future human significantly draws on the ancient concept of

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[52] The philosopher of art, Vilém Flusser (2011), associated *work* with the *hand*, *narrative* with the *finger* (as in writing), and *ideology* with the *eye*.

mimesis that seeks to capture and to place before the human visual mind the discernible world in more or less believable imitations. Mimesis for the imitation, reproduction and representation of reality in works of art dates back to ancient Greece. As a creative concept, mimesis is not limited to visual works but addresses all art forms including painting, sculpture, literature, dance, music, stage performance, and also industrial arts, cult rituals, and philosophy (Tatarkiewicz, 1970). Tatarkiewicz (1973) pointed out that mimesis in visual arts only became a consideration when the concept of representation was gradually widened from expressing an inner reality to include imitations of the outer appearance of the world. The production of outer appearance is particularly prevalent in today's simulation culture and in the surface aesthetics of contemporary visual culture including transhumanist visuality.

A central concern in the history of mimesis revolves around the claim of representational truthfulness in creative works of art (Halliwell, 2002). Truth in art variously referred to perceptual fidelity of outer appearance, i.e., optical verisimilitude of the forms and phenomena of nature (e.g., Alberti, 1970), to a more essential definition of reality where truth resides in primary concepts and not in their physical manifestation (e.g., Plato's *universals* or *abstract objects*), to the production of an inner truth or the *heterocosm* of an artefact (Baumgarten, 1735), or to truthfulness of experience in the beholder of art (e.g., Goethe, 1985-98, vol. 47). Whereas for Plato mimesis was a futile attempt to represent and to understand the world, because the visible world would be an illusion and a poor reflection of reality that resides hidden to sight behind appearance, Aristotle considered mimesis as a way of grasping the world and of learning about reality (Tatarkiewicz, 1973; Vukcevich, 2002). Tatarkiewicz (1973) noted four different concepts of mimesis: mimesis as ritualistic expression, as the imitation of natural processes, the faithful copying of nature, and mimesis as the "free creation of the work based on elements of nature" (p. 226).

The Renaissance saw mimesis as a means to penetrate into the visual world in order to understand it, to rationalise and regulate it. In this attempt, nature was to be represented not in its raw state but in a "corrected" and harmonious way. Mimesis sought to reveal the underlying congruous truths of nature, and the “natural laws” of mathematics and geometry provided the tools for exploring the perfection of form, space and proportions. Linear perspective that ordered the world in relationship to the central view of a spectator, who would gaze upon this world as through a regularised viewing grid or a window, was the suitable mimetic technique to reflect and inform the intellectual concerns of the time (Romanyshyn, 1989). According to Panofsky (1991), the technique of linear perspective as it arose during the Renaissance did not aim to represent “truthful” vision as such but provided “one of the possible representations of seeing” (Neiva, 1999, p. 80) – an idealised vision that sought perfection. In this sense, linear perspective – and mimesis in general – was a creative choice by the individual artist and in its larger application a symptom of a distinctive worldview of a historic epoch. The application of linear perspective in a visual work does not “objectively” represent the visible world but it interprets this visual world according to an ideology that wants to be taken as “objective” (Romanyshyn, 1989; Mitchell, 1994; Boulter & Grusin, 2000). Linear perspective, confirmed Mitchell (1994) “is a figure for what we could call ideology – a historical, cultural formulation that masquerades as a universal, natural code” (p. 31). In the cyborg image, the ideology of a regularised, mathematically precise view onto the world “is about the final imposition of a grid of control on the planet” (Haraway, 1991, p. 154).

Auerbach (1953) posited mimesis as a historicised concern; he considered representation of reality in literature to be dependent on and reflective of the sociocultural conditions of the time in which a work was produced. Panofsky (1991) contended that the techniques of mimesis as they became popular during various times in the history of the arts, were “symbolic forms” that expressed a particular way of seeing and of interpreting the world. Likewise, Mitchell (1994) argued that, "representation […] not only 'mediates' our knowledge […], but obstructs, fragments, and negates that knowledge" (p. 188). Following Auerbach’s historicised understanding of mimesis, Mitchell (1994) emphasised the capacity of representation to create a reality that for the viewer of art was real and truthful. He recognised mimesis to “produce[…] appearances and illusions that affect the perception and behavior of people” (Puetz, 2002, para 3). Mimesis, in this sense, took on a constructive meaning, i.e., the *making* of reality as compared to depicting (truthfully or not) the visible world and/or its symbolic significance. Thus, it can be argued that by drawing on the "truth-making" concepts of mimesis, trans-humanist visuality posits its imaginations as objective reality. Neiva (1999) summarised that images no longer "aspire to capture reality. They have become the normative pattern bestowing reality to events in the world out there" (p. 82). In other words, mimesis came to serve as a medium of *creating* the world, and of responding to this world in particular ways.

Halliwell (2002) affirmed that mimesis would problematise the "structure of ideas at whose center lies a sense of the vital, mutually enriching bonds between representational art and human experience at large" (p. vii). Mimesis, in this understanding, was much more essential and significant to meaning-making than art imitating reality, representing truth or expressing the inner authenticity of a work: mimesis aided the construction of the perceptual horizon of a society, a culture and a historic time, and it provided the very base of knowing this world and the individual's orientation within. In this sense, mimesis became *world-making* (Goodman, 1978; Halliwell, 2002) and normative of a society's experiencing of this world.

Halliwell (2002) distinguished between the *world-reflecting* and a *world-simulating* capacity in the world-making dimension of mimesis. World-reflecting imitation would mirror the outer world as it appeared to the perceptual horizon of the artist, and world-simulating representation would mirror the "internal organization and fictive properties of the mimetic object or act itself" (p. 23). World-reflecting mimesis represented the artist's or a culture's interpretation of reality as it was believed to exist independently of an artefact, and world-simulating mimesis produced the inner "fictional coherence or congruity" (p. 23) – Baumgarten's heterocosm – in a work. Halliwell (2002) saw these two capacities of mimesis as polar concerns along a continuum; he emphasised that most mimetic expressions located somewhere between these two extremes, between perceptually veristic imitation of nature, or natural realism, at the one side, and idealised inner reflection of a reality, or idealised realism, at the other side. Melberg (1995) summarised the tension of mimesis as the "meeting-place of two opposing but connected ways of thinking, acting and making: similarity and difference" (p. 1).

Further elaborating on the tension between literal copying of nature and the creative interpretation of reality, between sameness and difference, Michael Taussig (1993) argued that in the representational arts, imitator and imitated, copy and original, could not be reliably distinguished. Baudrillard's (1994) concept of the simulacrum (section 2.5.2 above) pinned the confluence of reality and imitation when he proposed representational arts to replicate a world that never existed, to simulate a reality that has no original. Neiva (1999) commented: "In contrast with the traditional mimetic premise that images have primarily something to do with either fidelity or truth, we are immersed in a world of images that could not care less for the loss of referents" (p. 82).

Kendell Walton's (1990) work on *Mimesis as Make-Believe* further problematised the relationship between (literal) imitation and (creative) imagination when he demonstrated the extent and complexity of fictional aspects in representational works of art. Walton (1990) recognised a *truth of fiction* that emerged from the creative-imaginative act of engaging with a work; fictional representations that arose from imagined worlds rather than from perceptual reality became "true in a game of make-believe" (p. 35). Truth in and of representational art, in Walton's sense, did not reference the actual lifeworld but both the artist's and the spectator's imaginary worlds as they converged on the fictional representation in a work. Truth in representational arts, according to Walton (1990), involved the audience's psychological participation in the make-believe world of a work. The realism of representational art, its characters, scenes and settings in the literary arts and objects, figures, spaces, colours and light in the visual arts, became props that produced a real and truthful fictional world in the mind of the spectator. Mimesis, i.e. the veracity of representing a real or as-if-real world in art, in Walton's account, queried the quality of a work of suspending disbelief in the spectator, of enticing the spectator into taking fiction for real. In contrast to the understanding of mimesis as the literal copying of an objective reality, Walton's (1990) model of make-believe reconceptualised mimesis as the imaginary power in a work of art to *pretend* its heterocosm as *acting as* objective reality; it posited subjective participation in a work as an actuality. A similar conceptualisation of mimesis came from Mitchell (1994) who proposed representation in art "as relationship, as process, as the relay mechanism in exchanges of power, value, and publicity" (p. 420). Like Walton (1990), Mitchell (1994) understood mimesis as a model of relationships and processes through which representations were produced, appreciated and exchanged (Vukcevich, 2002). This participatory theory of mimesis broadened the world/object-oriented perspective on veracity in representation to recognise reality in art as co-constructed between artist, work and spectator. With this view on representation, truth and reality in art, the passive mirroring of nature was broadened to include the active making of reality in the interactions between production, image and reception of a work.

2.6. Summary

The review of literature in this chapter described transhumanism as a self-centred philosophy and an elitist worldview resting on a firm belief in the powers of emerging technologies of subjectivity for enhancing the personal self, which itself is taken as a general improvement of the human condition. Underlying key premises of transhumanist philosophy, i.e., the unyielding faith in the autonomous forces of technology, the belief that all matter and processes can be reduced to information, and the trust that human evolution is a process that can be subjected to human control, were introduced. A renewed faith in human pre-eminence and centrality in the world produced the transhumanist agenda for proactively driving human progression, which for some transhumanists includes a call for artistic-creative development of transhumanist ideas. The transhumanist art movement, albeit programmatically asserted by Vita-More, Sandberg, Miah and others, seems to be a rather vague sentiment of a new larger-than-life aesthetics that seeks to argue for the inevitability of a technohuman future. As an art movement, trans-humanist art seems eclectic and unspecific – conceptually as well as aesthetically.

A section on the image as a scholarly consideration sought to introduce some of the vital concepts of understanding images as a visual, cultural and historic phenomenon. A very brief description of changes in the various roles assigned to images at different times in history was provided, and picture theory as a critical scholarship of the image was introduced. Leading aspects for the discussion of transhumanist visuality, such as simulation, a definition of visuality, and mimesis were outlined. Overall, the section on the image sought to focus the study on the problem of the visual itself and to present images as contested objects produced and consumed by the human visual mind. In particular, the introduction to picture theory posited the image as constructive of imagined realities and thus potentially able to pre-conceive human future according to the themes, concerns and attitudes of the "visual consensus" of a culture, society and time.

Chapter 3: **Methodology**

3.1. Introduction

This study takes an interpretive approach to analysing the latent and contextual meanings in transhumanist imagery. The leading perspective of the interpretation is qualitative, which is in accordance with the study's objective to inquire into the ways that futuristic images of the human condition envision, portray, and seek to assert a posthuman future. Correspondingly, questions of transhumanist visuality in this study were asked from the perspective of visual data, and therefore a tight interaction between images and interpretive contexts was sought at all times. In order to ground contextual interpretation in specific visual occurrences, and to avoid linking preconceived assumptions to data, a primary quantitative-qualitative analysis of manifest image content was undertaken, which aimed to affirm a "close reading" of image content during contextual interpretation.

Data analysis occurred in three interwoven phases: 1) a content analysis that counted, summarised and classified the manifest subject matter in visual data, 2) the iconographic description of image content in order to illuminate the latent meaning of the visual matter, and 3) iconological interpretation of images, both their content and their pictorial qualities, in the context of their cultural and historic relationships. A summary of manifest content analysis follows in chapter four and iconographic-iconological analyses and interpretations appear throughout chapters five to eight. This present chapter introduces the methodologies employed in this study and outlines the design of the research in order to introduce the interaction of chosen methods in the overall visual-interpretative approach of this study. The section on research design also presents a rationale for data selection and data scope.

3.2. Methodological framework

In a qualitative approach to analysing visual meaning, this study deployed critical iconology (Panofsky, 1962, 1970; Mitchell, 1986, 1994) for the description, explanation and contextualisation of the symbolical meaning in transhumanist visuality. *Symbolical values*, as Cassirer (1923, 1925, 1929) has defined the term, refers to the underlying aesthetic principles and conventions of creative works, and the cultural-historic narratives that are embedded in and expressed through form, motifs, and choice of subject matter, and through pictorial techniques, style and materials. Notwithstanding its focussed qualitative interests, i.e., the question of *how* transhumanist imagery describes the visual realities of a proposed techno-human future, the study also drew on a quantitative analysis of visual data. In order to inquire into the ways in which transhumanist visuality constructs a particular picture of future humanity that is embedded in specific cultural-philosophical assumptions required an initial "stocktaking" of content, subject matter, pictorial qualities, and the characteristics of the technical production of images with the purpose of noting communalities, exceptions and the overall formal tendencies of transhumanist visuality. In order to ascertain that subsequent interpretations remained within the ambit of the actual contents and meanings of image data, it was vital to first understand the "what" of data before dealing with the question of "how" the interactions between manifest subject matter and latent image content informed the visions of transhumanism.

The following sections describe the relevant methodologies and methods for the analysis of visual meaning in transhumanist imagery: the framework of interpretative iconology, Panofsky's (1962, 1970) three-tiered iconographic analysis, and an introduction to the tools and methods of content analysis for the descriptive summary of manifest image content – which all taken together formed the critical iconological approach of this research.

3.2.1. Critical Iconology

Iconology is the study of the icon, i.e., "images, pictures and likeness" (Mitchell, 1986, p. 1), in the context of the cultural-historic backgrounds that inform them. As a scholarly discipline, iconology primarily deals with the phenomenon of the image itself, asks what an image is and how it interacts with its own historicity: "what to say about images" and "what images say" (Mitchell, 1986, pp. 1-2). Iconology has developed from iconography, the formal description of pictures, which long served and still serves as a leading technique in art historic explication of visual meaning (Hatt & Klonk, 2006).

The foundational concepts of *critical iconology* are generally attributed to Aby Warburg (1866-1929), a renowned German art historian, whose work attempted to formulate a more inclusive approach to the practice of art history at the time (Warnke, Hoffman & Syamken, 1980; Forster, 1999; Hatt & Klonk, 2006). For example, Warburg included a broad range of cultural artefacts (e.g., posters, postal stamps, newspaper illustrations, product packaging and other visual cultural objects) that traditional were shunned from serious art historic consideration into iconographic interpretation and sought to study images in historic juxtapositions rather than by narrow formal description (Warnke *et al*., 1980). Warburg fore-grounded a critical awareness of historic processes for the interpretation of images; meaning in a work was to be understood in context to the historical time of its production, in relationship to other works by the same artist and by his contemporaries, and with respect to the genre to which it responded. For the first time in the art historic interpretation of images, Warburg appreciated the transitional nature of historical epochs and instead of taking them as a stable ground from which to describe individual works of art, he regarded cultural periods and genres as a lively "battleground of ideas and forces" (Forster, 1999, p. 6). Consequently, Warburg acknowledged the profound revolutionary and normative power of the visual in phases of historic change (*cf*. Witkin, 1990; Jamison, 1994; Sasaki, 2011; Yi, 2011). Works of art, in Warburg's critical iconological model, never stood isolated as individual creative expressions but they belonged to the dynamic, multi-layered, conflicting, and contradictory flow of events and conditions that make up cultural history (Panofsky, 1962; van Straten, 1994; Hatt & Klonk, 2006).

For Warburg and subsequently for Panofsky, the critical capacity of iconology mainly arose from the historicity of the iconological perspective, its inclusive meaning-making in relation to the larger cultural dynamics in which a work of art was situated. For this purpose, iconology does not emphasise the creative intentionality by the artist, but appreciates that both the significance and meaning of a work are "generally unknown to the artist himself and may even emphatically differ from what he consciously intended to express" (Panofsky, 1962, p. 8). Because the artist himself is part of the *symbolical values* of a time that latently guide him in the design of his work, he is not always aware of the full significance of the intrinsic meaning of his creations. It is the task of iconology to elicit the consciously or unintentionally implied meaning of visual form in close interactions between formal artistic motifs and the "study of the larger program (if any) to which a work belongs" (Adams, 1996, p. 37). Because iconology takes the specific pictoriality of an image as the locus of visual meaning, iconology is also distinct from visual studies approaches, which emphasise the sociocultural reception of images and the political economy of the visual that is understood to co-construct both particular visual meanings and the larger significance of the visual of a time (Heywood & Sandywell, 1999; Mirzoeff, 1999). In contrast to looking at images as explanations of a cultural dynamic and of social relations, iconology always derives visual meaning from *within* the image, and considers cultural-historical contexts as *trajectories* of visual sense-making reaching out *from* the image (G. Rose, 2007).

For Mitchell, who further developed the work started by Warburg and continued by Panofsky, the critical aspect of iconology mainly followed from its "self-theorizing" (Mitchell, 1994, p. 23) interest in the nature of the image itself, which points to the relationship between the human visual mind and the ways it conceptually constructs the life world. Mitchell (1994) stressed the reflexive capacity of iconological analysis, the mutually influential interactions between what an image means, what its historical significance is, and what an image is as its individual, distinct and particular form of thinking and knowing. According to Mitchell (1994), it was paramount to grasp the visual as distinctive from the verbal, and *pictoriality* as fundamentally different from textuality, and he saw fault in the grammar of traditional iconology, which he called a "fractured concept, a suturing of image and text" (p. 28). The fault by conventional iconology of "reading" images in the logic of regularised systems such as language, according to Mitchell (1994), did not as much lie with a natural dialectic – or even polarity – between image and text, as with the more profound historical division between the "speaking Self and seen Other" (p. 28). Mitchell (1994) complained that in the history of the logos, the logic of language over the visual, of linear unfolding of the narrative over spatial immediacy of meaning all-at-once, of analysis over synthesis, would have promoted the linear and fractured approach of lingual epistemology as scientific and objective, and would have demoted intuitive visual knowing to a secondary, subjective view onto the world. He affirmed that, "One thing a critical iconology would surely note is the resistance of the icon to the logos" (p. 28).

Mitchell (1994) considered the "icon in iconology [to be] like a repressed memory that keeps returning as an uncontrollable symptom" (p. 24). A critical science of the icon, in Mitchell's understanding, must never divorce itself from the visual as a symptom of the mind, but must aim at *problematising* the visual as operating across historic, theoretical, sensory, and psychological spaces while maintaining its own distinct ways of knowing. Mitchell's (1994) critical iconology sought to inquire into the metalogical (Banks, 2000) discourses of the image, whereby he affirmed that, "certain persistent images and likenesses insinuate themselves into that discourse, leading to totalizing 'world-pictures' and 'world-views'" (p. 24). Like Goodman (1978) before him, Mitchell's iconology recognised the "generative tension between sight and in-sight" (Davey, 1999, p. 3) and the visceral "world making" powers of images as a visual epistemology that reaches beyond the argumentative structures of textual discourse. In other words, critical iconology does not merely investigate the icon as a subject matter of disciplined scholarly investigation but, importantly, it recognises pictures as essential systems of the human mind and of knowing.

Following Panofsky (1962, 1970), Boehm (1978) and Mitchell (1994), iconology is interpretative, i.e., explanatory of the artistic motifs of a work in contextual relationships with their cultural-historic meanings. Interpretation is "needed in understanding complex, multi-layered, extended discourses offering the possibility of more than one reading" (S. Davies, 2006, p. 111), and it "exists because these symbolic texts are ambiguous" (Romanyshyn, 2007, p. 219). Interpretation is an integrative approach to explaining a work of art, and to connect image content with meaning not immediately evident. S. Davies (2006) described the interpretation of a work of art as the "seeking out [of] (further) meaning" (p. 111) beyond that what is apparent. In the process of interpretation, a creative work is considered in its various contexts, e.g., the situation of its use, the place of its appearance, its creator and his intentions, its genre, the modes of its production, its style and techniques, its placement in the history of other creative works etc. Interpretation aims at *understanding* a work rather than merely describing it, and it acknowledges such understanding to be relative to the purpose of interpretation, the elements of interpretation, and the foreknowledge and experience of the interpreter (Gadamer, 1960, 1987). This does not mean that interpretation is arbitrary or purely subjective but that “certain truths can only be experienced subjectively but that fact does not render them subjective” (Davey, 1999, p. 3).

As a methodology of explaining complex meaning in creative works, interpretation seeks to formalise individual yet insightful reading of cultural artefacts (*cf.* Schleiermacher, 1959, 1977; Dilthey, 1996). In contrast to an arbitrary subjective reading of a work of art, disciplined interpretation purposefully builds on the foreknowledge that a researcher brings to the analysis of a work and takes this foreknowledge as the point of departure toward a deep and involved interchange between the interpreter, the work, and their mutual historicised embedding (Gadamer, 1975). The interpreter’s foreknowledge plays a vital role in interpretative approaches to meaning in art, as she needs to hold sufficient contextual information to describe and explain an image, and possess what Rogoff (1998) called “the good eye” – a trained sense of aptly reading images and suitably assessing their qualities and meanings. However, “the good eye” is also contextual to the conditions or the *symbolical values* of the time in which it is exercised. Bryson (1991) made clear that the “ability to recognise an image […] is […] an ability which presupposes competence within the social, that is socially constructed, codes of recognition” (p. 65). This suggests that with the contextual foreknowledge of the interpreter also needs to come a reflective awareness of her own stance within the interpretative act as one of the contingent trajectories of meaning emanating from a creative work. In simple words, the interpretation of art is only as good as the self-critical interpretative skill of the interpreter.

Interpretative explanation of creative works usually does not aim at establishing a singular valid reading of an artefact or at devising an unfalsifiable account of the work. Instead, interpretation seeks to provide plausible explanation, and often allows for multiple explications that may or may not be consistent with each other (Krausz, 1993, 2002; S. Davies, 2006). Hence, the purpose of deploying an interpretative framework in the analysis of transhumanist imagery is to seek possible and probable meanings in the visual expressions of transhumanism as they emerge out of images themselves. It is not a goal of this study to interpret these visuals from the perspective of transhumanist ideology, but to elicit whether and in what ways these images underline the presumptions, views, agendas or sentiments of transhumanism.

3.2.2. Iconography

The formal study of the icon as it is central to iconology developed from the art historic description of pictorial works or iconography, i.e., the "writing" of the icon (Panofsky, 1962; Adams, 1996). Panofsky (1962) described iconography as "that branch of the history of art which concerns itself with the subject matter or meaning of works of art, as opposed to their form" (p. 3). *Form* of a work of art, in Panofsky's distinction, refers to the optical appearance of a pictorial configuration, which is primarily an aesthetic-perceptual phenomenon. In contrast, the *aesthetic motifs* of an image translate perceptual form into recognisable objects and events. Panofsky (1962) called this first level of visual sense-making *factual meaning*. When factual meaning of visual form enunciates a psychological response in the beholder, image content contains "psychological nuances" (Panofsky, 1962, p. 3) that transform factual meaning into *expressional meaning*. Together, factual meaning and expressional meaning, according to Panofsky (1962, 1970), form the class of *primary* or *natural meanings* of visual form that consider the culturally recognisable artistic motifs of a work and not (as yet) their broader implications.

Following on from the primary level of meaning-making in art, i.e., semantic significance beyond formal description of what is visible in a picture, emerges the level of convention and precedent, the *secondary* or *conventional meaning* in visual works that "is intelligible instead of being sensible" (Panofsky, 1962, p. 4). At the level of conventional meaning, shapes and colours transform into purposeful objects, space, perspective and light, the conceptual *themes* and *concepts* of a work. Panofsky (1962) referred to the conventional motifs in art as *subject matter*.

A third level of meaning-making, devised Panofsky (1962, 1970), occurs through the contextualisation of subject matter to its larger narratives, to the *symbolical values* of a time. Visual bodies of work, in Panofsky's understanding, were "symbolic expressions of the cultures within which they were created" (Hatt & Klonk, 2006, p. 96). Panofsky (1962) called this level the *intrinsic meaning* of a work, or the image's actual *content*. Iconographic *content*, in this sense, is always already imbibed with aesthetic conventions that point away from the singular work of art towards its cultural-historical contexts and references (table 3.1).

Pictoriality	**Description**	**Visual Meaning**
form	lines, shapes and colour	pre-iconographic meaning
aesthetic motifs	recognisable objects: factual and expressional	primary or natural meaning
subject matter	themes and concepts	secondary or conventional meaning
content	symbolical values	intrinsic meaning

Table 3.1: Levels of meaning in iconographic description of visual works. Source: G. Frommherz, based on Panofsky (1962).

Panofsky's interest in the analysis of images sought to enunciate the complex interrelations between cultural phenomena as they were expressed in works of art and the essential tendencies of the human visual mind. Panofsky (1991) defined these essential tendencies in five polar sets of *a priori* categories: *plenitude* and *form*, *time* and *space*, *optical* and *haptic values*, *depth* and *surface*, *merging forms* and *divisions*. These *a priori* iconographies, affirmed Panofsky (1991), describe an image's formal make-up that inherently points towards visual meaning. For Panofsky, the human visual mind was both universal and specific, which meant that every work of art was an expression of a particular moment in time formulised in precise artistic form, style and specific conventions, but it was also general in the ways in which cultural experiences would flow through visual expressions. Because of the double capacity of the human visual mind, believed Panofsky, "we can understand art objects as historically and culturally specific, and yet interpret them from another historical vantage point" (Hatt & Klonk, 2006, p. 96). The universalisation of visual expression that queried the essential relationship between the mind and its conceptualisation of the world was an important step towards a critical interpretation of art that moved away from a purely descriptive art history. Removing the understanding of the visual from both psychological subjectivism and programmatic aestheticisation, Panofsy's iconography allowed the comprehensive, reflexive and critical interpretation of art to be untangled from private creative intentionality and public audience reception. Moving beyond "the consciously articulated meaning of a work to its deeper significance" (Hatt & Klonk, 2006, p. 99), Panofsky's (1962) "*essential tendencies of the human mind* [...] expressed by specific *themes* and *concepts*" (p. 15, emphasis in original) provided an iconographical framework for a culturally-historically contextualised interpretation of visual meaning.

Despite its significance as a visual methodology in art history, iconography did not dictate a set of practical tools or techniques with which to enunciate and to interpret visual meaning. Instead, as the base for subsequent intrinsic interpretation of artefacts, art historic application of iconography often relied on the informal yet systematic description of line, colour and composition in artefacts or what Panofsky (1970) called a *pre-iconographical description* or *pseudo-formal analysis* of aesthetic motifs. Panofsky's own iconographic work depended on a high level of familiarity with the historic contexts of the work of art under scrutiny as well as on his vast experience in analysing visual works. Lacking a formal method of pre-iconological analysis of visual content, this study draws on the techniques of content analysis for summarising, classifying and describing the primary subject matter in transhumanist imagery.

3.2.3. Content analysis

Content analysis is a practical approach to analysing data viewed as representations "of texts, images, and expressions that are created to be seen, read, interpreted, and acted on for their meanings" (Krippendorff, 2004, p. xiii). Content analysis can be used for the "quantifiable analysis of visual content as research method" (Bell, 2001, p. 10). It is often seen as a predominantly quantitative method, which aims to count frequencies and classify particular content (Lasswell, 1948; Neuendorf, 2002). However, content analysis may also include qualitative aspects (Weber, 1990; Krippendorff, 2004), a capacity that is important for this research. While content analysis is usually concerned with identifying *what* content there is, i.e., occurrences and classifications, content analysis may also qualify content, i.e., ask *how* these frequencies occur and *why* particular content choices are made and not others. Krippendorff (2004) called this the *symbolic qualities* of content under analysis. In order words, content analysis can be used as a tool of stocktaking and categorising content, but it may also be used to manage representational content in order to explicate themes, which then point to the cultural contexts of which they are a part (Krippendorff, 2004).

A noted strength of content analysis is its capacity to work systematically and, in this way, avoid or mitigate preconceived ideas about data (Lutz & Collins, 1993). Krippendorff (2004) noted that content analysis seeks to make "*replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use*" (p. 18; emphasis in original). This implies that coding of images, i.e., the process of identifying and marking assigned categories in the data, should be reliable across a large number of images and largely consistent if repeated by a different coder or on a different occasion (Bell, 2001). Notwithstanding the call for dependable coding of data, content analysis can hardly be considered an unfailing tool for truly objective analysis of visual data (Bernhard & Ryan, 1998), for the selection of coding categories, the description of associated values, and the degree of visual literacy will ultimately depend on the respective researcher and/or coder. Krippendorff (2004) was careful to point out that the common distinction between quantitative and qualitative approaches to content analysis "is a mistaken dichotomy" between "the explicitness and objectivity of scientific data processing on the one side and the appropriateness of the procedures used relative to a chosen context on the other" (p. 87). In the context of this research, content analysis is used as a first tool for systematically identifying and categorising a large set of primary visual content rather than as an inclusive tool for the objective analysis of visual meaning in any one image.

Working with large data sets or "big data" is one of the popular strengths of content analysis. Big data not only refers to large data sets but also to data that is complex in one or more aspects concerning data variety, regularity, fidelity, quality, and the velocity of data generation (Laney, 2001; Magoulas & Lorica, 2009). Because content analysis allows the organising and classifying of data in various ways and from multiple perspectives, trends, patterns and differences across big data scopes can be handled more effectively by content analysis than by many other non-statistical methods (S. Lewis, 2012). The reasonably large data set of six hundred images in this study that each had to be coded for a number of criteria that varied widely in type, characteristic and application could be dealt with well by the systematic yet flexible coding structure of content analysis.

Content analysis operates by deciding on suitable criteria and categories to be analysed in order to shed light on the concerns of the research (Bell, 2001; G. Rose, 2007). Bell (2001) described a category as a *variable-value* pair. A variable defines a class of analysis while a value attaches a specific quantity or a qualification to each variable. For example, as this research asked the question of the specific forms of technological embodiment in images, the variable "body genus" was considered along with possible values "human", "chimera", "cyborg", "robot" or "android". The specification of coding categories is a most vital choice for analysing content (Slater, 1998) as the design of categories determines qualifiable themes that provide the base for all further contextual analysis and data interpretation. Therefore, coding categories strictly needed to be embedded in and arise from data, both from individual images and from the total dataset, and always had to link back to the overall aims of the study (*cf*. Lutz & Collins, 1993; Slater, 1998; G. Rose, 2007). Care had to be taken that coding was wholly informed – but also bounded – by the research questions.

G. Rose (2007, p. 65) clarified that coding categories need to be *exhaustive*, *exclusive* and *enlightening*. *Exhaustive* refers to a comprehensiveness of aspects to be included in content analysis – comprehensive with respect of the objectives of analysis. *Exclusive* seeks to ascertain that no category overlaps with another category and thus creates confusion about what exactly was coded for. In this present study, the premise of exclusiveness of codes meant a clear delineating of the variables "body genus" and "body substrate", where the first category referred to a formal classification of a given type of embodiment (human/chimera/cyborg/robot/android) while the second category addressed the material make-up of the body (flesh/metal/plastic/ethereal/non-material). The distinction between (and combination of) the two categories was important to allow insightful coding of, for example, an "android" body that nevertheless looked entirely organic, as if of flesh and blood. Exclusiveness of coding categories aimed to prevent unintended presumptions, in the given example the (false) assumption that android embodiment, because it is synthetic, would automatically look artificial – or, conversely, that human-looking bodies would necessarily be organic. Further, exclusiveness of coding categories aimed at ascertaining a detailed account of the *actually present* content in an image without merely seeking to confirm first impressions, i.e., the avoidance of searching through data “in order to only confirm what [the researcher thinks to] already know about the data” (G. Rose, 2007, p. 61). Last, *enlightening* addresses the usefulness of categories with respect to the concrete concerns of the research. For example, when analysing cyborg imagery, it would not have been very useful to code a category “body representation” that identified whether a body was represented as cyborg or human without fine-grading a range between fully human and fully mechanistic *in conjunction* with also coding for organic or synthetic appearance. It is the combination of clearly delineated categories and their detailed values that allows significant insight into the pictorial representation of data. The contextualisation of coding categories to each other already implies a qualitative concern in content analysis that looks beyond mere quantitative stocktaking of content into the mutual relationships between content entities *within* the individual unit of analysis (i.e., a single image) and *across* the data set (groups of related images).

Content analysis, and especially the quantitative variant thereof, has been criticised (e.g., Ball & Smith, 1992; Slater, 1998) as merely looking at the site of the image and very little at the sites of production and audience. In response to such critique, G. Rose (2007) reasoned that the capacity of content analysis to deal with the cultural significance of images “depends on how successfully the links between the content of the images […] and their broader cultural contexts are made” (p. 61). Krippendorff (2004) suggested that thoughtful qualitative content analysis would invite “multiple interpretations by considering diverse voices […], alternative perspectives […], or varied uses” (p. 88) of the data. G. Rose (2007) argued that a broader contextualisation of meaning in visual data would be already implicit in the choice of data and coding categories, but could be further expounded by *qualifying* statistical data with respect to their technological, compositional and social modalities. Based on the presupposition that images are never neutral in meaning and in their historic-cultural relationships (Foster, 1988; Ihde, 1998; Mitchell, 1986; Midalia, 1999; Wurzer, 2002), emerging patterns from content analysis already provided purposeful insights into the contextual meaning of visual data. However, the integration of the three approaches – content analysis, iconography and iconology – aimed to deliver a robust strategy for the deep interpretation of transhumanist imagery.

3.3. Research design

The design of the study took advantage of tools and strategies from all of the outlined methodologies above. Panofsky's iconography-iconology provided the main analytical framework as it encouraged the examination of images in multiple discrete stages that each built on the insights of previous analytical steps. While the iconographical framework offered a general approach to image interpretation, it did however neither demand nor suggest specific methods for data analysis. Therefore, analytical tools from practical methodologies were employed, i.e., quantitative analysis of the manifest content for the pre-iconographic description of data, descriptive qualitative content analysis of latent image content for the iconographic analysis of images, and critical iconology for the broader contextual interpretation of data (table 3.2).

Stage	Object of interpretation	Act of interpretation	Equipment for interpretation	Corrective principle of interpretation	Method of analysis	Type of analysis
1	Artistic motifs	Manifest content analysis	Familiarity with form, objects and events	History of objects in the world	**Content Analysis**	statistical quantitative
	Primary or natural subject matter a) factual b) expressional	Latent content analysis; pre-iconographic description	Familiarity with objects and events	History of style		descriptive summative qualitative
2	Secondary or conventional subject matter	Iconographical analysis	Familiarity with specific themes and concepts	History of types	**Iconography**	explanatory analysis
3	Intrinsic meaning or content	Iconological interpretation	Familiarity with the essential tendencies of the human mind	History of cultural symptoms or 'symbols'	**Iconology**	contextual synthesis
	Intrinsic meaning of contexts "intertextuality"				**Critical Iconology**	intertextual synthesis

Table 3.2: Stages of iconological analysis. Source: G. Frommherz, adapted from Panofsky (1970).

A combination of statistical and descriptive content analysis was employed in order to address both the formal and the explanatory analysis of visual content. As content analysis has the capacity for a statistical-quantitative reporting of data and a descriptive-summative explication of the latent content in images, both approaches were used, often in an integrated way. Counting of formal aspects in data and their meaningful organisation and classification mostly occurred in one integrated step but could be separated where it appeared purposeful. As Krippendorff (2004) pointed out, "*texts have meanings relative to particular contexts, discourse and purposes*" (p. 24, emphasis in original), which means that the meaning of artistic motifs in visual data will change according to the contexts in which these motifs are placed.

The analysis of the *manifest* (Berelson, 1952, p. 18) subject matter in the data recorded and classified the content immediately *inherent* in images (Krippendorff, 2004) – a process that was equivalent to Panofsky's (1970) primary or natural image analysis. In a second analytical stage, *latent* content analysis broadened this perspective by including content that "*emerge[d] in the process of a researcher analysing a text* relative to a particular context" (Krippendorff, 2004, p. 19; emphasis in original) – similar to Panofsky's (1970) analysis of secondary or conventional subject matter. For the third stage of image interpretation, i.e., the analysis of intrinsic meaning in transhumanist imagery, critical iconology provided the guidelines for the contextual interpretation of visual meaning. Mitchell (1986, 1994) recognised visual meaning as arising from the processes of material mediation of historically embedded ideas, and he encouraged the broad consideration of contexts relating to the technological and ideological sites of production, the sites of image composition, expression and agency as they inform an image, and the social, cultural and political traditions of audience reception. However, with iconology residing in the artefact-focused tradition of art history, the site of the image remained the central interest in this study. Interpretation of intrinsic meaning in any one image occurred in multiple iterations that moved from the manifest specific to the pictoriality of conventions and then to the contextuality of historically embedded meaning.

Wood (2007) suggested four stages of analytical-interpretative enunciation of meaning in visual data: 1) an initial sighting of data from the perspective of *pre-understanding* (foreknowledge) that assists in locating the primary subject matter in artefacts, 2) the development of an *interpreted visual reduction* of all available aesthetic motifs to relevant visual events (iconographic analysis), 3) the *imaginative variation* of identified subject matter that places visual events into context to other works (inter-textual interpretation), and 4) the *synthesis* of intrinsic meaning with its cultural-historic significance (contextualisation). These stages do not merely move sequentially forward but also recursively re-evaluate previous insights. Consequently, it was vital during the interpretative process of individual images and groups of images to always link the broadening interpretation of meaning to the specific aesthetic motifs of an image in order to avoid emerging trends and patterns to form pre-emptive opinions about data instead of evidencing inherent concepts and ideas. This reflexive process of visual interpretation aligns with the processes of the hermeneutic circle (Gadamer, 1975) that seeks to understand meaning from the perspective of the specific to the general and from the general back to the specific (see appendix A2). In Gadamer's (1975) words, "the whole can only be understood through the specific, and the specific only though the whole" (p. 178).

3.3.1. Data

This study involves the analysis of popular images from the thematic realm of what is proposed as *transhumanist visuality*. Popular images refer to visuals that were produced and disseminated as part of contemporary popular visual culture, and which were publically displayed and made available. The majority of images in this data collection were circulated via the Internet, originated from a broad range of diverse websites (i.e., personal sites, research data, governmental information, individual blogs, commercial art sites, public contests etc.), and were part of global cultural content uploaded from anywhere in the networked world. For the purpose of this study, the authors of individual images were mostly irrelevant; what was important though was their presence in the public domain, i.e., their easy availability to anyone who wished to see or retrieve these visuals. Broad visibility and easy access to transhumanist imagery was relevant to the aspect of public awareness about transhumanism, and a willing or unwilling participation in the consumption and circulation of these images. Because this study presupposes that the relative success of transhumanism in notable parts resulted from its broad visuality as a popular culture phenomenon, a high level of visibility and easy access to the public pool of transhumanist content seemed significant.

The Internet as the main site for data collection appeared suitable for the purpose of this study as it commonly serves as a main domain for the public and popular exchange of ideas, information, opinion and various data, and as such produces and routes the public consciousness of a global culture (I. Ward, 1997; Cavanagh, 2007; Witschge, 2008). Further, transhumanism as a set of cultural ideas is mainly a networked phenomenon, for most interaction and communication occurs through Internet sites and other networking services (Hughes, 2002a; Gelles, 2009). Despite the acknowledgement that access to the Internet by no means presents an inclusive global affordance (Nakamura, 2002; Miniwatts, 2014), the study argues that sourcing data from the Internet is nevertheless representative of those nations, cultures and subcultures that mostly participate in futuristic imaging and transhumanist discourses. Figure 3.3 illustrates the occurrences of the search keyword "transhumanism" in its geographic distribution at present.

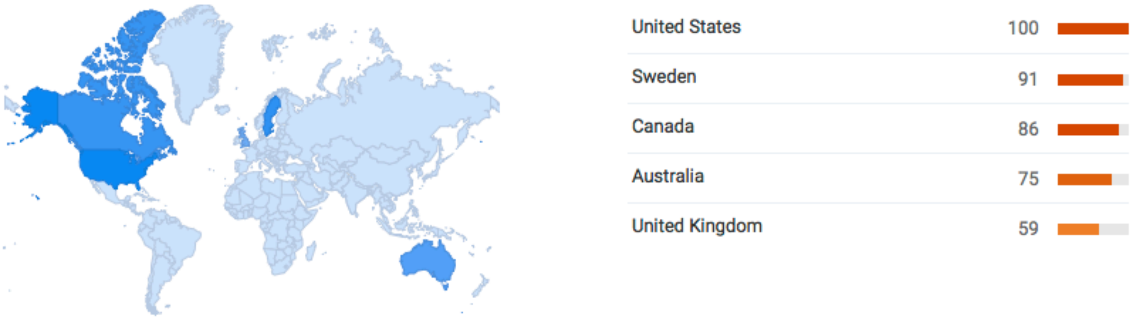

Figure 3.3: Geographic distribution of keyword search "transhumanism" on the Internet. Source: Google Trends (July 2015).

This study focuses solely on visual data in order to make a claim about ideological communication by transhumanism. Non-visual data (e.g., statements and texts by or about transhumanists, numerical statistics etc.) are only used in a supporting capacity, not as primary data under analysis. In the terminology of art history, transhumanist visuals serve as the "monuments" or "primary material" of analysis while textual excerpts from transhumanist discourses contribute supporting "documents" or "secondary material" to the study (Panofsky, 1970, p. 10). As this study builds on the hypothesis that transhumanism predominantly relies on the visual communication of its agendas, exploration of transhumanist themes and their perception in public opinion was solely based on images.

Because of the criterion of public participation in the phenomenon of transhumanism, the data collection largely excluded visual material from organised commercial productions such as movies or TV series. Further, the data did not deliberately include visualisations of science fiction productions, whether literary or as moving images. Established visual genres that might exhibit iconographic similarities with cyborg images, i.e., bioart, superhero comics, manga, fantasy art, or gothic fashion trends were also not explicitly included in this research. Instead, the study wanted to maintain a clear focus on a general popular visibility of transhumanist themes that were not claimed by an already defined genre. For similar reasons, "art proper" appears in a very limited scope and only where relevant to support a particular point of discussion. As such products underlie elaborate professional production pipelines and commercial interests, they were not considered a vital part of general public authorship. Notwithstanding their general exclusion from the data analysis, commercial visual data was sometimes referred to when contextualising trajectories arising from data interpretation.

3.3.2. Data sampling

Data samples for content analysis need to be sufficiently comprehensive wherever thematic patterns and/or general trends in data are sought. Neuendorf (2002) noted that sampling units ought to be "large enough to well represent the phenomenon under investigation" (p. 73). This study drew on a total data set of about 1,000 images of which 600 were systematically coded as part of the initial content analysis of visual data. In addition to the core data set of six hundred images, further visuals were consulted in situations where a multiplicity of visual themes was discussed (e.g., multiple iterations in viral imagery or repetition of iconic images such as technological adaptations on Da Vinci's *Vitruvian Man* or Michelangelo's *Creation of Adam*), where historic antecedents of images were required as visual references (e.g., art historic references to Venus-like cyborgs), and where individual images represented larger image sets (e.g., image series that belonged to the same body of work such as Joachim Luedke's *kreator* series or Hajme Sorayama's *gynoids*).

The fairly large data sample appeared necessary in order to capture sufficient scope and variety in the data. As transhumanist visuality with respect to posthuman subjectivity is a broad phenomenon across a variety of applications (e.g., Photoshop contests, celebrity cyborg imaging, utopian or dystopian future scenarios, illustrations on commercial media such as music albums and book jackets, futuristic stock images, graphic art etc.), a sufficiently large data sample needed to be drawn and analysed in order to yield informative coding results that described transhumanism as a broader visuality beyond the occurrence of individual thematic or stylistic image clusters. Although this is a qualitative study that did not intend to generalise the findings, a broad data sample was still required in order to draw credible insights into emerging patterns in visual themes and iconographic realisation of images.

Selection criteria with respect to the contents of these images involved the immediate relevance of their subject matter to the transhumanist themes of technology-aided body modification and/or transformation, human enhancement, future visions of alternative bodies, and imaginings of longevity or immortality. Thus, images of augmentative prosthetics, man-machine designs, man-animal and animal-machine designs, visualisations of non-organic bodies, art works about future bodies, imaginings of the posthuman, corporeal interfaces, biotechnological visualisations, experimental medical imagery, and images of applied cyborgism (e.g., plastic surgery, wearable technology, augmented reality) were all included in the data. Further, images depicting futuristic themes as they relate to transhumanist philosophy were considered: visualisations of the man-made world in the 3rd millennium, man in outer space, and imaginations of alternative life forms.

Data collection took place between 2008 and 2014, i.e., over the span of seven years. During this time period, perspectives on selection criteria were incrementally refined with the effect that collected data was reorganised at several instances. For example, initial data collection included extensive visuals of prostheses, which in the final data set were limited to a very few high-tech samples that were meant to exemplify prosthetics as a potential discipline of augmentative medicine, without however emphasising the theme of prosthetics in the overall data set. In another example, biomedical visualisation, not considered at first, were subsequently included into data collection in those instances where the images aligned with transhumanist themes and were publically circulated. Images of DNA structures and the recent connectome project are such cases. In yet another example of adjusting the data collection, few selected samples of Visionary Art were lately added as a reaction to a new body of images emerging in the diaspora of a cosmist or transcendental transhumanism. It appeared that some aspects of Visionary Art were influenced by transhumanist philosophy and likewise influenced parts of transhumanist visuality. Along with the new phenomenon of

Visionary Art, images of what was has been called “technological surrealism” in this study found their way into the data collection, as the emergence of Visionary Art allowed for typological distinction between surreal transhumanist themes and general fantasy futurism. In other instances, curated collections of body and bio art were reduced to few examples in order to refocus the study on popular imagery over “art proper”. Notwithstanding an attempt to locate transhumanist visuality in popular culture, the boundary between popular visual culture and “high art” is blurred at best (Gans, 1999) and unsustainable in those cases where new artistic genres seem to emerge from the general pool of visual culture expressions.

When starting the data collection in 2008, the number of relevant images circulating on the Internet was much more limited than it is today. From an initial survey of image data in 2008 it seemed that several hundred images relating to transhumanist themes were readily available in the public domain. In more recent years, i.e., from about 2011/2012 onward, production of cyborg imagery seemed to have exploded with now many thousands of visuals representing transhumanist themes. In order to account for this multiplication in image production and/or dissemination, data sampling had to be adjusted several times with parts of the data set constantly being changed and updated. As a consequence, the content analysis of images was revisited again and again in order to include new trends and to update those themes that already had become apparent. In this way, content analysis of transhumanist imagery remained a fluid process until the conclusion of the study in mid 2015.

Data collection was based on a stratified-convenience sampling approach that combines “subgroups that already exist in the dataset” (G. Rose, 2007, p. 63) with expedient data selection based on the visual literacy of the researcher as a trained visual artist. This way, thematic trajectories inherent in the data (e.g., pre-existing embodiment types such as enhanced bodies, cyborgs, and robots) were integrated with the foreknowledge of the researcher (e.g., of how artistic motifs constitute relevant embodiment types). Whereas early data sampling relied on semantic browsing of transhumanist and other future-oriented websites, recent sampling of images utilised keyword searches such as “transhumanism”, “posthuman” and “cyborg”, as image labelling along these indices is a rather recent occurrence.

Searching by relevant keywords, especially in the case of "transhumanism" also served as a justification of the association of individual images with transhumanist ideas, because these images had been explicitly tagged as "belonging" to the visual domain of transhumanism. In addition to keyword searches, relevant websites that presented related content served as sources of data collection. These included transhumanism's own sites, institutional sites on research into futuristic topics, blogs on transhumanist themes, and image databases that played with posthuman designs. While selecting images to be included into the data set, pre-analytical patterns of emerging themes helped to guide sampling. For example, when it became apparent that one of the prevailing visual themes in cyborg imagery included boldly mechanistic bodies, a sufficiently comprehensive collection of this theme was undertaken in order to recognise potential patterns within and possible variation of this theme. By constantly updating and adjusting data by following incipient themes and reorganising emerging patterns, the data collection moved from a focus on individual images to the organisation of larger patterns, and from these patterns again back to individual samples. This means that the data collection was informed by the researcher's developing appreciation of probable themes in the data, which themselves emerged from the data collection process.

Not all themes arising from data analysis were further discussed in the interpretation chapters five to eight. This was mainly for reasons of scope, but also of focus. As over the past several years transhumanist visuality has grown much broader than possibly could be managed in a single body of work, a strict limitation of those themes that favoured transhumanist ideas, knowingly or not, were considered for further interpretation. Nevertheless, prominent themes that emerged from content analysis, such as imagery that was critical of transhumanist themes or that expressed fear and/or confusion about the impact of transformative technologies were noted in the summary of findings in chapter four. However, as these concerns were not central to answering the research questions of this study, these themes were not further followed within the scope of this study. Still, in spite of a focus on imagery that endorsed transhumanist thought, cyborg images were often ambiguous in their stance and indicated both a fascination with and critique of human enhancement.

3.3.3. Data organisation and coding

The unit of analysis in this study is the manifestation of an image in visual form, the picture as a whole and intelligible representation of meaning (Neuendorf, 2002; Krippendorff, 2004; G. Rose, 2007). Some researchers (*cf.* Babbie, 2009) distinguish between the units of analysis at the point of sampling (i.e., the pool and scope from which data will be sampled), at the point of data collection (i.e., the actual data samples collected from the pool of available sources), and the analytical units as they are considered during data processing. In this study, these three aspects of data unitisation generally overlapped and converged on the image as a bounded visual object at the points of sampling, collection and analysis. Nevertheless, the image as the core unit of analysis at the point of content analysis was often further refined and considered in its discrete formal components such as line, shape, space, light, colour etc. A "zooming in" to the pictorial make-up of an image allowed for noting relevant meaning in form, composition, and materiality of an image in accordance with Panofsky's (1991) *a priori* categories of pictorial expression (see above). These categories were essential for tracing the pictorial qualities of an image with respect to their communicative significance. The prominence of bounded *form* and *divisions*, for example, helped to identify a prevailing figurative approach to conceptualising posthuman embodiment, and the leading occurrence of sleek *surfaces* (versus *depth*) aided the recognition of an emphasis on outer appearance in the transhumanist subject. Although the unit of analysis was each individual pictorial representation of visual content as a coherent whole, the image nevertheless was considered in its multiple dimensions as manifest, "physical" content, as aesthetic-narrative conventions, and as cultural-historic trajectories in accordance with the interpretative approach of this study.

As content analysis of the data followed two leading interests, 1) exploration of the themes within what is proposed as *transhumanist visuality* and 2) examination of the iconographic make-up of images within the transhumanist diaspora, coding categories needed to elicit qualifying criteria from both concerns, aesthetic as well as thematic. These two broad classifications of coding categories were not isolated and independent of each other but interacted in various ways. For example, coding for mimetic expressions such as figurative representation of the body or, in contrast, abstract resolution of the embodiment in informational patterns, evidenced both formal-pictorial and semantic-thematic concerns: the figurative body (e.g., a mechanic cyborg) associated the respective image with a tangible mechanical embodiment of the posthuman, whereas the informational body (e.g., a graphical image of binary code) classified it as a virtual entity. This means that the themes of physical embodiment versus virtual disembodiment in the existing discourses of transhumanism tended to be iconographically codified as figurative versus graphical mimesis. In other words, the mimetic resolution of an image was already indicative of its intrinsic meaning, and therefore the content analysis of the formal qualities of an image needed to be undertaking *prior* to and independent from the subsequent semantic meaning. This approach conformed to Panofsky and Lavin's (1995) argument for a direct relationship between the formal style and content of an image, whereby visual meaning would change along with stylistic variations. Hence the formal realisation of an image, i.e., composition, style and medium, according to Panofsky (1970, 1991), was already an expression of some of its latent meaning.

Because of their interwoven meaning-making capacity, i.e., meaning arising from both the formal pictorial arrangement of an image and from the associated conventional meaning of these forms, coding categories had to be chosen in a way that allowed for a detection of the various interactions between aesthetic form and symbolic content. This was best done by including coding categories that operated both on the formal as well as on the symbolic level of meaning. As an example, coding for the material type of embodiment considered mechanical patterns, anatomical bodies and informational conceptualisation of embodiment while at the same time the subject matter was also coded as figurative mimesis and/or as graphical resolution of the image. This means, that the same visual phenomenon in an image had to be approached through various types of codes in order to account for the complexity – and often ambiguity – of their various meanings.

Values associated with each category were derived from pre-screening image data for significant characteristics, comparing these with further data, and then gradually developing coding values as they were relevant to concrete data – and not to any preconceived themes suggested by transhumanist discourse. This was largely done by considering data independent of the overall aims of the study in order to avoid pre-emptive bias in coding. This means that values in any one coding category aimed to capture all descriptive characteristics from within the logic of a respective category, to emerge *from* coding and to avoid uncritical adaptation of coding values that seemed "logical" to transhumanist philosophy. To use an earlier example, values for the category of embodiment type derived the values human/robot/cyborg/android etc. from the apparent concepts of techno-human embodiment in transhumanism but these values needed to be refined to mechanical cyborg, informational cyborg, bionic robot, metallic robot, biocybernetic embodiment etc., because the "clean" definitions of conceptual embodiment types as discussed in transhumanist and related literature hardly existed in these forms in transhumanist imagery. If coding values would have oriented themselves on pre-existing concepts from relevant discourses, much of the coding of manifest content in transhumanist imagery would have remained superficial and several of the findings of this study would have been foiled.

The number of coding values per any one category solely depended on the requirements of a category with respect to the actual data and varied from case to case. Some categories deployed only three criteria while others measured up to fifteen coding aspects. Across the 28 coding categories listed in table 4.1 (pp. 73-74), a total of 224 individual values per image were analysed. When applied to the 600 images in the data collection, 134,400 coding instances were recorded[53]. Coding results were recorded in Excel sheets and computed as both natural numbers and percentages. Percentages were calculated at three hierarchical levels: absolute percentages relating to the total data set and used mainly for cross-comparisons, relative percentages referring to the number of occurrences in any one coding category, and relative percentages with respect to the number of occurrences in any one sub-category of coding. In this way, occurrences could easily be compared with each other with respect to their own classes and in the context of the overall data. The three-tiered approach helped to avoid distortions when placing various iconographic data into context with each other.

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[53] This number is an arithmetic value that also includes absences of particular codes, as several coding categories could not account for in all 600 images (e.g., the type of standing poses could only be counted in images with a standing subject). Notwithstanding variable coding scopes per category, all 600 images needed to be screened for the presence of particular codes, even if there was no discernable occurrence of this code. However, the codes in table 4.1 are not inclusive of many sub-coding instances and comparative codes that appear in the data interpretation chapters. Hence, the total number of coding results is markedly higher than the calculated count of 134,400 occurrences that is given here.

The screening of visual data and assignment of codes to images was all done manually as no automated tool or software seemed currently available that could deal with large amounts of visual data, qualitative codes and triangulation between various coding categories. Images were stored in a visual database and coding categories and values were accounted for on Excel sheets. Each coding cycle was repeated twice and again a third time if and where a discrepancy in the initial verification of values occurred. Although manual coding appeared a time consuming and tedious task, which it certainly was, it also facilitated a prolonged and deep involvement with image data, for each image was sighted, assessed and recalled many times. Profound familiarity with the data was vital for the contextual interpretation of images that required looking beyond the first, obvious, reading of any one image and sought to explore the cultural-historic significance of an emerging popular visuality.

3.4. Summary

This chapter outlined the methodological framework of this study that integrates the methods of both statistical and descriptive content analysis, interpretive iconography and critical iconology in a structured, staged approach to analysing and contextually synthesising visual meaning in transhumanist imagery. The staged analytical procedure borrowed from Panofky's (1962, 1970, 1991) three-tiered descriptive-interpretative model that he developed in order to include a broader critical perspective into art historic explication of visual meaning. The inquiry into the visuality of transhumanism in this study closely examined over 600 individual images, of which a couple of hundred will be presented in the following interpretation chapters. Overall, about 1,000 images were involved in the body of this study, 400 in excess of the data closely analysed of their content. These additional visuals were mainly used for comparison and verification purposes, and to support interpretations with material that seemed to illustrate a particular point particularly well. The interpretative arguments that follow in subsequent chapters were structured and supported by over 134,000 coding observations that aimed to provide rich and deep data on which to base contextual insights into the intrinsic meanings of transhumanist visuals.

Chapter 4: **Summary of Results from Content Analysis**

4.1. Introduction

For the exploration of the transhumanist image, 600 images from the core data set were included into manifest content analysis and subsequent iconological interpretation. The present chapter delivers a summary of the key findings from content analysis organised by coding categories and followed by brief descriptions of coding variables and values. As this chapter aims to provide an overview of the analysis of image content in a non-discursive and succinct form, explication of the various meanings, significance and relevance of individual coding categories and/or variables will follow throughout the subsequent interpretation chapters five to eight and is not a part of the summary here. Further, a discussion of the intrinsic meanings of transhumanist visuals also occurs within the space of the following data interpretation whereby discussion and interpretation were tightly interwoven.

4.2. Coding results

The recording of quantitative results from content analysis distinguished between the number of images (abbreviated as *i*) in each coding category (e.g., *i*=600 for the full data set) and the number of coding references (abbreviated as *r*), i.e., the number of actual occurrences in any one coding category. For example, while all 600 images were coded for embodiment genus, the total number of actual embodiments (*r*=688) in this category was higher than the total number of images (*i*=600). The higher number of references in this instance resulted from an occurrence of multiple embodiments in any one image and/or from overlapping instances in the respective coding category. In those instances where $i > r$, not all images produced a respective code (coding scope < 100%), while $i < r$ indicates that individual images produced several codes in a category (coding scope > 100%). In the instance that $i = r$, each image produced exactly one of the available coding values (coding scope = 100%). The number of coded images, number of coding references and coding scope are listed for each category in column one of table 4.1. For reasons of comparison in this table, coding percentages were always calculated from the full data set of 600 images and not from the number of actual coding references – unless for subcategories where stated. Nevertheless, relative percentages, i.e., values that refer to the number of occcurrences within a particular coding category as compared to the overall data set, appear in the interpretation chapters as and where relevant.

Coding Category	**Coding Variables**				
i = no. of codes images *r* = no. of references (% = percent of *i*=600)	**Coding Values** (number of occurrences – absolute percentages unless stated othewise; relative values in *italic*)				
Shot Size	XCU[54]	BCU	CU	MCU	
r=593 (98.8%)	16 – 2.7%	55 – 9.2%	137 – 22.8%	98 – 16.3%	
i=600	MS	MLS	LS	XLS	
	104 – 17.3%	65 – 10.8%	99 – 16.5%	19 – 3.2%	
View Angle	bird's Eye	high	slightly high	eye level	slightly low
r=571 (95.8%)	10 – 1.7%	19 – 3.2%	34 – 5.7%	285 – 47.5%	211 – 35.2%
i=600	low				
	15 – 2.5%				
Orientation	frontal	left oblique	left profile	right oblique	right profile
r=538 (89.6%)	159 – 26.5%	121 – 20.2%	50 – 8.3%	119 – 19.8%	71 – 11.8%
i=600	rear				
	18 – 3.0%				
Setting	2D colour	2D graphical	synthetic 3D	built envirmt.	nature
r=600 (100%)	227 – 37.8%	161 – 26.8%	108 – 18.0%	48 – 8.0%	18 – 3.0%
i=600	composite	no setting	inside body	outer space	in enclosure
	10 – 1.7%	28 – 4.7%	0.6%	1.2%	1.2%
Embodiment Genus	mech. cyborg	fully robotic	plugged-in	info body	info head
r=688 (114.7%)	280 – 46.7%	67 – 11.2%	32 – 5.3%	161 – 26.8%	62 – 10.3%
i=600	anatomic	bio/nano	non-anthro.		
	81 – 13.5%	67 – 11.2%	21 – 3.5%		
Info Patterns	binary code	comp.circuits	3D/polygons	mesh/grid	alpha code
r=161 (26.8%)	17 – 12.1%	32 – 22.8%	8 – 5.7%	13 – 9.3%	4 – 2.8%
i=600	DNA helix	molec./cells	cosmos	sparks/rays	connectivity
	26 – 18.6%	15 – 10.7%	16 11.4%	20 – 14.3%	10 – 7.1%
Mechanical Patterns	cables/netw.	cogs/wheels	engine parts	electronics	hydraulics
r=280 (46.7%)	98 – 16.3%	13 – 2.7%	21 – 3.5%	29 – 4.8%	15 – 2.5%
i=600	opticals	switch/plugs	tubes/pipes	spikes	
	11 – 1.8%	25 – 4.2%	29 – 4.8%	13 – 2.7%	
Anatomical Patterns	x-ray/MRI	skeletal	muscular	organs	schematic
r=81 (13.5%); *i*=600	24 – 4.0%	9 – 1.5%	7 – 1.2%	26 – 4.3%	15 – 2.5%
Body Scope	head only	head/chest	upper 1/2	3/4	full body
r=574 (95.7%)	172 – 28.7%	69 – 11.5%	75 – 12.5%	59 – 9.8%	123 – 20.5%
i=600	no head	detail	brain only		
	12 – 2.0%	43 – 7.2%	21 – 3.5%		
Body Parts	arm	full body	brain	ear	eye
r=684 (114%)	7.9%	20.5%	3.5%	0.7%	12.3%
i=600	face	foot	hand	head	leg
	7.6%	0.4%	4.1%	29.7%	3.8%
	mouth	reveal flesh	navel		
	0.4%	4.1%	0.3%		
Body Depiction	wireframe	bodysuit	distored	cable/wired	multi. parts
r=172	*0.6%*	*2.3%*	*1.2%*	*16.3%*	*1.2%*
(*relative values*)	opened	projection	robotic	skeleton	wear-on
	19.1%	*16.3%*	*30.2%*	*6.4%*	*6.4%*
Brain Depiction	graphical	organic	technological		
r=25 (*relative values*)	*32.0%*	*60.0%*	*8.0%*		
Eye Depiction	dead/empty	projected	as creature	as gadget	lit eye/lens
r=84 (*relative values*)	*5.0%*	*3.0%*	*4.0%*	*29.0%*	*50.0%*

[54] XCU = extreme close-up; BCU = big close-up; CU = close-up; MCU = medium close-up; MS = medium shot; MLS = medium long shot; LS = long shot; XLS = extreme long shot

Lens/Eye Colour	blue	clear	green	reflective	multi-col.
r=42	*23.8%*	*9.5%*	*11.9%*	*2.4%*	*4.8%*
(*relative values*)	orange	red	ultraviolet	yellow	
	2.4%	*28.6%*	*2.4%*	*11.9%*	
Head Depiction	wireframe	graphical	informational	interface	mask
r=203	*3.9%*	*2.0%*	*10.3%*	*2.0%*	*1.5%*
(*relative values*)	robotic	wear gear	morphed	multiple	opened
	7.9%	*23.6%*	*1.0%*	*1.0%*	*12.3%*
	projection	skull	wired/cabled		
	11.8%	*7.9%*	*15.3%*		
Face Depiction	doll/puppet	graphical	naturalistic	open/dislodg	projection
r=52	*9.6%*	*1.9%*	*15.4%*	*17.3%*	*7.7%*
(*relative values*)	paint/tattoo	removed skin	plastered	otherness	wired/cable
	5.8%	*17.3%*	*3.8%*	*5.8%*	*13.5%*
Hand Depiction	gadgets	interface	opened	projection	prosthetic
r=28	*14.3%*	*7.1%*	*3.6%*	*3.6%*	*25.0%*
(*relative values*)	robotic	skeleton	wired/cables		
	28.6%	*7.1%*	*10.7%*		
Number of Subjects	individual	two	group	multi-same	no subject
r=600 (100%); *i*=600	496 – 82.7%	35 – 5.8%	12 – 2.0%	16 – 2.7%	41 – 6.8%
Gaze	at beholder	sl. off behold.	at objects	at subjects	at self
r=362 (60.3%)	119 – 19.8%	16 – 2.7%	14 – 2.3%	16 – 2.7%	14 – 2.3%
i=600	focused off	unfocused off	closed/empty	inward	
	56 – 9.3%	85 – 14.2%	27 – 4.5%	15 – 2.5%	
Subject Activity	active motion	arrested	still pose		
r=483 (80.5%)	10 – 1.7%	195 – 32.5%	278 – 46.3%		
Pictorial Motion	composition	objects	rep. form	instability	contour
r=265 (44.2%); *i*=300	*13.3%*	*1.3%*	*10.0%*	*8.3%*	*5.3%*
	lines	rep. colour	vibrancy	col. temp.	motion blur
	16.7%	*5.3%*	*5.3%*	*7.7%*	*5.0%*
	luminance				
	10.0%				
Straight Standing	I-pose	Λ-pose	X-pose	T-pose	Y-pose
r=62 (10.3%)	16 – 2.7%	17 – 2.8%	10 – 1.7%	12 – 2.0%	3 – 0.5%
	V-pose				
	4 – 0.7%				
Gender	male	female	m-androgyne	f-androgyne	androgynous
r=483 (80.5%); *i*=600	85 – 14.2%	142 – 23.7%	134 – 22.3%	78 – 13.0%	30 – 5.0%
Age	unborn	infant	child	youth	young adult
r=475 (79.2%); *i*=600	8 – 1.3%	7 – 1.2%	3 – 0.5%	10 – 1.7%	422 – 70.3%
	middle adult	older adult			
	11 – 1.8%	14 – 2.3%			
Hair Colour	blk./dark brwn	brown	blonde	white/grey	
r=117 (19.5%); *i*=600	19 – 3.2%	47 – 7.8%	46 – 7.7%	5 – 0.8%	
Skin Colour	dark skin	tan	fair		
r=307 (50.2%); *i*=600	8 – 1.3%	29 – 4.8%	270 – 45.0%		
Semantic Themes	progression	procreation	creation	social rel.	power
r=621 (103.5%);	6 – 1.0%	17 – 2.8%	21 – 3.5%	22 – 3.7%	31 – 5.2%
i=600	erotica	immortality	vanity	fashion	text/slogans
	153 – 25.5%	15 – 2.5%	111 – 18.5%	62 – 10.3%	65 – 10.8%
	divinity	rupture			
	127 – 21.2%	52 – 8.7%			
Perspectivity	vanishing pt.	relative size	foreshorten	depth colour	distance blur
r=1057 (176.2%)	42 – 7.0%	69 – 11.5%	91 – 15.2%	30 – 5.0%	67 – 11.2%
i=600	texture grad.	occlusion	depth layers	light	vanish line
	39 – 6.5%	110 – 18.3%	307 – 51.2%	113 – 18.8%	74 – 12.3%
	elevation	horizon			
	15 – 2.5%	50 – 8.3%			
Mimesis	graphical 2D	graphical 3D	naturalistic	photoreal	hyperreal
r=597 (99.5%)	85 – 14.2%	77 – 12.8%	41 – 6.8%	110 – 18.3%	190 – 31.7%
i=600	surreal				
	94 – 15.7%				

Table 4.1: Overview of general coding categories, their variables and values.

Coding of image content involved a range of manifest pictorial variables, which aimed to describe common particularities of the cyborg image. As the content analysis of image data aims at identifying iconographic indicators for further interpretation of latent visual meaning, i.e., a revealing of visual *tendencies* rather than the absolute descriptions of transhumanist visuality, coding results in any one category should always be read in conjunction with other codes that are part of the patterns that emerge.

4.3. Semantic organisation/pictorial themes

Coding variables in this category were not exhaustive but indicative of most evident, primary image content. The aim of this category was to capture important trends in thematic presentation of transhumanist imagery and gross semantic tendencies of the cyborg image. In this category, codes may overlap and hence the number of reference occurrences (*r*=621; 103.5%) exceeded the total number of images.

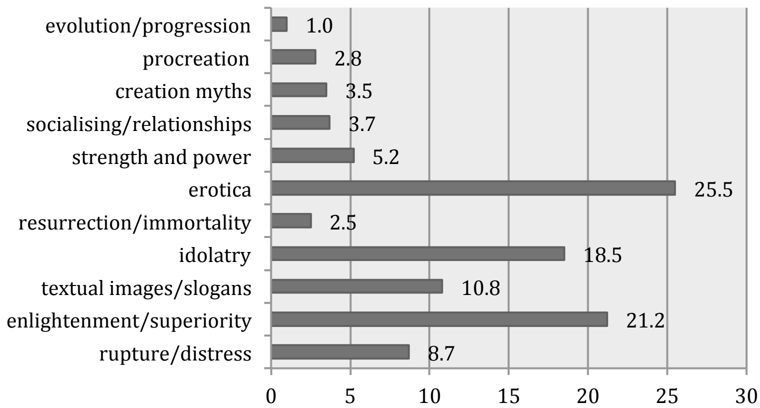


Figure 4.2: Coding for leading themes in transhumanist imagery.

The most prevalent theme in cyborg visuality revolved around a class of images (25.5%) that presented the self in an erotic, luring and sometimes pornographic way, images of techno-eroticism, sexually suggestive poses, display of naked skin for the sake of sensual allusion, and images that may be associated with the domain of Hakim's (2010) *erotic capital*, i.e., sexual attractiveness as a currency to negotiate cultural and social identity. This group of images will be further discussed in chapter five, section 5.3.4. The quantitative count of the erotic cyborg image produced numbers notably ahead of a group of images that expressed enlightenment of the image subject, its superiority, pre-eminence and/or divinity (21.2%). This group of images will be further discussed in chapter seven. The next largest coding group presented cyborg subjects of self-admiration and idolatry (18.5%), i.e., visualisations of the body as an aesthetic ideal, images of self-love and vanity. This group included aesthetic enhancements such as cosmetic surgery and decorative body modifications, expressions of pride and self-adoration, display of desire and desirability, and articulations of grace and poise, mainly discussed in chapter five and in parts of chapter eight.

Images that explicitly present transhumanist messages ranked at 10.8% of thematic occurrences. This coding category, strictly speaking, does not constitute a semantic theme yet is a delineable class of images, organised by their integration of text and image and their intent to express a patent (and often ideological) message. The primary objective of this group of images was persuasion through keywords or slogans, or promotion of transhumanist organisations and events (figure 4.3). Albeit not a strict semantic theme, this group presented a common communicative trope in transhumanist imagery.

4.3.1: *Keep Calm Poster Generator*, unknown artist (n.d.)

4.3.2: *Resistance is illogical.* Based on Doctor Who's *Cybermen* (1966). Quickmeme (n.d.)

4.3.3: *We Can Do It!* Poster for Transhuman Visions Conference 2013

Figure 4.3: Image examples of visual texts and transhumanist slogans.

Contrary to the "extrovert" images of trendiness and vanity, imagery of bodily rupture and distress rated at 8.7%. This group of images expressed doubt, disturbances or anguish that may come along with technical embodiment. These were images of estrangement, maybe disagreement, and of visible psychological unease in the image subject. Because the focus of this study is on the ideological visuality of transhumanism, images of the "shadows" of transhumanist embodiment and images of transhumanist critique were not explicitly discussed in the following interpretation chapters. This group of images, in order to do justice to their significance in the transhumanist discourse of future humanity, would warrant a dedicated study in its own right. However, these images are nevertheless mentioned here (see section 4.6.1.1) so as to acknowledge their existence and relevance to a broader discussion of transhumanist visuality.

Transhumanist imagery of power and strength but also aggression appeared in 5.2% of occurrences and will be discussed in chapter five. This coding variable looked for overt demonstrations of power, expressions of dominance, and sometimes also of explicit aggression, such as images of cyborg enmity or warfare. However, the overall data set did not explicitly include battle craft science fiction as these constitute a separate subgenre within futuristic action and gaming imagery, which sometimes overlaps but also is very distinct from transhumanist imagery. Further, this group of images also did not include instances of experiencing overpowering situations or receiving authoritative demands, i.e., events of submission, resignation or other responses to technological power. Instead, this coding variable describes cyborg images that display strength, power and dominance as a transhumanist trope of technological supremacy.

Images displaying social interactions and/or paying witness to social relationships occurred in 3.7% of data. This coding variable included images of professional, casual or romantic relationships between humans, machines and inter-genus, as well as images that displayed a social-communicative setting.

The theme of procreation occured in 2.8% of images, whether by biological or non-biological processes, and depiction of creationist themes occured in 3.5% of images. What is noteworthy is that images of the popular transhumanist trope of immortality ranked at only 2.5%, and the equally popular themes of progression and evolution were apparent in merely 1.0% of images. These rankings, however, did not include repetitions of popular visual tropes, such as the many iterations of Leonardo Da Vinci's (1508-12) *Creation of Adam* or of the famous *March of Progress* (Zallinger, 1965). This means that low occurrences of cosmogonic and evolutionary transhumanist images represent potentially large picture sets counted as a single instance in this study. The visual themes of mythological symbolism, cosmogony and immortality will be further discussed in chapter seven;

some accounts of the progressionist and evolutionary trope appear in chapter eight.

4.4. Classification and scope of embodiment

Coding categories for embodiment types and bodily scope accounted for visual occurrences in the transhumanist image of various embodiment forms with the intention of categorising main body types as per their defining characteristics. The category of embodiment class made a first distinction between principle technological embodiments, and the category of embodiment genus sought to further describe these bodies according to their actual technical structures. Next, coding for embodiment and subject scope sought to determine the physical extent to which transhumanist subjectivity appeared in relevant images, i.e., whether the transhuman subject was in any particular way singular, multiple, whole or fragmented.

4.4.1. Embodiment classes

Classification of technological embodiment identified four main classes, cyborg embodiment, bionic subjects, robotic bodies and non-anthropomorphic corporeal forms. These classifications, however, are rather vague as many body classes overlapped or did in one way or the other display exeptions to a strict definition of the coded body types.

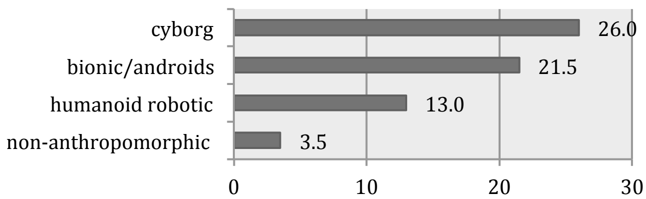
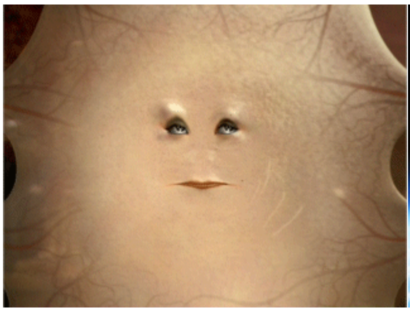


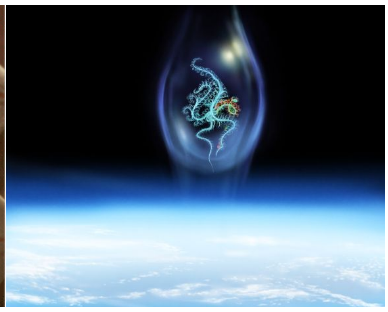
Figure 4.4: Coding for classification of technological embodiment.

The largest variable in this category was *cyborgs* with 26.0% of occurrences, i.e., amalgamations of human and technological components that were extensions of the organic body. Unlike technological integration into organic structures, *bionic* embodiments mimic organic structures yet are fully artificial, i.e., technology that imitates human organisation and processes. This group of embodiment accounted for 21.5% in this data collection. *Robotic* embodiments with 13.0% of data constituted fully technological beings in often humanoid form. Notwithstanding anthropomorphology in the robot, this type of embodiment did not imitate organic processes nor did it suggest a biological origin.

Non-anthropomorphic embodiments, ranking at 3.5% in the data collection, envisioned human identities outside a recognisable humanlike form, mostly as disembodied information systems or as non-human organisms (figure 4.5). The class of non-anthropomorphs was comparatively rare in transhumanist imagery (albeit present across science fiction literature and movies[55]), and the relative absence of non-anthropomorphic corporeal forms might signal a posthuman embodiment that is (as yet) thought of as human-like subjectivity.



4.5.1: *Cassandra O'Brien.Δ17*, fictitious modified human of the year 5 billion, Doctor Who character, BBC (2005)



4.5.2 (top): *Transcendence*, Hick Bills (2007)

4.5.3 (right): *Ultimate Corporeal Form*, Hick Bills (2006)

Figure 4.5: Image examples of non-anthropomorphic future embodiments.

4.4.2. Embodiment genus

With the aim of explicating leading body types, this category coded for principle embodiment forms and ways the transhuman body was depicted. Because of over-lapping codes in this category, the reference count (*r*=800; 114.7%) exceeded the number of images in the data set (*i*=600). The intersections of coding variables resulted from image subjects that exhibited ambiguous typological traits, e.g., informational bodies that were also anatomic, or biological organisms that were also plugged-in to a system or served as an interface to a robotic body.

[55] Non-anthropomorphic beings in science fiction appear, for example, as *The Twins* in Matrix Reloaded (Wachowski Brothers, 2003), *Vlad Plasmius* from the Danny Phantom cartoon series (Nickelodeon, 2004-2007), *Shaher* in Shakugan No Shana (Y. Takahashi, 2002-2012), or several characters from the BBC TV series Doctor Who, e.g., *Cassandra* (2005; see figure 4.5.1) or *The Face of Boe* (2005-2007), albeit several of these characters still rely on at least partial or temporal anthropomorphic forms.

Imagery of a mechanised cyborg rated at 46.7%; this included 11.2% of fully robotic embodiments, and plugged-in and interface bodies with 5.3% of imagery. The informational body, a body described by organised systems of code and rules, applied to 26.8% of images. Anatomic depictions, i.e., imagery of the opened or translucent body, accounted for 13.5% of images. The anatomic variable partly overlaped with biological and nano-visualisations, which refer to biomedical images that depicted interior micro-spaces of the body and/or simulated the body as organic structures (figure 4.6).

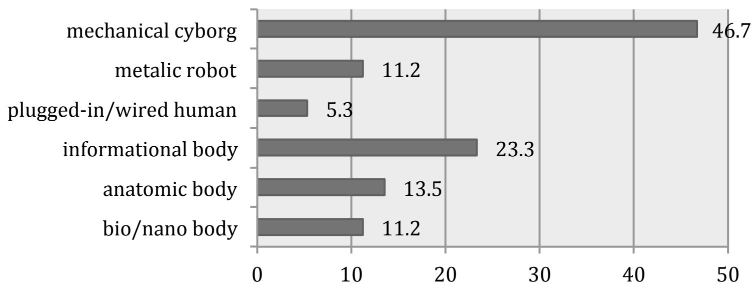


Figure 4.6: Coding for embodiment genus.

Overall, future visions of human embodiment seemed to indicate four major groupings: 1) the mechanical cyborg body with 46.7%, 2) the informational body with 26.8%, 3) the biomedical body (anatomy, bio and nano) with 24.7%, and the non-anthropomorphic body with 3.5% of visualisations across the data set in this study. Embodiment forms of the mechanical cyborg, the info-body and biomedical incarnation will be discussed in chapter six.

4.4.3. <u>Number of image subjects</u>

Coding for the number of subjects in any one image was intended to provide data about subjectivity and individuality in the transhumanist subject. Of 600 images, 82.7% produced a single persona as image subject. A further 5.8% of images depicted two individuals who did or did not interact with each other. 2.0% of data presented more than two subjects of which 0.5% involved three individuals and the remaining 1.5% depicted more than three distinct subjects. In 2.7% of the images in the data set, multiple instances of the same individual were present, e.g., as copies or clones of themselves, and 6.8% of images did not display any embodied subject at all. This finding suggests that the transhumanist image subject is predominantly singular with no or very little social interaction.

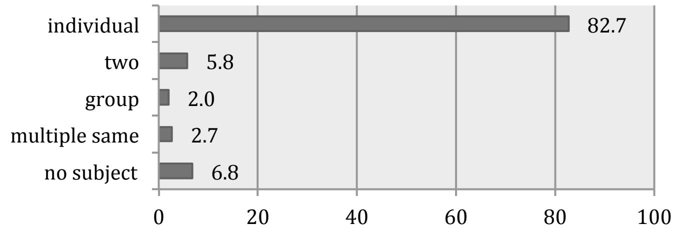


Figure 4.7: Coding values for number of subjects per image.

4.4.4. Body scope

Coding for body scope aimed to capture the physical extent of anthropomorphic embodiment in the transhumanist image. While coding for body scope sometimes mimicked coding for shot size (figure 4.8), body scope differed from shot size as it did not define the general framing of an image. Instead and more exclusively, body scope defined the actual extent of the displayed body as compared to the scope of view onto an image that shot size measures. Further, body scope designated various non-continuous embodiments such as severed body parts, exposed body interiors, and eclipsed bodies in images that otherwise might be framed in a quite different shot size (see section 4.7.1).

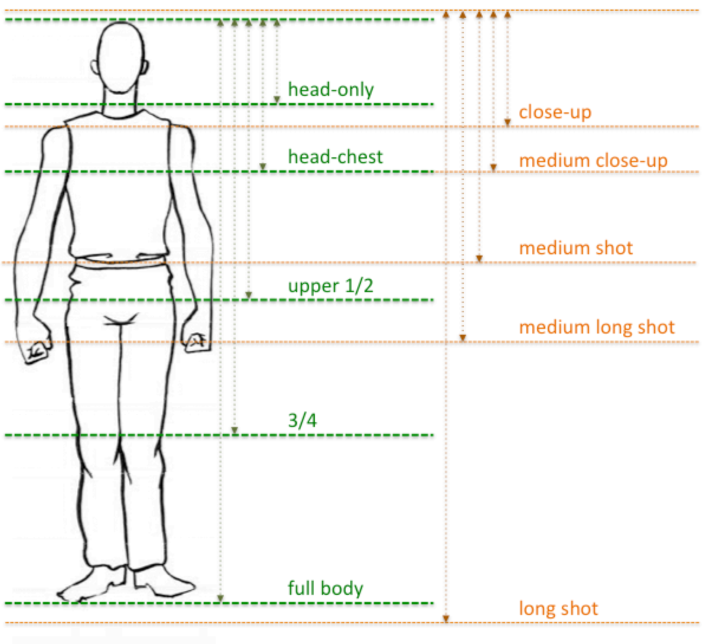


Figure 4.8: Illustration of body scope delineations. Source: G. Frommherz, based on figure drawing by Mario Furmanczyk.

The largest code in this category was head-only delineations with 28.7%. The next largest code presented depictions of the full body with 20.5%. Images that showed the upper half of the body (up to the hips) accounted for 12.5% and images showing the head including chest rated at 11.2%. Three-quarter body depictions, i.e., images that showed the body down to about knee line, ranked with 9.8%.

Bodily details were shown in 7.5% of images, brain-only depictions (without encasing skull) in 3.5% of images, and an absence of head or a truncated head appeared in 2.0% of the data set (figure 4.9).

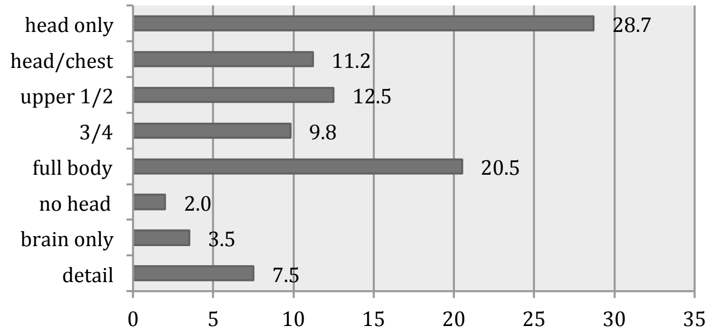


Figure 4.9: Coding values for physical extent of bodily display.

In summary, head-only and head/chest images together accounted for 39.9%, partial body depictions (½ and ¾ bodies) were displayed in 22.3% of data, complete body images in 20.5% of data, and bodily parts/details (brain-only, no head, detail) appeared in 13.0% of images.

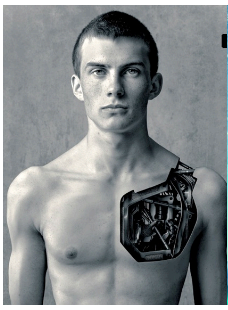
4.5. Demographic identifiers in the transhuman image subject

Coding for age, gender and visible ethnic traits of the transhumanist image subject sought to elicit demographic tendencies of the envisioned posthuman as they appeared in contemporary cyborg imagery. It was hoped that by coding for demographic markers in the transhuman subject, indications of the sociocultural spread of the movement as well as trends in global inclusiveness or socioeconomic exclusiveness might become apparent. The visuals of transhumanist interest were checked for indications of gender and approximate age. In order to identify racial or ethnic affiliation of image subjects, representations of skin colour, hair and eyes were noted. The aspect of transhumanist demographics and subjectivity will be discussed in chapter five.

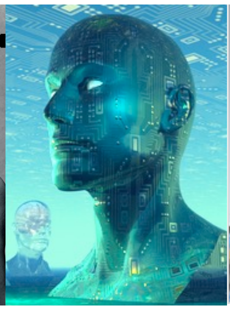
4.5.1. Gender

Following Fausto-Sterling's (1993) gender classification, this category coded for five genders: male, female, male androgyny (male pseudo hermaphrodites or *merms*), female androgyny (female pseudo hermaphrodites or *ferms*) and "true" androgyny (hermaphrodites or *herms*). Of the entire data set, 483 images (r=80.5%) provided information on gender in the transhumanist subject. The remaining images either did not present a humanoid subject or the aspect of gender did not apply.

Gendered male/female expressions applied to image subjects that exhibited common gender traits such as physiognomic markers, facial features, hair style and clothing, and sexual self-expression. Androgynous male/female subjects showed tendencies of reduced gendered traits while a sexual persona was still discernible (e.g., absense of body hair in male subjects and athletic build in female subjects). For example, female androgyny might describe a body that betrays female gender but with significantly compromised cultural expression of femininity and an eclipsed female bearing (figure 4.10).



4.10.1: Gendered male. *Robo Boy*, Benedict Campbell (n.d.)



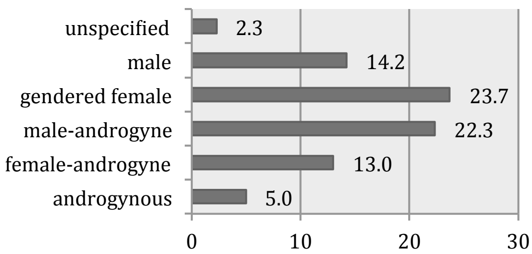
4.10.2: Androgynous male. *Future Humans*, unknown artist (2007)

4.10.3: Gendered female. *Bionic Woman,* unknown artist (n.d.)

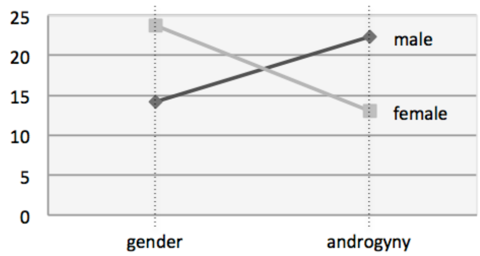
4.10.4: Androgynous female. Plug-In Baby, Conzpiracy (2009)

4.10.5: Hermaphro-dite androgyny. *Brahma and Human Progress*, Walter Oliver Neal (2012)

Figure 4.10: Examples of gender classifications in the transhuman subject: male, female, *merm*, *ferm*, and *herm*.



4.11.1: Coding values for gender



4.11.2: Comparison of male and female coding values for gendered and androgynous variables

Figure 4.11: Coding for gender and androgyny in the transhuman image subject.

Representation of gendered male subjects accounted for 14.2% of images and female for 23.7%. This is a difference of 9.5% in favour of female embodiments. Male androgyny occured in 22.3% of images and female androgyny in 13.0% with a divergence between male/female expressions of androgyny of 9.3% in favour of male androgyny. "True" androgyny appeared in 5.0% of anthropomorphic bodies (figure 4.11.1). These coding values indicated that the relationship between gendered male/female and pseudo male/female embodiment reversed across image data: while male androgyny was higher by 9.3% than female androgyny, gendered male expressions were lower by 9.5% than gendered female embodiments (figure 4.11.2). The overall gender ratio (true and pseudo gender) was almost equal between male and female occurrences (36.5% male versus 36.7% female gender forms). Further 2.3% of images showed anthropomorphic embodiment that did not disclose gender traits.

4.5.2. Age group

The approximate age of the primary image subject was coded across 475 images (*r*=79.2%). Age classifications were taken from the UN international standard (United Nations, 1982). The UN age classification specifies six age groups; infancy (0-1 years), childhood (1-14 years), youth (15-24 years), young adulthood (25-44 years), middle adulthood (45-64 years) and older adulthood (65+ years). In addition to the UN standard, a code for the unborn child was added, which in the data set was commonly depicted as a perinate subject (approx. -/+ one month from birth).

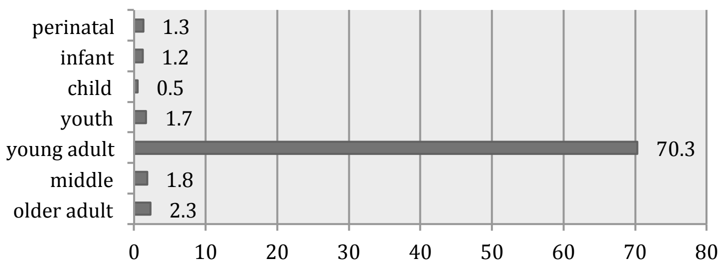


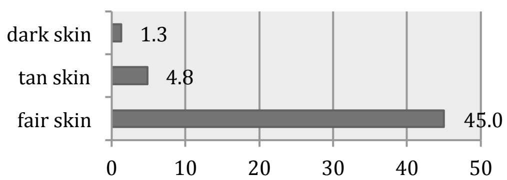
Figure 4.12: Coding values for age of image subject(s).

The perinatal/unborn age group accounted for 1.3% of images, infants for 1.2%. Childhood was represented in 0.5%, youth in 1.7%, middle adulthood in 1.8% and older adulthood in 2.3% of data. The vast majority of age representations belonged to the classification of young adulthood with 70.3% (i.e., 88.8% of occurrences relative to the number of images in this category). Age boundaries between the classifications of youth (24 years as upper age boundary) and young adulthood (25 years as lower age boundary) could not always be determined with certainty; these values represent best guess approximations.

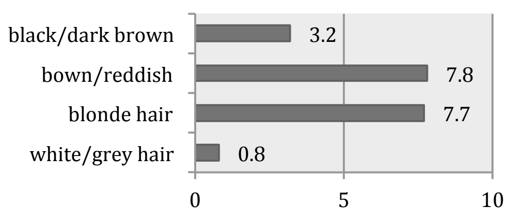
4.5.3. Markers of ethno-racial affiliation: hair colour and skin complexion

In order to trace visible trends of ethnic identity in cyborg image subjects, 117 images (*r*=19.5%) were coded for hair colour and 307 (*r*=50.2%) for skin colour. Ethnical, and especially "racial", identifiers and distinguishing criteria in world populations are notoriously problematic to establish and to uphold, particularly so with respect to normative frameworks such as biological, genetic, sociocultural or legal construction of race (Andreasen, 2000; Zack, 2002; Morning, 2011). This study is aware of a general unrealiability of ethno-racial classifications and the often ideological underpinnings of race definitions (*cf.* I. Young, 1990; Haney-Lopez, 1996; Hannaford, 1996; Jahoda, 1998; Frederickson, 2002; McWhorter, 2009). However, as this research wants to identify the depiction of transhumanist subjectivity and posthuman identity in broader pubic perception, standard (albeit uncritical) race definitions appeared sufficient. In accordance with the deployment of the term in the available transhumanist demographics, the term "ethnicity" will be used throughout this study when addressing the shared physical appearance in the transhumanist population.

While skin and eye colour has been at times accepted as a relatively reliable racial identifiers (Boyd, 1950; Garn, 1971; Relethford, 2009), coding for hair colour had to necessarily submit to a high level of ambiguity and/or potential falsification, for hair colour in contemporary self-enhancement societies is as easily changed as it is in the digital postproduction of photos. However, for the purpose of this study it was relevant how race was *depicted* in transhumanist images and not what actual racial affiliations might have been.



4.13.1: Coding values for skin colour



4.13.2: Coding values for hair colour

Figure 4.13: Coding for ethno-racial identifiers in the transhumanist subject.

The relatively low occurrences for hair colour resulted from the nature of some embodiments not involving head hair (e.g., robots), displaying synthetic head designs (e.g., mechanical cyborg heads), or omitting the head/head crown from bodily display altogether. Coding for skin colour experienced similar limitations, particular where body surfaces were void of organic structures or comparable substitutes.

In all, 3.2% of images in the data set (16.2% of relative values with respect to this coding category) exhibited black and dark brown hair tones, 7.8% (40.2% relative values) medium and light brown as well as a reddish hair colour, and 7.7% (39.3% relative values) displayed blond hair tones. 0.8% (4.3% relative values) presented white and grey hair (figure 4.13.1). Dark skin tones appeared in 1.3% images (2.6% relative values), tan skin in 4.8% (9.4% relative values) and fair skin tones in 45.0% of relevant data (figure 4.13.2). These coding outcomes suggest a high prevalence for fair skin types (87.9% relative values) together with light and medium coloured hair (83.8% relative values). This means that non-Caucasian ethnicities in the imaginings of the transhuman constitute a decisive minority.

4.6. Description of subject

A number of coding categories sought to further describe the transhumanist subject in its imagined characteristics. Body image in the cyborg, i.e., self-perceptions of embodied subjectivity were the leading criteria in this coding category. Body images in the transhuman were identified by observing bodily attributes, posture and mien, gesture and facial expression, physical attire, and iconographic clues in the image's setting. A particular focus was also placed on descriptive patterns in the cyborg image either as external material-mechanistic (46.7% of total image data), intangible informational (26.8%), or translucent-anatomic (13.5%) structures of embodiment. Further, the description of trans-human image subjects looked at disruptions in body images, i.e., fragmentations in bodily surface or frustration of physical integrity of embodiment as a whole subject.

4.6.1. Body image

Coding for body image partly overlapped with coding for semantic themes in the transhumanist image and should be read in conjunction with section 4.2.1 above. Across all images in the data set, 25.7% of images exhibited a transhuman subject that was erotic or sexual in its self-display, images that sought to lure the beholder by deploying erotic appeal. This group of images included gently enticing image subjects as well as provocative sexual material that displayed what Christian (2012) called *technorotica*, i.e., images of explicit technological sexuality. Erotic cyborg imagery seemed to be the single largest body image in the transhumanist subject. Erotic display of the cyborg subject in transhumanist visuality will be discussed in chapter five, section 5.3.4. The next prominent group of images described a body image of spiritual enlightenment, technological transcendence, or "divine" superiority. This body image commonly displayed bodies that appeared light, airy, translucent, androgynous, and was often supported by an iconography of religious symbolism. Chapter seven will discuss this group of images.

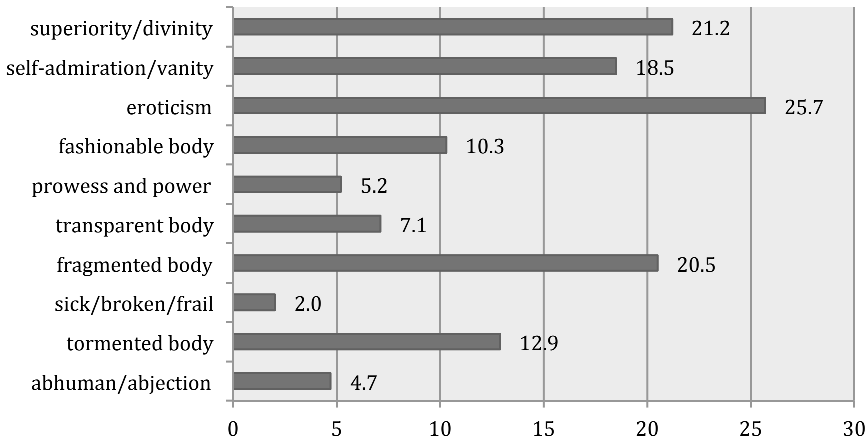


Figure 4.14: Coding for general body images of the transhuman subject.

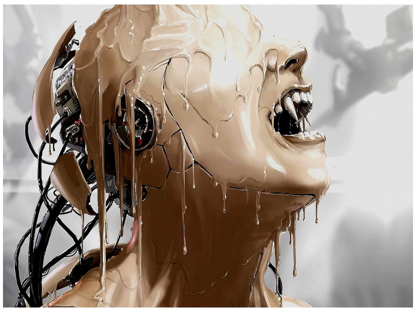
Body images of self-admiration, self-love, vanity and narcissism rated with 18.5% in the data set. These were images of the self as aesthetically sophisticated and psychologically self-absorbed, images that promised a posthumanity of ideal proportion and beauty, and subjects that proudly displayed their subjectivity as spectacular surfaces. In addition to images of the body beautiful, depictions of the fashionable body rated with 10.3% across the data set. These were images of futuristic vogue, aesthetic trends and fashionable attire. Unlike the body image of ideal beauty, the stylish body image described fashion as cultural accessory and not essential embodiment.

Body images of physical strength, vigour and power rated with 5.2% of data. These were images of powerful self-display, muscularity, prowess and physical domination. Commonly, these images came along with a display of might and aggression supported by objects of combat such as armour or weaponry.

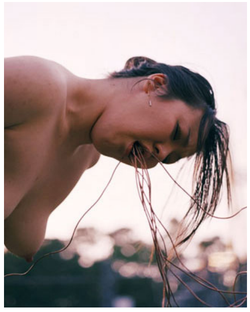
4.6.1.1. Disrupted bodies

Body images of disruption were also prevalent in transhumanist imagery but often in ambiguous or indistinct ways. While there was a notable occurrence of questioning, problematising, critical or dissident cyborg images, visions of a transhuman future often abstained from direct critique or systematic appraisal of transformative technologies.

4.15.1: Frail.
Transhumanist WIP, Art of Nick (2013)



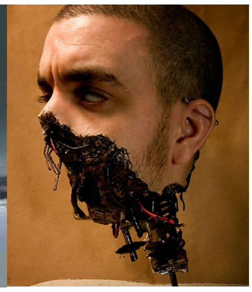
4.15.2: Bestial.
Nightmarish Creature, Vincent (2013)



4.15.3: Sick. *Unrecommended emanation*, unknown artist (2007)

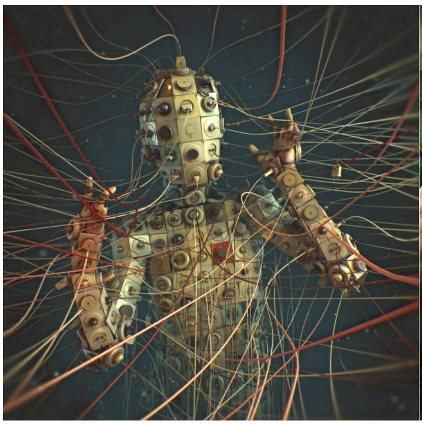
4.15.4: Broken.
Man and Wires, unknown artist (2008)

4.15.5: Crashed.
Crash, Andrew Huang (2011)



4.15.6: Ripped.
Cyborg Head, Ross Martin (c.2013)

4.15.7: Absorbed.
Nanotech Experiment 01. Dominic Elvin (2011)



4.15.8: Tangled.
Memory Threads, Andrey Bobir (c. 2013)

4.15.9: Confused.
Rubik Cube Head, unknown artist (2008)

Figure 4.15: Troubled cyborg bodies.

Even highly bizarre or subversive cyborg visualisations seemed to struggle with disenchanting the captivating spectacle of technological display, and often underwrote a mesmeric frivolity in the cyborg image. Still, there were many visualisations of future embodiment that resisted a technophile aesthetics and cast visions of the cyborg that were deeply disturbing: images of aesthetic alienation, ethical intimidation, bodily disruption and dissolution of human dignity.

Within this wider group of "troubled" body images, 20.5% of data displayed fragmented bodies with dislodged body parts, fully severed body parts, torso depictions without extremities, disconnected single body parts, or revealed ruptures or cracks in the surface of the body. Fragmented bodies, however, also appeared to signify flexibility in embodiment and exchangeability of body parts which in the thinking of transhumanism would be read as positive body features. 12.9% of images showed tormented bodies with subjectivities that were visibly disturbed by technological affect. A further 7.1% displayed transparent[56] bodies whose material integrity was in question. 2.0% of image data showed cyborg bodies that appeared sick, frail or broken, images that illustrated the vulnerability of technological embodiment. Lastly, 4.7% of images presented abject bodies that might disgust and repel; these were often monstrous bodies of the abhuman that hardly recognised transformative technologies as a form of *enhancing* human subjectivity.

4.6.1.2. Erotic cyborgs

Over a quarter of images in the total data set of this study displayed sexual cyborgs, i.e., eroticised technological body images. The majority of the erotic image subjects were female. As the data collection in this study did not exclusively focus on technological erotica, larger series of erotic cyborg images (such as Hajime Sorayama's extensive *Sexy Cyborgs* and *Gynoids* series) were not included in the data set. Further, explicit techno-pornographic material was not included in the data collection as these images were not necessarily part of a broad public visibility; the analysis of techno-porn would clearly exceed the intentions of this study. These limitations in the data imply that the actual dissemination of techno-erotic images is likely to be significantly higher than the occurrences of this body image in the data collection suggests.

[56] The coding variable of transparent bodies did not include informational embodiment, which itself tended to present de-materialised bodies as translucent form.

Of the 154 erotic cyborg images in this study (figure 4.16), 152 occurrences (98.7%) displayed femininity and 24 occurrences (15.6%) presented masculine erotic bodies. Suggestive poses, i.e., poses of sexual invitation, were present in 17.5% of the female bodies. There were no explicitly male suggestive poses in this data collection. Romantic scenes or performance of sexuality occurred in 5.2% of occurrences. Display of nudity ranked at 61.0%. Coding for nudity involved fully nude as well as partly naked bodies. However, nudity needed to occur in an explicit sexual context, i.e., bodies that were purposefully uncovered in order to display skin as a sexual attribute. Skim dressing, i.e., sports outfit or bikini, were not considered occurrences of nudity where they did not aim at sexual display.

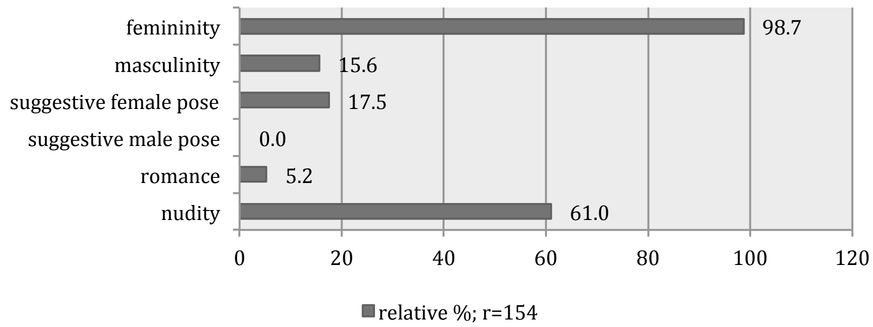


Figure 4.16: Coding for indicators of eroticism in the cyborg image.

4.6.2. <u>Informational patterns</u>

Human embodiment as informational patterns (26.8%) was a popular theme in transhumanist imagery. Informational embodiment described body images of systemic patterns, either as biological structures, physical templates or technical codes. The most prevalent virtual information structure in transhuman embodiment presented visual simulations of computer circuitry (5.3% of total data = 19.9% of occurrences relative to informational coding category) followed by 2.8% binary code patterns. Mesh or grid structures of virtual designs appeared in 2.2% of data, and a further 1.3% of images presented 3D polygonal arrangements. Alpha code, i.e., abstract arrangements made of alphanumeric characters, was displayed in 0.7% of images (figure 4.17).

Next to computational patterns of micro-circuitry, the twisting arrangement of the DNA helix (4.3% of total data) was widespread as a biological information structure of the transhuman body (equivalent to 16% of occurrence relative to informational coding category). Structures of cells, neurons and molecular arrangements, also biological information structures, appeared in 2.5% of data. Abstract pattern of cosmic constellations occurred in 2.6% of images, arrays of light as rays or sparks visualised in 3.3% of images, and patterns of symbolic connectivity and exchange (e.g., virtual connection lines, wiring patterns, network structures etc.) occurred in 1.7% of images across the data set.

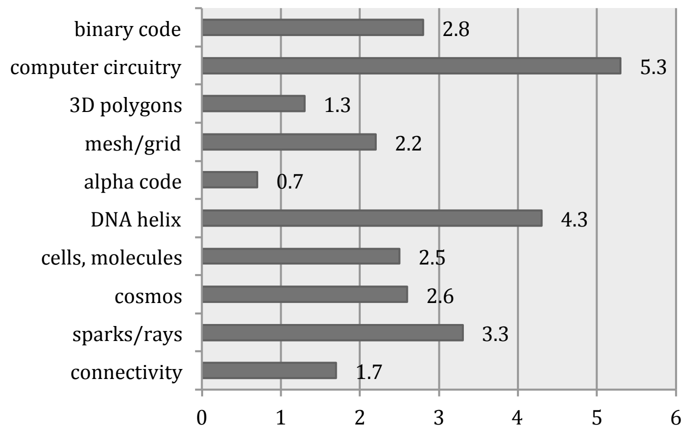


Figure 4.17: Various informational patterns in the transhumanist image.

In relative terms, proportional to a count of 161 images in this category or 26.8% of the full data set, computational information structures accounted for 57.0% of informational embodiment images (binary code, motherboard patterns and circuitries, 3D polygons, mesh/grid pattern, and connectivity patterns). In contrast, 29.3% of images represented biological informational metaphors (DNA and cells, molecules, neural imagery), whereas ethereal metaphors (cosmos and sparks/light rays) accounted for 25.7% of informational patterns in transhuman embodiment.

4.6.3. Mechanical patterns

Hardware and mechanical bits of transhuman embodiment included a wide range of curious contraptions with materials and components taken from a variety of engineering fields. Overall, mechanical patterns in transhuman bodies occurred in 46.7% of all images in the data set, i.e., close to half of all images.

The single largest variable in the category of mechanistic embodiment (16.3%) presented the human body made up of cables and similar network structures or enmeshed in cabling and wiring that either controlled or constricted the body (figure 4.18). The next largest variable at 4.8% displayed bodies integrated with tubes or pipes, which either extended a body or connected it to a larger system. Also with 4.8% of images transhuman bodies were fused with various electronic and electro-mechanic components such as transistors, capacitors, diodes, resistors, vacuum tubes and the like. Switches and plugs appeared in 4.2% of data. Engine parts, usually crude combustion engine components such as spark plugs, cylinders, pistons, valves, cooler grills, gears, crankshafts, or entire cylinder blocks occurred in 3.5% of transhuman embodiments. Cogs and wheels rated with 2.7% of data, as did spikes and similar protruding structures. Hydraulic devices showed in 2.5% of images, and optical gear including lenses appeared in 1.8% of cyborgs.

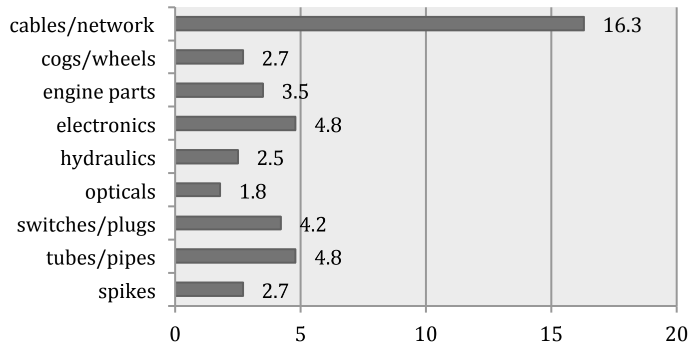


Figure 4.18: Types of hardware and mechanical patterns in the trans-humanist image.

4.6.4. Anatomical patterns

Biomedical patterns of the interior body appeared across 13.5% of all data. The anatomical coding category at this stage of data analysis did not distinguish between technologies of biomedical visualisation (such as x-rays) and the site of such visuals, i.e., organic structures of the interior body (e.g., skeleton versus circulatory system or organs).

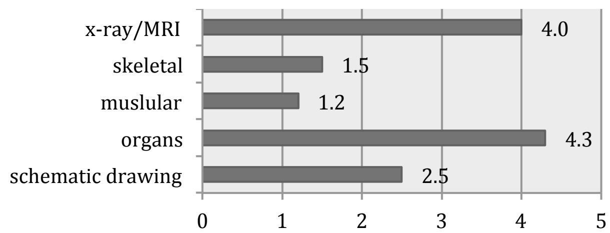


Figure 4.19: Main types of anatomic visualisations of the transhuman body.

Technological visualisation of living organs as an interior site (and sight) of the body (figure 4.19) occurred in 4.3% of data (= 32.1% relative value), skeletal structures appeared in 1.5% of data (= 11.1% relative value), and muscular visualisations arose in 1.2% of data (= 8.6% relative value). Anatomic cyborg visualisations as x-rays or MRIs were apparent in 4.0% of data (= 29.6% relative value) and schematic drawings of anatomic visions of the transhuman occurred in 2.5% of data (= 18.5% relative value). Whereas more recent biomedical visualisation technologies such as 3D MRI, tomography and connectrome imaging were indeed prominent in envisioning future humanity, they were not strongly apparent in the iconographies of transhuman embodiment. Instead, state-of-the-art biomedical imaging tended to cast insights into an imaginary, simulated interior space of the body, which did not always reflect back onto the visions of transhuman embodiment. The various forms of technological embodiment in transhumanist visuality will be discussed in more detail in chapter six.

4.7. Formal image composition

The formal arrangement of image space and composition of pictorial objects in relationship to image boundaries and to other pictorial objects are fundamental grammars in the construction of visual meaning. Image data was coded for shot size, i.e., framing of pictorial content in proximity between subject matter and beholder, view or ocular angle between image and spectator generally known as *camera angle*, and orientation of the primary subject matter within the image plane, usually referred to as *view*. Further, formal analysis of pictorial depth illusion provided insights into transhumanist conceptualisation of visual-virtual space and pictorial illusionism, both of which might enlighten transhumanism's art-historic inheritance and/or any iconographic innovation.

4.7.1. Shot size

Coding for shot sizes involved 593 images (r=98.8%). Shot size describes the framing of an image, i.e., the fundamental extent of a visual scene revealed to a beholder within the imaginary space of a picture (figure 4.20).

Coding for image framing involved all standard shot sizes across the full data set, from extreme close-up (XCU) to extreme long shot (XLS). However, extreme shot sizes were less common, XCU in 2.7%, big close-up (BCU) in 9.2% and XLS in 3.2% of data. The most common shot size was the close-up (CU) with 22.8%, followed by medium shot (MS) at 17.3% and long shot (LS) at 16.5%. Almost equal with LS, medium close-up (MCU) stood at 16.3%, while medium long shots (MLS) rated with 10.8% of images. These figures indicated that close-up shots (CU, BC and XCU) accounted for 34.7%, medium-range shots (MCU, MS and MLS) for 44.4%, while long shots (LS and XLS) captured 19.7% of images (figure 4.21).

4.20.1: Extreme Long Shot 4.20.2: Long Shot 4.20.3: Medium Long Shot 4.20.4: Medium Shot

4.20.5: Medium Close-Up 4.20.6: Close-Up 4.20.7: Big Close-Up 4.20.8: Extreme Close-Up

Figure 4.20: Schematic illustration of most common shot sizes. Source: Daniel Chandler (2001).

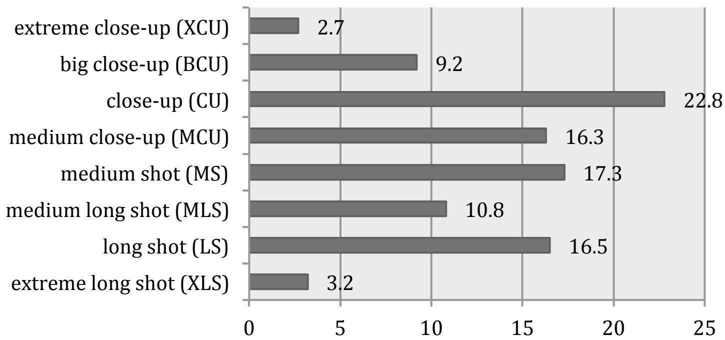


Figure 4.21: Coding values for shot size.

4.7.2. View angle

Coding for ocular (or camera) angle involved 571 images (r=95.8%). The ocular angle largely defines how a viewer looks at and into the space of the image, and often determines power relationships between image subject(s) and spectator. In general, low view angles elevate the image subject while high ocular angles submit the image subject to a surveilling gaze by the beholder (figure 4.22).

4.22.1: Low Angle 4.22.2: Eye-Level Shot 4.22.3: High Angle 4.22.4: Bird's View

Figure 4.22: Schematic illustration of most common camera angles. Source: Daniel Chandler (2001).

As in the case for shot sizes, all standard view angles were represented across the data set yet with a clear emphasis on eye level (47.5%) and slightly below eye level (35.2%) angles. Slightly high angles were present in 5.7% of images. Together, these relatively straight views (slightly high, eye level, slightly low) accounted for 88.4% of images. Low angles captured 2.5% of images, high angles 3.2% and bird's view angles 1.7% of images; these more tilted angles appeared in only 8.4% of visualisations (figure 4.23). These coding values suggest that transhumanist subject and spectator were largely at par with respect to mutual viewing power, however with a slight elevation of subject matter as is also common in contemporary advertising imagery.

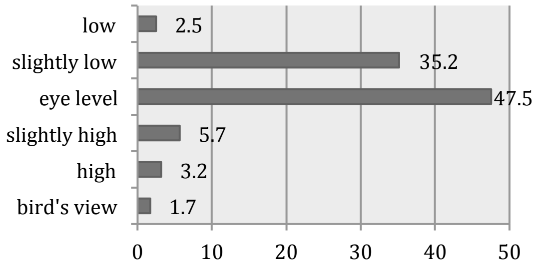


Figure 4.23: Coding values for ocular (camera) angle.

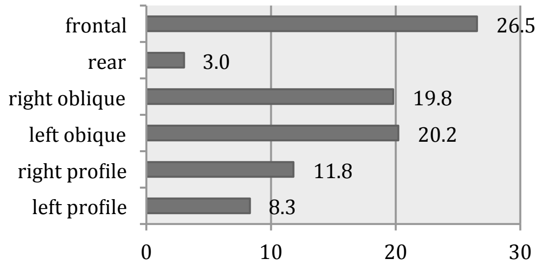
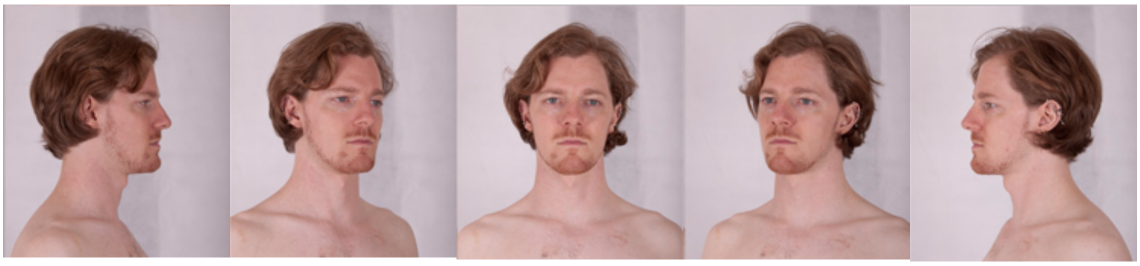


Figure 4.24: Coding values for subject orientation (object view).

4.7.3. <u>Subject orientation</u>

Orientation of the images' subject matter, coded in 538 images (89.5% of the data set), captured directionality of the subject's position in relation to the view point of the beholder (figure 4.25). Where anthropomorphic embodiment was involved, orientation was referenced to the head, i.e., the head pose determined view orientation of the entire subject matter. This was relevant in those images where body and head posture did not align, i.e., they oriented in different directions.



4.25.1: Right Profile 4.25.2: Right Oblique 4.25.3: Frontal View 4.25.4: Left Oblique 4.25.5: Left Profile

Figure 4.25: Schematic illustration of most common subject orientation (object view). Source: Kyle (Null-Entity, http://null-entity.deviantart.com/), photographer: Claire Jones, 2013.

Frontal views, i.e., the image subject positioned straight toward the beholder, accounted for 26.5% of images; rear views with the subject turned away were present in 3.0% of images. Straight orientation towards the beholder suggests a stronger and more intentional relationship between image subject and beholder (Kress & van Leeuwen, 1996) and less of the attempt of self-staging. Left oblique orientation (¾ view) applied to 20.2% of images and right oblique views to 19.8% of image subjects. Oblique poses are ideal for staging the image subject to be seen in “good” proportions and shape-enhancing lights (Rocha & Sebring, 2014). Right profile poses occurred in 11.8% and left profile views in 8.3% of data. Unlike oblique subject orientation, profile depictions generally aim at showing particular characteristics of an individual in contrast to depicting an typological subject (Panofsky, 1962; Berger, 1972). Grouped together, straight front/back views applied to 29.5% of images, oblique views to 40.0%, and profile depictions to 20.1% of all images in the data collection (figure 4.24).

4.7.4. <u>Perspective and depth illusion</u>

Pictorial depth and visual perspectivity deal with the spatial representation of subject matter as a geometric illusion projected onto a flat picture plane. All perspective illusions reference the oculus, the eye point or beholder’s point of view (figure 4.26).

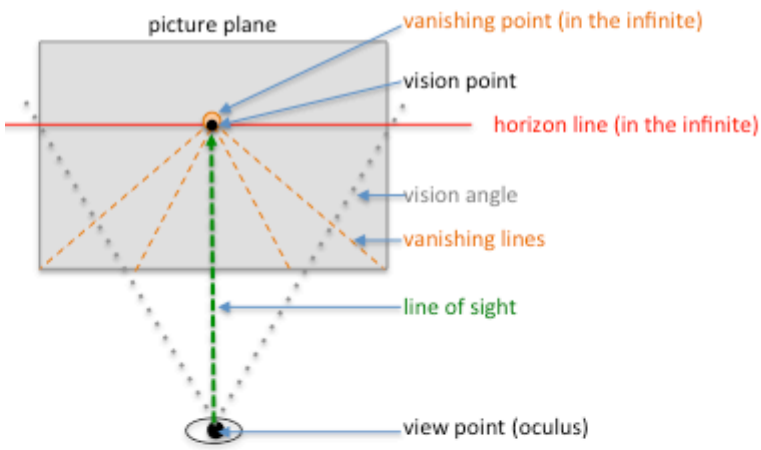


Figure 4.26: Schemata of linear perspective with main geometric reference points. Source: G. Frommherz.

Linear (or physical) perspective techniques include horizon line, vanishing lines, vanishing point, relative object sizes, occlusion, and foreshortening, i.e., the technique of compres-sing object volume along the depth axis. Aerial perspective includes techniques of distance blur, depth colouration, light modelling, and texture gradients. An additional perspective technique, popular in 3D CGI, is the stacking of depth planes along the illusionary z-axis of the picture plane. This depth layering of visual content creates tiers of perspectivic illusion without committing to continuous visual depth space.

Because of the occurrence of multiple codes in any one image, coding references for perspectivity notably exceeded the overall image count (*r*=1057, 176.2%). Relative size of objects in the image, i.e., differences in object volume depending on illusionary distance to the picture plane (larger in foreground, smaller in background), was apparent in 11.5% of images. Foreshortening, i.e., visual condensing of object volume towards image depth (or z-axis) occurred in 15.2% of images. Vanishing lines were present in 12.3% of images but only 7.0% of images indicated an obvious vanishing point. Visible horizon lines were present in 8.3% of imagery; this defines the horizontal line at the level of the principal eye point (where the oculus meets the picture plane, see figure 4.26). Occlusion (or interposition) that refers to spatially overlapping objects (foreground objects obscure background objects) appeared in 18.3% of images. Merely 2.5% of images worked with elevation as a perspective technique. Elevation refers to the vertical distance of visual objects from the horizon line; the closer an object is to the horizon line, the farther away it is in visual depth from the oculus. Altogether, linear perspective techniques were present in 75.1% of images (figure 4.27).

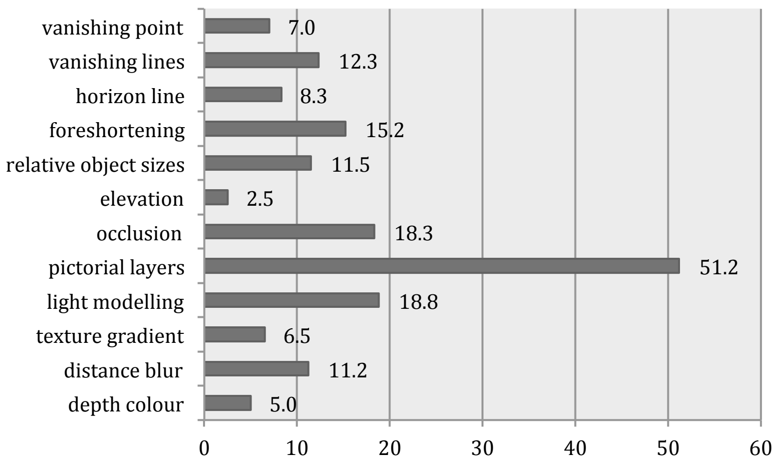


Figure 4.27: Coding values for pictorial depth and perspectivity in the image.

Aerial (or atmospheric) perspective techniques were utilised in 41.5% of image data. This included 18.8% of image data that modelled visual depth through lighting and 11.2% that used a defocus blur to indicate distance. 6.5% of images worked with texture gradients, which diminish graininess and pattern spacing towards the image's depth, and 5.0% of images deployed depth colouring, i.e., reduction in colour luminance and saturation towards image depth and/or atmospheric colour shifts (e.g., blueing of distance shades in landscape images).

Over half of all images in the data set (51.2%), by far the most extensively applied perspective technique in transhumanist imagery, worked with depth layering (pictorial layers), which is the visual creation of multiple visual planes parallel to the picture plane along the z-axis. These visual planes serve as discrete depth-levels containing geometrically proportional visual information yet suppress continuous visual space. This means, illusion of visual depth was achieved by a stacking of flat visual planes and not through congruous depth geometry. Very common in this data set, depth layering consisted of only one additional visual plane to the primary picture plane, i.e., the relative creation of perspective through a single foreground (containing the main image subject) and a single background plane. The high occurrence (64.6%) of flat 2D settings in the data set (section 4.9.1 below) aligned with the "flattened" depth technique of layering. Layering of image content might involve a variable number of image panes, from single fore and background to fore, middle, back (figure 4.28) or multiple fore and middle grounds that each holds discrete image components. Contemporary digital compositing relies heavily on the technique of layering when assembling visual content from various media sources.

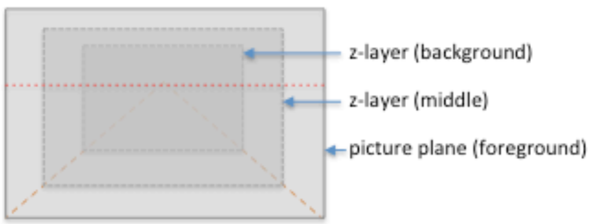


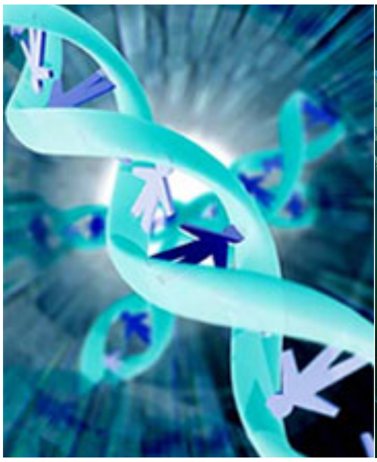
Figure 4.28: Schemata of pictorial layering with limited depth illusion. Source: G. Frommherz.

4.8. Temporality in the image

Temporality in images invokes the visual representation of motion and velocity. Of the entire data set, 80.5% of images (*r*=483) were coded in this category. Coding for temporality was benchmarked against action in the primary subject and against the presence of a motion iconography such as repetition of form, movement in lines, temperature and vibrancy of colours, presence of motion blur, temporal trajectory of subject matter, or vivid dramaturgy in the pictorial environment.

4.8.1. Iconographic Velocity

Movement, dymanics and velocity in the image, i.e., the *temporalisation of pictorial space* (*cf*. Dufrenne, 1973), depends on a number of pictorial aspects from manifest composition to latent shifts in colour temperature. Most often, dynamics in an image is established by application of multiple temporal iconographies, i.e., movement both in form and in colour and/or light values, but sometimes pictorial temporality can also conflict with a presence of motion in colours within an otherwise rather static image composition.



4.29.1: Dynamic composition, repetition of form and colour, motion blur, movement in luminance. *Transhumanism*, unknown artist (2009)

4.29.2: Movement in lines, temporal trajectories through lines and illumination. *Transhuman*, Michael Blade (2013)

4.29.3: Movement in lines, motion blur, repetition of lines, movement in luminance. Jacket illustration for *Los Nuevos 10 Mandamientos* by Carlos Rivers (2008)

4.29.4: Repetition of form and colour, dissolution of contour, instability of form, colour temperature. *Alexandre – Transhumanism*, Betamorph Digital (2012)

4.29.5: Dynamic composition, temporal trajectory in objects, instability of form, repetition of form. *Breakthrough*, Tonis Pan (n.d.)

4.29.6: Movement in lines and colour, dissolving contour, instable forms, colour vibrancy, movement in luminance. *Interstellar*, The Imaginary Foundation (n.d.)

Figure 4.29: Image examples of instances of pictorial temporality.

Across the data set, 300 images were specifically coded for pictorial velocity (figure 4.30). The single highest occurrence of a temporal variable in pictorial expression was indicated by movement in lines and/or temporal trajectories in the image, rating with 16.7%. Movement in lines often occurred as radiating light rays, as a zooming linear form or as flowing strings, cables or wires. Dynamics in the image's composition appeared in 13.3% of data with arrangements that were off-centre, unbalanced, or diagonal and in this way suggested instability or movement (figures 4.29.1, 5, 6).

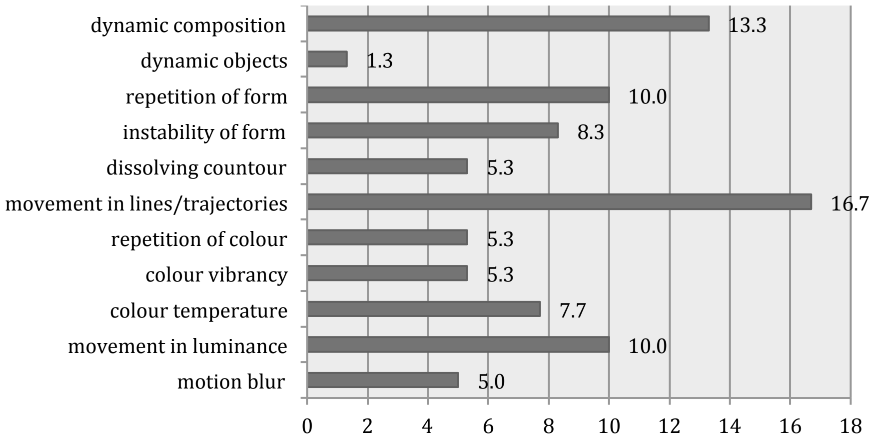


Figure 4.30: Coding for pictorial temporality.

Repetition of form (figures 4.29.1, 4, 5) and movement in luminance (figures 4.29.1, 3, 6) each accounted for 10.0% of coding occurrences. Movement in luminance describes shifts in the brightness of pictorial space in order to indicate temporal change or movement in image structure. Similarly, variation in colour temperature might indicate temporality in the image, as was present in figures 4.29.4 and 4.29.6; this applied to 7.7% of temporal image data. Instability of form occurred in 8.3% of images and is shown in figures 4.29.4-6. Dissolution of contour appeared in 5.3% of data, i.e., outlines that disintegrated and dispersed. Dissolving contours can be observed in figure 4.29.4 and also in the background pattern of figure 4.29.1. Repetition of colour in order to achieve a dynamic effect was present in 5.3% of data, as can be seen in figures 4.29.1 and 4.29.4 but also in figures 4.29.3 and 4.29.6. Also with 5.3%, changes in colour vibrancy emphasised dynamic image content. Motion blur, a common motion technique especially in moving image production, was present in 5.0% of image data. Motion blur creates a motion haze or fuzziness that indicates movement in form, such as in the image backgrounds of figures 4.29.1 and 4.29.3. Only 1.3% of data worked with dynamic objects, i.e., objects that by themselves would imply velocity, such as wings, wheels, travelling lights etc. The significance of an iconography of motion and temporality in transhumanist imagery will be discussed in chapter eight, section 8.2.2.

4.8.2. Subject activity

Of the 600 images in the primary data set, only ten images (1.7%) depicted active motion in the image subject, i.e., progressive motion-in-action (such as running or performing any other continuous physical activity). Arrested motion, i.e., activities or movements that are frozen, halted in time for the moment of the picture, was apparent in 32.5% of images. Arrested motion, albeit suggesting action, represents poses rather than live motion; these poses are "movement realized in immobility" (Dufrenne, 1973, p. 278). Still poses, unlike active motion and arrested motion, are compositionally conceived as stills, often with visual dynamics altogether removed from the scene. Still images accounted for 46.3% of images, covering the relative majority of data (figures 4.31 and 4.32).

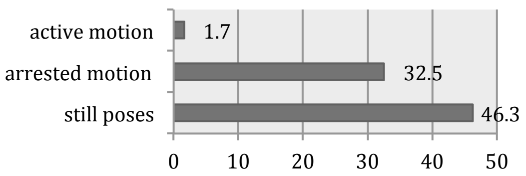
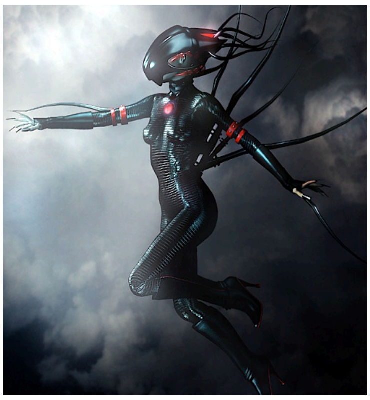


Figure 4.31: Coding for temporality in subject activity.



4.32.1: Active motion. *Touching the Light*, Valentina Kallias (2011)

4.32.2: Arrested motion. *HAL Robot Suit*, University of Tsukaba (c.2007)

4.32.3: Still pose. *Porcelain Splinter*, Conzpiracy (2009)

Figure 4.32: Image examples of various dynamics in subject activity.

Coding for active motion in the transhumanist image (figure 4.33), i.e., indication of activities in the moment of their engagement, included actions of object handling with 6.8% of data. These were activities by the image subject that involved an animate engagement with image objects. Interaction with other subjects in the image accounted for 2.5% of data, and walking motion for 2.0%. Running motion as well as flying or floating activities each rated with 1.0% of data. Swimming occurred in 0.2% of images. Thus, object handling was the single highest transhumanist activity in the data set, with 50% occurrences relative to the coding category of active motion in the image.

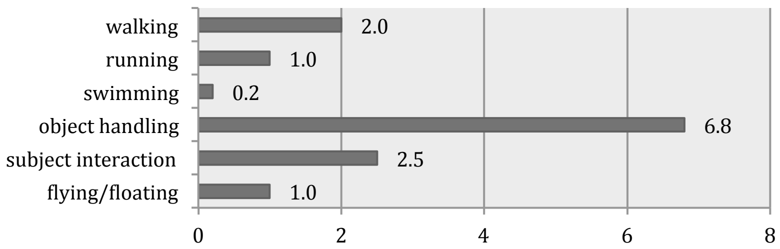


Figure 4.33: Types of active motion in the image subject.

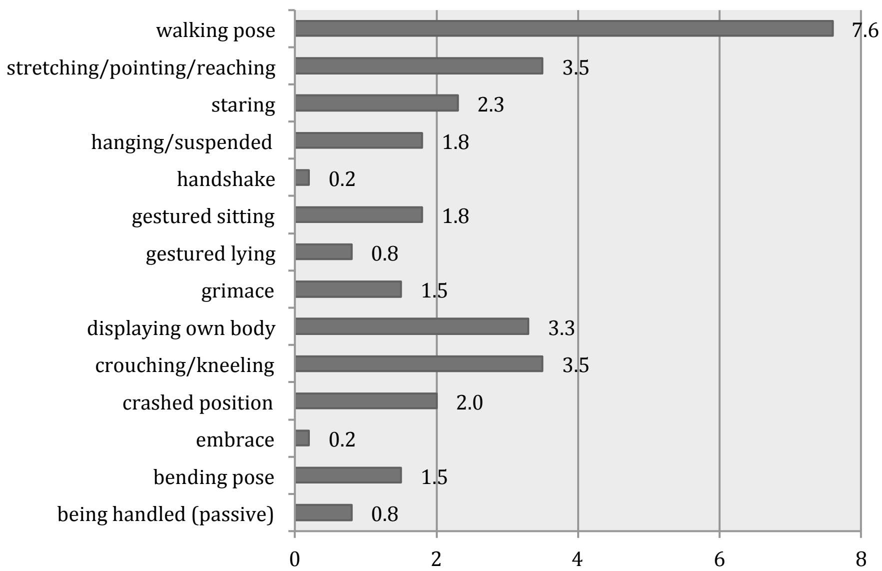
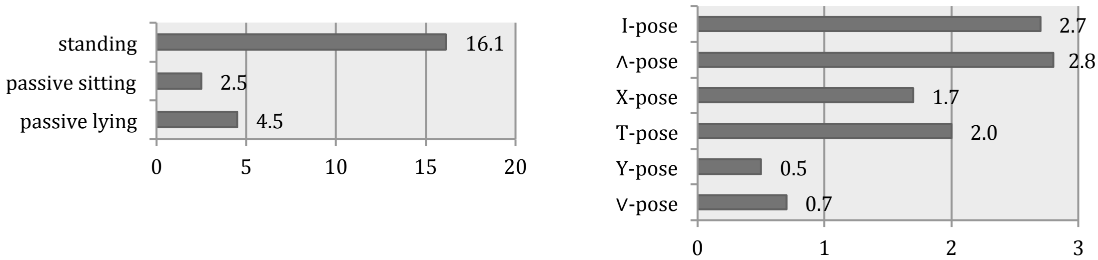


Figure 4.34: Coding for arrested and posed activities in the image subject.

Subject activities in arrested motion involved walking poses with 7.6% of data (25.4% relative occurrences within the arrested motion category), reaching out, stretching and pointing into image space accounted for 3.5% of data. Likewise, crouching and kneeling poses also rated with 3.5% of data. Gestures and poses of pointing toward their own body and/or actively flaunting the embodied self, appeared in 3.3% of data. Staring poses, i.e., actively looking at an object, second subject in the image or the beholder, showed in 2.3% of data. Next, hanging, dangling, or otherwise suspended poses stood at 1.8%; the same values applied to gestured sitting poses. These were poses that engaged the image subject in a sitting yet active way, in suggested action while seated. "Frozen" facial gestures, i.e., grimacing or deliberate expression of emotion, rated with 1.5% in the data set.

The same coding value applied to bending poses that suggested a leaning body movement yet were purposefully choreographed and halted for the image. Poses of gestured lying, i.e., reclining postures that suggested active motion, ranked at 0.8% in the data set and either variable of shaking hands, an embrace and a crashed position of the subject body accounted for 0.2% each of data (figure 4.34).



4.35.1: Coding for main passive or still poses

4.35.2: Types of standing poses and their coding values

Figure 4.35: Coding for still poses by the image subject.

Coding for still poses in the transhumanist image indicated that 16.1% of data depicted standing poses, 4.5% reclining or lying, and 2.5% sitting poses (figure 4.35.1). All of these poses showed the image subject in rested, passive display.

4.8.3. Standing poses

Among the 62 passive standing compositions in the data set (figures 4.35.2 and 4.36), I-pose positions with closed legs and hanging arms accounted for 2.7% of images (25.8% of straight standing poses). Λ-poses with angled downward arms occurred in 2.8% of images (27.4% of standing poses) and X-poses with open legs and upward stretched arms were present in 1.7% of images (16.1% of standing poses).

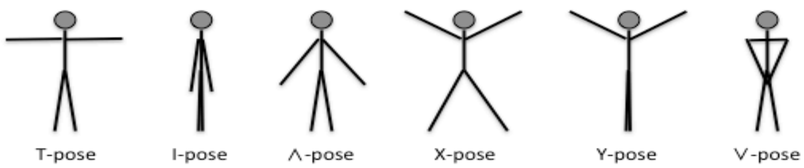


Figure 4.36: Illustration of main standing poses. Source: G. Frommherz.

Y-pose, same as X-pose but with closed legs, was depicted in 0.5% of images (4.8% of standing poses). The Y-pose is the classic reaching pose toward a higher reference point. T-poses, generally present as an open, neutral body pose for proportional assignments, were represented in 2.0% of images (19.3% of standing poses).

Last, the V-pose, a closed arm down pose, occurred in 0.7% of data (6.5% of standing poses). The V-pose is a pose of self-protection and concealing rather than confidence and revealing such as the other standing poses (Hall, Coats & Smith LeBeau, 2005).

4.8.4. Gaze

Gaze in the image subject generally signposts active engagement by the subject with image objects, other image subjects, the beholder or with intangible image space, and as such provides indicators of the temporality of an image. Gaze by the image subject animates the illusionistic space of the picture but it also actively encourages interaction with the spectator. Direct gaze by the subject towards further subject matter in the image or towards the beholder signifies a liveliness, involvement and active participation as compared to unaware or introspect poses (*cf*. Elkins, 1996, 2007; Kress & van Leeuwen, 1996; Carney, Hall & Smith LeBeau, 2005).

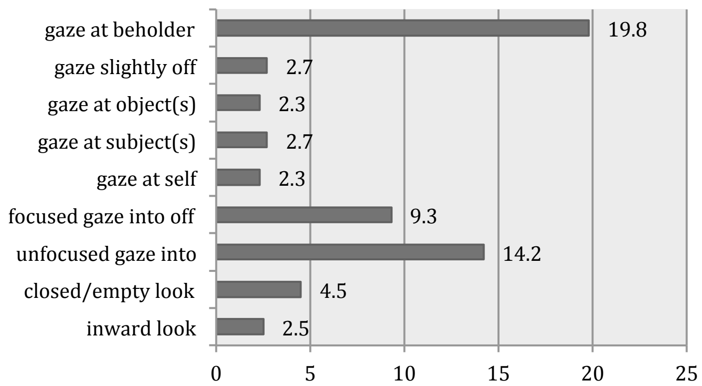


Figure 4.37: Coding values of gaze in the image subject.

Of the 600 images in this data collection (figure 4.37), 362 (60.3%) images could be coded for various types and directionalities of gaze (figure 4.38). The majority of image data (19.8%) depicted subjects that looked straight at the beholder in an overt, direct gaze. Direct gaze in Western visual culture often encodes confidence, challenging and assertiveness by the image subject, but also an invitation to engage and agreement with the communication by the image subject (Kendon, 1967; Elkins, 2007). A further 2.7% directed gaze towards the beholder but without making direct eye contact. Subject orientation towards the spectator without eye-contact indicates an ambiguous relationship between image subject and beholder.

Together, gaze at the beholder accounted for 22.5% of the total image set (or 37.3% of gaze-coded images). In comparision, only 2.3% of image subjects looked at objects as part of the image's subject matter, and 2.7% looked at other subjects in the image. It became apparent that image subjects tended to pose for the beholder and generally engaged the spectator with a direct stare. In contrast, 2.3% of subjects focussed their gaze at themselves, and 2.5% of subjects evidenced an inwardly directed gaze. A further 9.3% of image subjects engaged an active looking into a distance off the image frame while 14.2% directed their gaze off the image yet in an unfocused, inactive way. In addition, 4.5% of subjects either displayed an empty look or had their eyes closed. Hence, a direct gaze at the beholder and an inactive gaze off-frame were the two most prevalent occurrences in the coding category for gaze.


4.38.1: Direct gaze. *Post-Human #2*, Kristie Arakelian (2011)


4.38.2: Directed gaze off beholder. *Cyborg in Beautiful Disintegration*, Danielle Tunstall (2010)


4.38.3: Gaze at subject. *Untitled*, Neil Blevins (2001)


4.38.4: Gaze at objects. *Stoneman*, De Es Schwert-berger (1970-80)


4.38.5: Inward gaze. *Untitled*, Aboc23 (2010)


4.38.6: Focused gaze into off. *Cyberspace: Binary Light,* White Bear (2002)


4.38.7: Unfocused gaze. *Lady Gaga for L'Uomo Vogue*, Inez & Vinoodh (2012)

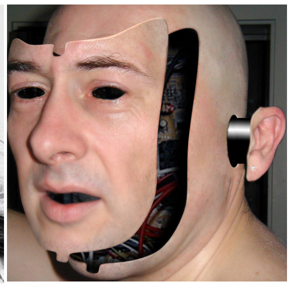

4.38.8: Empty look. *Cyborg*, Michelle Zell-Wiesmann (2003)

Figure 4.38: Image examples of gaze in the image subject.

Generally, temporality in the transhumanist image transpired as iconographies of velocity such as speed lines and rhythms in form, colour and light, or as subject activities that involved dynamic actions and/or poses. However, as a pictorial strategy, temporality in the transhumanist image appeared rather limited – especially when compared to iconographies of speed, multitude and vitality as they arose in the art styles of Futurism, Fluxus and Cubism. It seemed that transhumanist visuality did not take advantage of a dynamism that was present in earlier visual genres, and also largely ignored contemporary techniques of pictorial motion as prevalent in present-day motion graphic productions. The relative absence of subject activity, motion and temporal features in the transhumanist image will be discussed in greater detail in chapter eight.

4.9. Pictorial representation

Representation in visual works deals with the correspondence to actuality of pictorial subject matter. Pictorial representation involves both presentation of image content and style of representation, i.e., the image's mimesis. As the subject of the transhumanist image itself was coded across a number of categories as shown above, in this present section only setting or pictorial environment and actual visual mimesis were coded. A broader discussion of pictorial representation in transhumanist visuality follows in chapter eight.

4.9.1. Pictorial environment / setting of image subject

This coding category accounted for the visible setting in which an image's subject matter was placed including pictorial environments and backgrounds. Of the 600 images in the data collection, the majority of 64.6% displayed their subject matter against 2D and $2D^+$ backgrounds of which 37.8% were background colours, both flat colour and gradient colours, and 26.8% were graphical backgrounds. $2D^+$ describes a two-dimensional representation that includes moderate levels of depth illusion, e.g., graphical indication of shadows against an otherwise flat background. $2D^+$ is different from 2.5D, which presents visually modelled depth (e.g., through spatial arrangement of objects and light space), and it is also distinct from "true" 3D that additionally relies on coherent three-dimensional pictorial geometry.

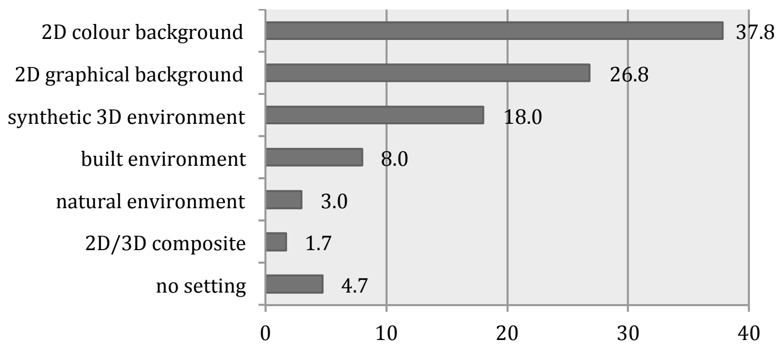


Figure 4.39: Coding values of pictorial environment/image setting.

Across the entire data set, 18.0% of images presented a synthetic 3D environment, i.e., artificial and imaginary settings, often a combination of fantasy and techno-futuristic themes. Man-made, built environments accounted for 8.0% of images, which included photographic backgrounds of real-world scenarios. A mere 3.0% of images presented a natural setting, i.e., a display of a natural or nature-like scene. This group included visualisations of outer space environments as long as these were not flattened backdrops. 2D/3D composites described a group of images that combined flat graphics with 3D spaces, which were either real world or synthetic (CGI graphics). In addition, 4.7% images did not present any visible environment at all, mostly for reasons of shot-size (e.g., extreme close-ups), frame-filling patterns or tessellations (figure 4.39).

4.9.2. Mimesis

Mimesis deals with the imitative representation of the phenomenological world in creative artefacts, i.e., the illusionistic authenticity in visual reproduction (see chapter eight). Two-dimensional graphical visualisations, i.e., images that were presented in a flat, non-perspectival manner, accounted for 14.2% of images. The graphical 2D code included only imagery that was solely two-dimensional in representation and ignored images that also contained three-dimensional components, e.g., images of 3D characters against a 2D background.

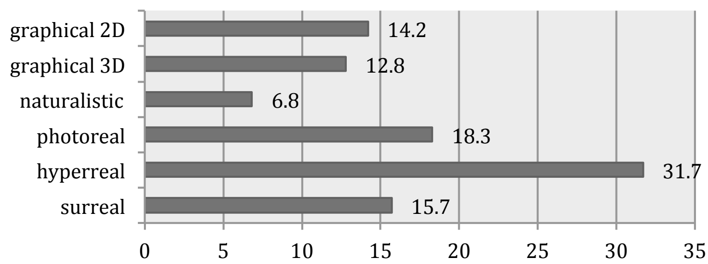
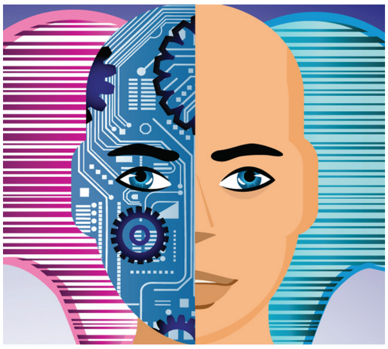
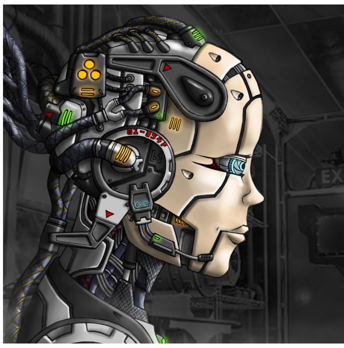


Figure 4.40: Coding values of mimetic variables.

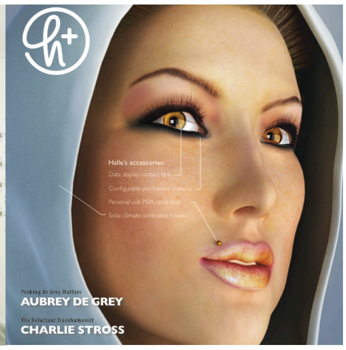
Graphical imagery, as used in this study, denotes a type of visual representation that tends to be more abstract and reduced in voluminous form, is spatially discrete rather than continuous, often revealing of the artistic process (e.g., through traces of deployed art materials and/or production techniques), and is less illusionistic, i.e., less suggestive of perceptual imitation of an empirical world. This is different from Ihde's (1998) use of the term that he relates to *text-like visualisations* or what Mitchell (1994) calls *pictorial texts* and Latour (1987) visual *inscriptions*. It is also different from the history of image production that associated *graphical* with specific production and reproduction techniques. Unlike a limitation of graphical representation to semiotically readable (and reproducable) visuals (e.g., charts, graphs and models), the term *graphics* in this study involves figurative illustrations as long as they favour visual summation over illusionistic elaboration. Hence, *graphical* is used qualitatively in order to address image elements that are either synoptic (e.g., by artistic choice) or compromised (e.g., through unintentional technological artefacts) in their perceptual verisimilitude with respect to a "real" or "as-if-real" lifeworld. In their stylistic expression, graphical representation, as applied in this study, tends to be rather conceptual than tactile, intellectual than visceral, synoptic than descriptive, formal than elucidatory.


4.41.1: Graphical 2D. *Transhumanism*, Deborah Hughes (2012)


4.41.2: Graphical 3D. *Female Cyborg*, Shin Davis (2010)


4.41.3: Naturalism. *Switch*, Dominic Wilcox (1996)


4.41.4: Photoreal mimesis. *Beauty in the Posthuman*, Conzpiracy (2009-2014)



4.41.5: Hyperrealism. *H+ Magazine Cover, Edition #1,* Fall 2008


4.41.6: Surreal mimesis. *Sci-Fi Girl Wallpaper*, The Gates (2012)

Figure 4.41: Image examples of common mimetic forms in the transhumanist image.

Unlike graphical 2D visualisations, graphical 3D imagery involved representations based on abstract three-dimensional form, e.g., 3D wireframe illustrations, three-dimensional yet highly reduced models and characters that did not offer the details and mimetic resolution of naturalistic or photoreal representations. This group of images accounted for 12.8% of the data set.

Naturalistic representations rated at 6.8% and accounted for the smallest group of visual form in the data set. Naturalistic mimesis relates to images that intend to depict subject matter close to real-world vision, what Ihde (1998) might call literally isometric-phenomenological. Naturalism in this data set was mostly achieved through photographic technique but also via CGI composites. Naturalistic imagery deliberately conforms to perceptual imperfections in visual representation, i.e., inclusion of optical "mudding" such as flat lighting, incomplete separation of objects and surrounding, or shifts in colours because of insufficient light or low image depth. Also typical to naturalistic depictions is arbitrary framing and composition (e.g., the "snapshot" image). However, a determining criterion of naturalistic imagery in this data set relates to relatively unrefined, often dull, colours and absence of light modelling. Overall, naturalistic mimesis avoids idealisation of visual material by precluding pictorial stylisation.

In contrast to naturalism, photorealism (as well as hyperrealism and surreal image resolutions) did not intend to refer to real-world perception but to the artifice of the reproduced image itself. This means that photorealistic imagery, while maintaining a high level of visual realism and great detail like the naturalistic image, nevertheless stylises image content by artistic framing, composition and light modelling. In a way, photorealism in this data set may be understood as stylistically enhanced naturalism. Both naturalism and photorealism share a high illusionistic mimesis. Photorealistic expression involved 18.3% of images.

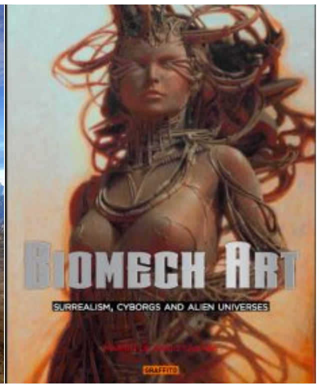
Hyperreal imagery, with 31.7% the largest group in this coding category, comprises an approach to visualisation that, in some ways, advances photoreal mimesis. Hyperreal visualisation is true simulacrum in the sense that the image's illusionistic reality is fully constructed; there is no original real-world picture as a base for hyperreal imagery – yet the image depicts a believable *as-if* reality (unlike surrealism). Stylistically, the hyperreal image is *more real than real*; minute details are emphasised, compositions are meticulously arranged, textures and surfaces are conscientiously modelled, lighting is crisp, sharp and purposefully revealing. Colours tend to be enhanced and well balanced, this way corresponding to an aesthetic common in advertising and commercial photography (see figure 8.5).

4.42.1 (top): *Assembler*, Kosmur (2008)
4.42.2 (bottom): *Damaged*, Valentina Kallias (c. 2008)

4.42.3: *Sol Gara*, Pascal Blanché (n.d.)

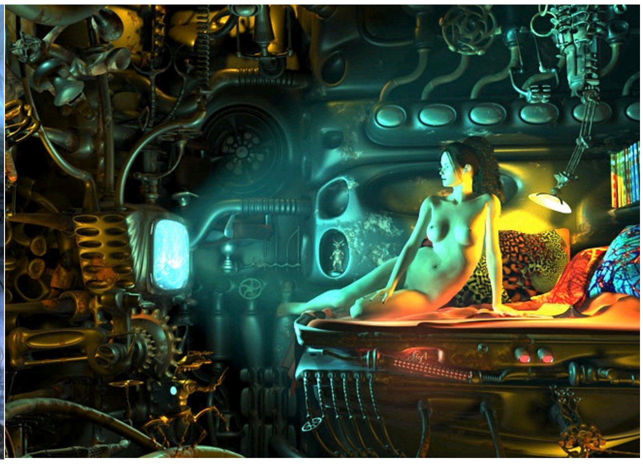
4.42.4: *Dust in the Wind*, unknown artist (n.d.)

4.42.5: *Male Robot*, Andreas Meyer (n.d.)



4.42.6: *Biomech Art*, Graffito (2013)

4.42.7: *Memory Crash on Wireless Waves* (detail), Frank Picini (2008)



4.42.8: *The apartment: bedroom*, Tran Gilles (2007)

Figure 4.42: Technological surrealism in the transhumanist image.

Surreal mimesis in this data set, counted at 15.7%, exhibited stylistic forms of what could be called “technological surrealism”: technical subject matter resolved in the fantastic style of surrealism. Surrealism, especially in its 21^{st} century expression, encourages radically transmogrified forms, bizarre fantasy creatures between bio- and techno-morphs (figure 4.42).

A considerable number of transhumanist images in this data set relied on stylistic elements from both hyperrealism and futuristic surrealism, often with surreal themes as subject matter resolved by digital hyperreal techniques (see figure 8.4). Taken in their combined occurrence, hyperreal and techno-surreal transhumanist imagery accounted for 47.4%, i.e., nearly half of all image data in this study. This means that illusionistic resolution in the transhumanist image presents visions of future humans that are significantly stylised, idealised and aesthetically elevated, while at the same time they present subject matter that resides outside of what is known to human perception.

4.10. The archetypal transhumanist image

Coding for manifest subject matter in and mimetic characteristics of the trans-humanist image revealed futuristic visualisations were focussed on singular image subjects. There was a prevalence for young and white individuals, and a significant number of androgynous personae that were presented in hyperreal resolution, sometimes with notable surreal image content and mimesis. Most image subjects posed for the purpose of staging their subjectivity as the main visual content; active motion and pictorial temporality were commonly absent from trans-humanist visuals. A great number of images presented subjects that seemed self-aware, were stylish and/or vain, exhibited power and superiority, or lured with erotic appeal.

Transhumanist embodiment produced various embodiment patterns of which the mechanical cyborg, the informational body, and biomedical visualisation of corporeal structures seemed to be the most prominent designs. While display of a technological subjectivity was prevalent for describing the cyborg image, visual concern for coherent image settings or imaginary environments seemed lacking. With respect to formal composition, transhumanist imagery appeared to conform to existing digital visualisation standards with little or no aesthetic innovation in pictorial resolution. Commonly, transhumanist images complied with contemporary high-gloss advertising-style visuals. Figurative illusionism over a flattened graphical background was by far the most common mimetic presentation of the transhumanist image.

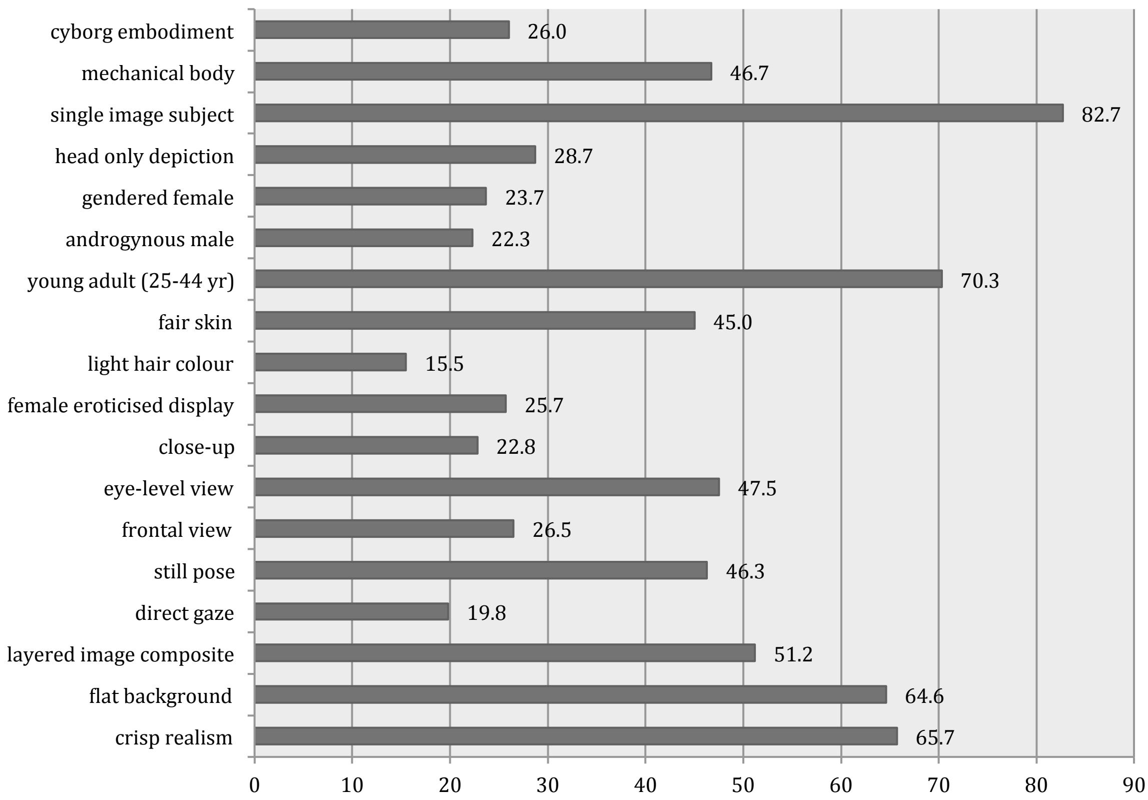
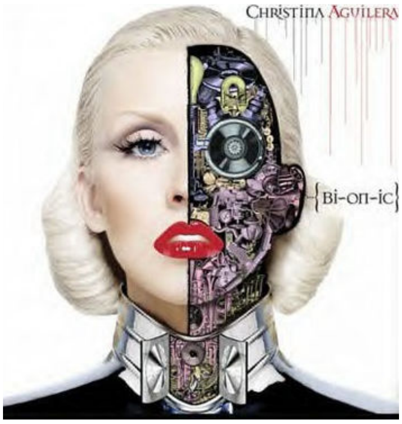


Figure 4.43: Combination of highest coding occurrences (percentages relative to *i*=600).

From this summative analysis of image content a rather narrow typology of the transhuman arose (figure 4.43). The data suggested that the image of the "typical" transhuman subject is presented as a singular individual that is either androgynous male or gendered female, is of young adulthood (25-44 years) and of Caucasian traits. The archetypal image of this transhuman would be captured close-up at eye level or slightly below eye level, the subject being in a still pose frontally and looking straight at the beholder. The transhuman subject would be a rather mechanical cyborg, displaying only the head maybe including the shoulders or chest. The image subject would be composited over a flat background of either colour or graphical patterns with very little, if any, spatial depth. Mimesis of the transhuman image would be predominantly hyperreal, possibly with some photo-realistic and/or surreal qualities (image examples in figure 4.44). The descriptive iconological analysis of transhumanist visuality suggested the transhuman as solitary, sanitised and enhanced by an unsullied hypersexuality, and it sketched the cyborg image as flat and static but intense – all conforming to a technological aesthetic that emphasises order, controllability and the clean precision of a machine.

4.44.1: *Cyborg Chick*, Thaw18 (2012)

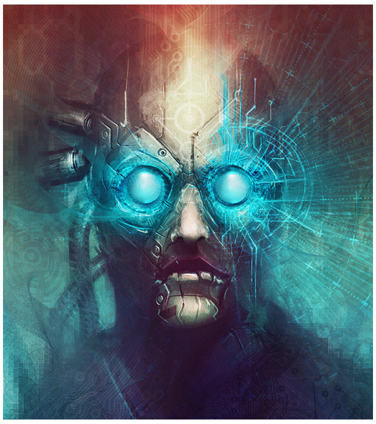


4.44.2: *Album Cover Bionic by Christina Aquilera*, Dean Stockton (D*Face) (2010)

4.44.3: *Female Cyborg*, Organic Machinery (2010)

4.44.4: *Cyborg*, unknown artist (n.d.)

4.44.5: *Male Cyborg*, Chris Harvey (n.d.)



4.44.6: *Noistromo Transhuman*, Marius Siergiejew (2011)

Figure 4.44: Examples of typical transhumanist iconography in popular cyborg imagery.

The leading themes that arose from the analysis of manifest content in the visuality of popular transhumanism involved 1) considerations of future selfhood and identity, 2) major conceptualisations of future embodiment, 3) a sense of elevation and superiority through technological transformation, and 4) interactions between art historic traditions and the contemporary cyborg image. The intrinsic meanings of these themes will be interpreted and discussed in the following chapters: transhumanist subjectivity in chapter five, posthuman embodiment in chapter six, the “divine” cygorg image in chapter seven, and the figurative mimesis of the transhumanist image in chapter eight.

4.11. Summary

This chapter summarised the main trends in the iconographies of the trans-humanist image by counting and describing prevalent pictorial characteristics as they became evident in the data collection. Principal embodiment types of the future human, demographic attributes of the posthuman, prevalent body images of transhumanist identity, and formal image composition were coded in order to produce a summative account of transhumanist visuality. The findings from the content analysis of visual data evidenced the appearance of a typological transhuman subject in transhumanist imagery. They also produced an indication of salient traits in the transhumanist image that circumscribe a recognisable image typus. The quantitative description of the transhumanist image in this present chapter provides the basis for a qualitative comparision, triangulation, and contextualisation of individual pictorial traits with the larger programme of transhumanism. A more detailed discussion of the significance of the iconographic registers in transhumanist visuality follows throughout the coming data interpretation chapters.

Chapter 5: **Transhumanist Selfhood: The Vain Image**

5.1. Introduction

This chapter delivers an outline of the transhuman subject as it appears both in present-day communities and in the imaginings of a future humanity. A comparison of ethno-racial characteristics, gender and age between the general transhumanist population, transhumanist leaders, and image subjects in cyborg visuals introduces the current demographic trends of transhumanism. Following this, several of the leading body images in transhumanist visuality are analysed: the cosmetic and vain cyborg subject, muscular machines and idols of power, and the hypersexual cyborg body. A discussion of transhumanist body images shows how popular visions of the cyborg sketch a future self that oscillates between a desire for radical self-actualisation and the promotion of technology.

5.2. Demographics and self-image of transhumanism

Analysis of transhumanist visuals in this study showed that the imaginary post-human subject was predominantly white, young adult, confident[57], aesthetically and ethically self-conscious[58], and leisurely[59]. Likewise, photos of self-identified transhumanists leading the movement (see appendix A3) revealed them as members of a white intelligentsia and identified transhumanism as a predominately Anglo-American movement. Although the World Transhumanist Association affirmed that today over 100 nations worldwide participate in transhumanism, the movement originated in the tech hubs of Silicon Valley and related centres of innovation, and it continues to promote the interests of a "transnational corporate and intellectual 'digirati' class" (Gajjala, 1999, p. 2; *cf*. Fukuyama, 2002; Hughes, 2004a; N. Rose, 2007). The transhumanist James Hughes (2002a, para 1) acknowledged that, "contemporary transhumanism has grown out of white, male, affluent, American Internet culture".

The analysis of demographic data on the pioneers, founding members and leaders of transhumanism indicated that they were almost exclusively male, mainly of Caucasian trait, were generally older than the average transhuman member (45+

[57] 37.3% coding occurrences orient gaze at the beholder and 93.5% of standing poses present open postures.
[58] 51.7% of images present themes of vanity, fashion and idle lifestyle. Further 21.2% of images depict their primary subject as essentially superior or divine.
[59] 57.6% coding occurrences depict their subjects in idle poses.

with a peak in the 60s age group), lived in smaller cities in USA and UK, and held a PhD. The leading crusaders of transhumanism were mostly entrepreneurs, researchers and academics; many of them engaged in several professional activities at the same time and maintained comprehensive professional profiles. Main professional fields included maths/computing, cognitive sciences, biotechnology, bioethics, and contemporary philosophy. All members in the group of transhumanist leaders were seen to be highly successful in their professional engagements, and they commonly deployed transhumanism as a strategy of career advancement and as an expression of status and wealth[60]. Most of the transhumanists who had made areas of transhumanist interest their professions (e.g., new scientists, techno-entrepreneurs, transhumanist academics; henceforth referred to as "careers") held senior positions in their fields, were generally well published, able to attract research/venture funding, and generated significant levels of professional visibility. Hughes (2002a) reckoned that the high profile of transhumanist leadership "could be leveraged for considerable political effect" (para 35). The formation of the Transhumanist Party in late 2014 seems to support this perception.

The first generation of transhumanist pioneers (Vernor Vinge, Hans Moravec, Ray Kurzweil, Frank Tipler, Gregory Stock, Robert Freitas, and Eric Drexler; see appendix A2) were born in the years post-World War II and belong to the American Baby Boomer generation (c. 1945-1957). This generation saw economic growth, relative prosperity and plentiful professional opportunity during their formative years (*cf.* L. Jones, 1980; Weiss, 2000; Gillon, 2004). Baby Boomers have often been described as self-indulgent, self-centred and focused on self-fulfilment (Willett, 2011) – traits that notwithstanding their stereotyping effect on a whole generation were visible in the self-actualisation agenda of transhumanism. The younger generation of transhumanist proponents (Nick Bostrom, Anders Sandberg, George Dvorsky, Ben Goertzel, Zoltan Istvan, Andy Miah, and Eliezer

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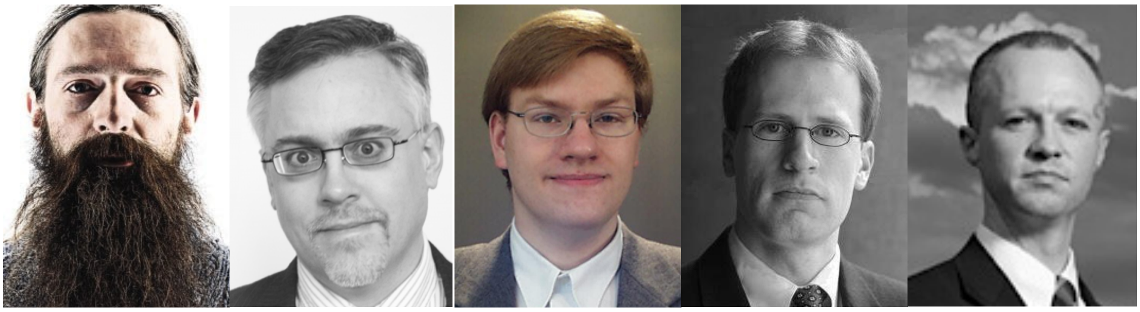
[60] Many of the present transhumanist leaders are well-to-do professionals with often extensive support networks. For example, Aubrey de Grey states that he has inherited about US$16.5 million from his mother's artist estate (Best, 2013). Ray Kurzweil's net worth is estimated at US$27 million (TheRichest, 2013); his technical inventions and future predictions earned him 20 honourable doctorates over the years (Inquisitr, 2015; Kurzweil Technologies, 2015). Several of transhumanist scientists have gained prizes and awards of significant value; others received venture capital in support of technological entrepreneurship, e.g., through billionaire and co-founder of PayPal, Peter Thiel. Gelles (2009, para 8) asserts that transhumanism "is flush with cash from dot-com millionaires". A further significant patron of transhumanist projects is the Defense Advanced Research Projects Agency (DARPA) under the US Department of Defense (Garreau, 2005; Correia, 2010).

Yudkowsky) belong to Generation X (c. 1961-1981) that grew up in an era of broad technological innovation and globalisation, and the resulting opportunities that came along with expanding technology networks. Sometimes referred to as *entrepreneurial generation* (Winograd & Hais, 2011), Generation X has been considered opportune, self-driven, and open to change (Miller, 2011). Coupland (1989) described Generation X as innovative yet conservative, stylish, well educated and professional with an "impressive, credential-packed resume" (p. 83). Generation X has been thought to favour creativity and experimentation with rules, yet would still seek economic security and philosophical certainties (Coupland, 1991). They have been regarded adaptable professionals in the *age of the cool nerd* (Hodgkinson, 1995), technologically versatile and quick to adopt new gadgetry.

FM-2030 (*1930, Fereidoun M. Esfandiary, †2000) | Hans Moravec (*1948) | Raymond Kurzweil (*1948) | Natasha Vita-More (*c.1950, Nancy Clark) | Max More (*1964, Max T. O'Connor)



Aubrey de Grey (*1963) | James Hughes (*?) | Anders Sandberg (*1972) | Nick Bostrom (*1973, Niklas Boström) | Lincoln Cannon (*?)

Figure 5.1: Core transhumanists.

Visual analysis of the self-presentations of some of the transhumanist leaders (figure 5.1) showed several aesthetic parallels with the deportment of the typological transhumanist subject image (see figure 4.44). An aesthetic of self-display, poised posture, direct gaze, light modelling of facial features, and the absence of contextual space was comparable across the two image sets. The depictions in figure 5.1 presented the individual as notably idealised, and the images were evocative of enhanced celebrity images (Bernhard, 2001; Du Preez, 2004; Grundmann, 2007). Indeed, many of these portrait photographs suggest that transhumanist leadership functions as a sort of celebrity status. Display of subjectivity in these photos was rigorously choreographed; facial features were sculpted with light effects, convincingly worked over with image retouching and filter techniques. Disposition of subjectivity was enhanced by expressions of confidence and authority. Masculinity was accentuated in the visuals of FM-2030 and Max More, intellectualism featured in James Hughes' and Nick Bostrom's images, and a desire for youthfulness foregrounded in Ray Kurzweil's and Natasha Vita-More's depictions. A degree of heroism appeared in some takes, particularly visible in Lincoln Cannon's and Hans Moravec's portraits. In Aubrey de Grey's and Cannon's image a touch of divinity enhanced the appearance of pre-eminence.

Many of these photos were staged in ways that present the image subjects as self-aware of the psychological effect of their enhanced iconographies. Although professionally shot and enhanced portrait photography is a common standard in today's self-presentation economy, many of the transhumanist self-displays seemed particularly aware of the art of *impression management* (*cf.* Goffman, 1959; Schlenker, 1980; Piwinger & Ebert, 2001). Vita-More, More and Kurzweil, for example, are known to be highly conscious about their self-representations, and they are experienced with their own photographic mien (Bernhard, 2001; Time, 2011; KurzweilAINetwork, 2015). They regularly work with star photographers to devise optimised self-images. Vita-More has attended professional photo sessions by Hollywood film director Matthew Patrick, and Kurzweil is a client of a number of star photographers including entertainment photographer Larry Busacca, portrait photographer Bill Wadman, fine art photographer Michael Lutch, and advertising photographer Helene DeLillo (2010) who "specialises in high profile beauty, fashion and technology" (para 1). Above anything else, these photos delivered affirmations of personal merit and of transhumanist certainty – visual themes that incessantly are present across transhumanist imagery. And like the typological transhumanist images in figure 4.44, the photographs of transhumanist prominence in figure 5.1 constructed a transhumanist subject that was idealised by emphasising established aesthetic values, stripping out details and difference, levelling age, gender and race, and by projecting confidence, certitude and reassurance of a universal transhumanist self. It appeared that the transhumanist values of the perfected body, enhanced aptitude and unlimited access to the opportunities of a technologically facilitated world was already embedded in the ways transhumanist prominence staged their self-representations. In this respect, transhumanism seems to aim for the realisation of a self-image that is preconceived by the personal tastes and values of a group of individuals that is concerned with appearance, status and an image of self-made success. However, the gap between the self-images of a fantasy transhumanism and the real-world lives of the average citizen might be as profound as the differences between the historical person of Signora Lisa del Giocondo (1479-1542) and her painting as *Mona Lisa* (Leonardo da Vinci, c. 1503-1506).

Available surveys of the larger transhumanist populace (The Foundation, 2012; Terasem Survey, July 2012; Mormon Transhumanist Association Member Survey, December 2013; Early Adopters Survey, November 2012; Less Wrong Survey, December 2012) identified several key markers of transhumanist demographics, some of which are listed in table 5.2. Demographic identifiers across the different sources recognised the average transhuman citizen as white and male, around 30 years of age and unmarried. He commonly held a university degree, earned an income above US$55k annum, and lived in communities no larger than a small city[61], mainly in USA. He generally considered himself introverted and independent or libertarian[62], and worked in science and technology. In comparison, the transhumanist image subject in the data collection of this study was white male or female at an equal rate, was mainly in its 30s, and seemed to actively participate in a technology and consumer culture[63] (see chapter 4, sections 4.5, 4.6.1 and 4.10).

A comparison of the core demographic markers of gender, age, and race between transhumanist members, transhumanist professionals, and the transhumanist image subject (figure 5.3) indicated a high occurrence of white subjects across all three groups (85%, 91.6%, 87.9%). Male gender occurrence was very high in the general transhumanist populace (90%) and among transhumanist careers (95.8%), but equal male/female (45.3%/45.5%) in the images of transhumanist

[61] Small cities were benchmarked at a population size between >100,000 and <1,000,000.
[62] The Terasem Survey (July 2012) listed 32.7% Liberal and 27.4% Libertarian as the political position of transhumanist members (Pellissier & Dal Santo, 2013).
[63] Evidenced by a very high occurrence of bodily enhancements, use of technological gadgetry, and display of avant-garde techno-fashion trends.

	Foundation	Terasem	MTA	Less Wrong	Pioneers	Image Data
Year	2012	2012	2013	2012		2014
No. of Ref.		818	95	1195	24	600
Gender						
male	94.0	90.1	83.3	86.2	95.8	45.3
female		9.9	11.5	8.9	4.2	45.5
Age				mean 27.2y		
< 19		9.4				2.0
20-29		45.8	16.0			1.7
30-39	47.0	21.5	34.0	90.0	9.5	70.3
40-49		12.1	25.0	5.0	23.8	1.8
50-59		7.7	10.0		9.5	
60-69		3.3	5.5		33.3	2.3
70-79			2.0			
80+					9.5	
Ethnicity						
White		85.4	86.5	84.5	91.6	87.9
Asian		3.3		4.2		
Hispanic				4.0		
Indian				2.4	4.2	
Black		1.0		0.7		2.6
Middle East				0.3	4.2	
Other		10.0		2.8		9.4
Country of residence						
USA	47.0		80.2	54.9	75.0	
UK				8.7	12.5	
Canada				6.2	4.2	
Australia				5.0		
Germany				4.6		
Israel				1.3		
Finland				1.3		
Sweden					8.3	
Russia				1.1		
Poland				1.0		
Hong Kong						
Marital St.						
single		64.4		53.0		
relationship				27.3		
married	47.0	27.2	67.7	18.6		
divorced		6.0				
Education						
no degree		27.0		4.6		
high-school	67.0		19.8	28.1		
bachelor		28.8	28.1	37.0		
postgraduate		27.6	45.9	22.2	81.0 (PhD)	
Occupation						
comp./maths	58.0	27.8		49.3	23.8	
hard sciences				17.2	28.6	
arts & media		13.0		1.9	19.0	
life sciences		10.5		5.0	9.5	
soft sciences				5.0	19.0	
academic		9.1		4.6	52.4	
commerce				7.3	14.3	
research					66.7	
Residence						
large city				43.8	9.5	
small city	61.0			36.7	52.3	
town				11.5	28.6	
village				3.3	4.8	
rural				4.7		

Table 5.2: Comparative transhumanist demographics. Source: G. Frommherz (2014), based on data by The Foundation (2012), Terasem (2012), Mormon Transhumanist Association (2013), Less Wrong (2012), and own image data collection.

subjects. Divergence in age across the three groups was strongest in the careers group. Under 40s accounted for 83.3% in the general transhuman population, about 75% in transhumanist imagery, but only 9.5% in the group of transhumanist professionals. Based on this comparison, there were two notable discrepancies in demographics between the three groups: 1) gender in the transhumanist image did not represent the actual demographics in the other two groups, and 2) age demographics in the leadership group was significant off range compared to the membership group and to the transhumanist image subject. The following sections explicate the demographic differences in gender and age in context to transhumanist identity.

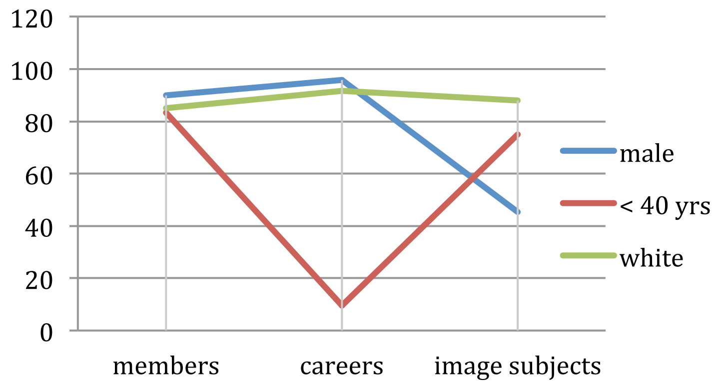


Figure 5.3: Comparison of highest scoring codes – male gender, younger than 40 of age and white ethnic traits – between transhumanist members, transhumanist "careers", and image subjects.

5.2.1. <u>Gender</u>

There is a significant body of work that comments on the dominance of male investment in high-potency technologies, especially technologies of power and control (e.g., Cockburn, 1983, 1985; Hacker, 1989; Butler, 1990; Haraway, 1991; Stone, 1991; Murray, 1993; Faulkner, 2000; Mellström, 2002, 2004; Lohan & Faulkner, 2004; Wajcman, 2004; Connell & Messerschmidt, 2005; Masters, 2005). Romanyshyn (1989) recognised the technologised body of the modern age as an essentially "masculine enterprise" (p. 151). In a recent example of gender distribution in global networking, the Davos 2014 World Economic Forum on hyperconnectivity counted 85% male and 15% female delegates – along with 2000 mobile devices (Rivers/BBC, 2014). Against such a backdrop, male bias in a technological transhumanism might appear unsurprising. Notwithstanding a tendency of male technological hegemony (West & Lay, 2000; Lohan & Faulkner, 2004; Wilson, 2012), gender bias seemed prevalent also in transhumanist circles. The *Extropian FAQ*, for example, contemplated "typical extropians' attitudes towards women, minority racial groups, and people of nonstandard sexual preferences" (More, 1989, #Q9). The juxtaposition of "women", "racial minorities" and "nonstandard sexual identities", and the fact that all of these identities were of special concern with respect to their inclusiveness to extropism, deemed these identities as "other" to the "neutral or unmarked" (Vint, 2007, p. 179) embodiment of male extropians. The self-understanding of extropians seemed to generally presuppose a white, male and heterosexual subject. In the 2012 Terasem Survey of transhumanist's beliefs, personal preferences and future visions, 53.6% of respondents answered the question "If you died and could return in another body, what gender would you want to be?" with "male" and only 18% with "female"[64] (Pellissier & Dal Santo, 2013). Elsewhere, extropism and transhumanism drive a rhetoric of individual freedom, social equality, and universal self-actualisation (e.g., Vita-More, 2000; Hughes, 2002a, 2004a; Bostrom, 2003b; More 2013a). However, this rhetoric, according to a number of critics (e.g., Warnick, 2002; McKibben, 2003; Vint, 2007; Blackford, 2008b; Correia, 2010; Hayles, 2011), is flawed with superficiality, ambiguity and incongruity. Nowhere in transhumanist discourse is there an explicit agenda of demographic inclusiveness and integration of minorities – something that also became evident in the analysis of transhumanist visuality in this study.

As mentioned above, gender representation across transhumanist imagery in this study accounted for an almost equal balance between male and female image subjects. However, for the group of images that depicted erotic transhuman bodies, female subjects outweighed male subjects by 43.3%. Data on authorship of transhumanist visuals indicated that predominantly male artists originated a majority of images (about 80%) including the depictions of sexy cyborgs[65]. This finding suggests that stereotypical fantasies of male dominance over the female play-object also reign in popular imaginings of the future human, and particularly so in the imagination of future sexuality. The female body in transhumanist imagery seemed to align with a culture of the *male gaze* (Mulvey, 1989) that

[64] Other gender choices in resurrected bodies were 13.4% hermaphrodite and 14.9% asexual (Pellissier & Dal Santo, 2013).

[65] There are categories of futuristic body visualisations with a predominantly female authorship. These mainly comprise bioart and its biopunk sub-genre (Newitz, 2002; Anker & Nelken, 2004; Zylinska, 2009, Cadora, 2010). Especially biopunk often questions the use by biotechnology "of the human body and its reproductive functions, which makes biopunk a considerably more feminist and queer movement than straight-guy cyberpunk ever was" (Newitz, 2002, para 30). However, mainstream cyborg imagery is largely male in authorship.

constructed feminity as commodity to be looked at and to be aesthetically enjoyed. In transhumanist visuals, the female body was even further optimised for male pleasure by technologically subjugating female sexuality and by converting female image subjects into high-tech sex toys (see figure 5.12).

5.2.2. Age

The second significant demographic incongruence, age, revealed that an ageing and economically established leadership of first-generation transhumanists inspires and directs a young followership of aspiring technocrats. These young and ambitious *digital natives* (Prensky, 2001) are characterised by techno-enthusiasm, early adopter mentality, gadget craze, and relative socio-economic independence, and they partake in a digital adrenaline culture of constant innovation, geekdom and techno-hype. Gelles (2009) described the young punters of transhumanist ideas as "an always-fresh supply of young, tech-savvy workers looking to change the world" (para 32).

In the evolution of transhumanism, the movement unfolded from the worldviews and activities of a now ageing academic-entrepreneurial elite and not from a grass-roots movement with needs and interests born from a community of consensus, as some transhumanists would have us believe (Bostrom, 2001, 2004; Dacey, 2004; Pearce, 2007; Twyman, 2014a, 2015b). Hughes (2002a) criticised transhumanism for its "elitist anarcho-capitalist" roots (para 1) while others (Anders, 2010; Gardner, 2011; Hayles, 2011; Natalina, 2011; Posel, 2013) identified the movement as a lobby of self-interests that manufactured a blindly neophile[66] followership in order to serve the professional, commercial, and ideological interests of its elite. For its part, this elite seems to be preoccupied with enhanced performance, heightened wellbeing and extended longevity, something that Hayes (cited in Gelles, 2009) identified as a personal yet profound fear of dying[67]. Thanatophobia,

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[66] Neophilia describes a strong affinity for novelty and change. Transhumanist neophilia includes a desire for personal growth, technological innovation and rapid advancement of human capacity.

[67] For example, Natasha Vita-More declared: "I have no tolerance for [death], no time for it. It just makes me angry. It's the cruelest thing to happen to any human being" (cited in Bernhard, 2001, para 5). In another instance, Vita-More (2009b) opened her presentation at the Transhumanism Perils and Promises Conference by the Metanexus Institute with a personal note on the "cruelty of death" (1:05-1:49). Max More (2013b) spoke of the "tyranny of aging and death" (p. 450), and Simon Young (2006) called death "an obscenity" (p. 15). The transhumanist gerontologist Aubrey de Grey (2006) avowed that he is "not altogether in favor of aging" (p. 9) and dedicated his life career to anti-ageing research. The futurist philosopher Gennady Stolyarov II (2013) published the children's book, *Death is Wrong*, that teaches children about the feasibility and

i.e., severe fear of death, might be one explanation of the effective denial of ageing in several transhumanist leaders (*cf.* Becker, 1973; Fukuyama, 2002; Graham, 2002; DeLashmutt, 2006), but there also might be an economic motivation for longevity.

At least so for the first generation of transhumanist pioneers, the American ethos of the self-made man seems to play a role in their aspiration for eternal youth. In a culture of entrepreneurial velocity that fosters high-risk, high-return opportunities – as it is prevalent in tech hubs such as Silicon Valley, the birthplace of transhumanist ideology – technological innovation is propelled by ever fresh and cheap talent (Glantz, 2012; Ierymenko, 2013; Ross, 2013). An economy of youth with an "accelerating obsolescence" (Ierymenko, 2013, para 6) allows the one shot at professional success or rapid fossilisation. In such a highly competitive environment, agency of longevity is not merely an aspiration for immortality but a crusade for eternal *youth*, for lasting economic value of the self. And, if the age barrier of around 35 years has already been crossed (as it is the case for the broad majority of transhumanist leaders), there is a need to be on the other side of economic attainment, on the side of business owner, CEO, Chief Strategist, established academic, or leading researcher into lucrative new opportunities. Singularity author Vernor Vinge (1993) attested that in a technological future "the work that is truly productive is the domain of a steady smaller and more elite fraction of humanity" (para 13). Present transhumanist leadership seems to aspire to become this elite in the envisioned *post-survival economy* (FM-2030, 1989) of the future. Economic legitimation of age by transhumanist seniors appears to result from their pioneering efforts toward and investment in longevity technologies, such as anti-ageing science (e.g., Aubrey de Grey; Gregory Stock), cryonic resurrection (e.g., Max More, Robert Freitas), or informational immortality (e.g., Hans Moravec, Frank Tipler, Ray Kurzweil), with the hope for capital gain along with the possible development of an *elixir of youth*, the currency in high-tech's new economy.

Apart from future investment into technologies of immortality, present-day pursuit of longevity is common practice in transhumanist circles, and the reduction of personal entropy is a declared here-and-now objective of the movement (More,

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desirability of immortality. Neal (2014) contemplated that the book was inspired by Stolyarov's own fear of dying (*cf.* Istvan, 2013b).

1989, 1993). Personal rituals of seeking longevity take several forms; a strict health regime is one approach. Kurzeil (2005), for example, reported that he promotes a personal health plan of about 250 nutritional supplements per day and "half-dozen intravenous therapies each week"[68] (p. 211). He claimed that his body at fifty-six (in 2004) measured the biological age of only forty. Max More made known that he deploys a similar health regime of nutritional supplements in addition to regular rigorous workouts and a stance of "perpetual optimism" (Bernard, 2001).

Continual self-reinvention is another approach to youthfulness. Natasha Vita-More, transhumanism's "self-promoter extraordinaire" (DeBord, 1998, para 6) and the self-declared first female transhumanist (Bernard, 2001), undertook a series of self-transformations ranging from body sculpting to cosmetic enhancements to various reinventions of her identity as media artist, fitness trainer, nutrition counsellor, secondary school teacher, TV presenter, feminist, transhumanist crusader, science advisor and, more recently, accredited academic[69]. A name change from Nancie Clark to Natasha Vita-More[70] sought to reposition her identity from an ordinary town girl[71] to a cosmopolitan techno-femme, "a superhuman object of desire combining Madonna, Schwarzenegger and Marcel Duchamp" (DeBord, 1998, para 6). Her chosen name Natasha vouches for her desired *femme fatale* image (Scaraffia, 2009) and her adopted surname Vita-More, she affirmed, expresses her desire for "more life", for transcendence of the natural limitations of biological existence (S. Schulman, 2010). Her 13-page CV (Vita-More, 2014) reads like a carefully devised narrative between eclectic career opportunities and imaginative personality design; like her body, her CV seems to serve as canvass for personal aspirations *to be Somebody*[72] (Susman, 1984).

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[68] More recently, Kurzweil apparently has cut down supplement intake to 150 pills a day (Beck, 2008).
[69] Vita-More obtained a PhD from the University of Plymouth in 2012.
[70] It is not publically known when Nancie Clark changed her name but it likely occurred somewhere during the 1980s. In the early 1980s, the given name "Natasha" was at its height of popularity in the United States at rank 71 (US SSA, 2013). Her adopted family name 'Vita-More' is said to express her desire for "more life" but might also reflect her marriage to Max More in 1996.
[71] Vita-More grew up in a large Christian family (Przegalinska, 2014) in Eastchester, Westchester County, located at the southeast tip of the state New York, a township with a population of 32,000 (2010 census).
[72] The aim for status and "being somebody" is evident, for example, in Vita-More's (1998) entry on The East High Alumni Page (excerpt): "After leaving Memphis and graduating from MSU, I went to Academica Belle Arti in Italy, travelled the World as a Performance Artist and soft landed in Telluride, Colorado where I owned a business in the arts, a home in the center of town, had a horse, became a skier, and got involved in filmmaking. One of life's many turns resulted in my moving to Los Angeles where I eventually produced, directed and starred in my own videos […]. I acted in a couple of films, I dated some hot movie stars, made the cocktail party rounds, was wined and dinned by the moguls and then decided that my quest in life was to design my own art

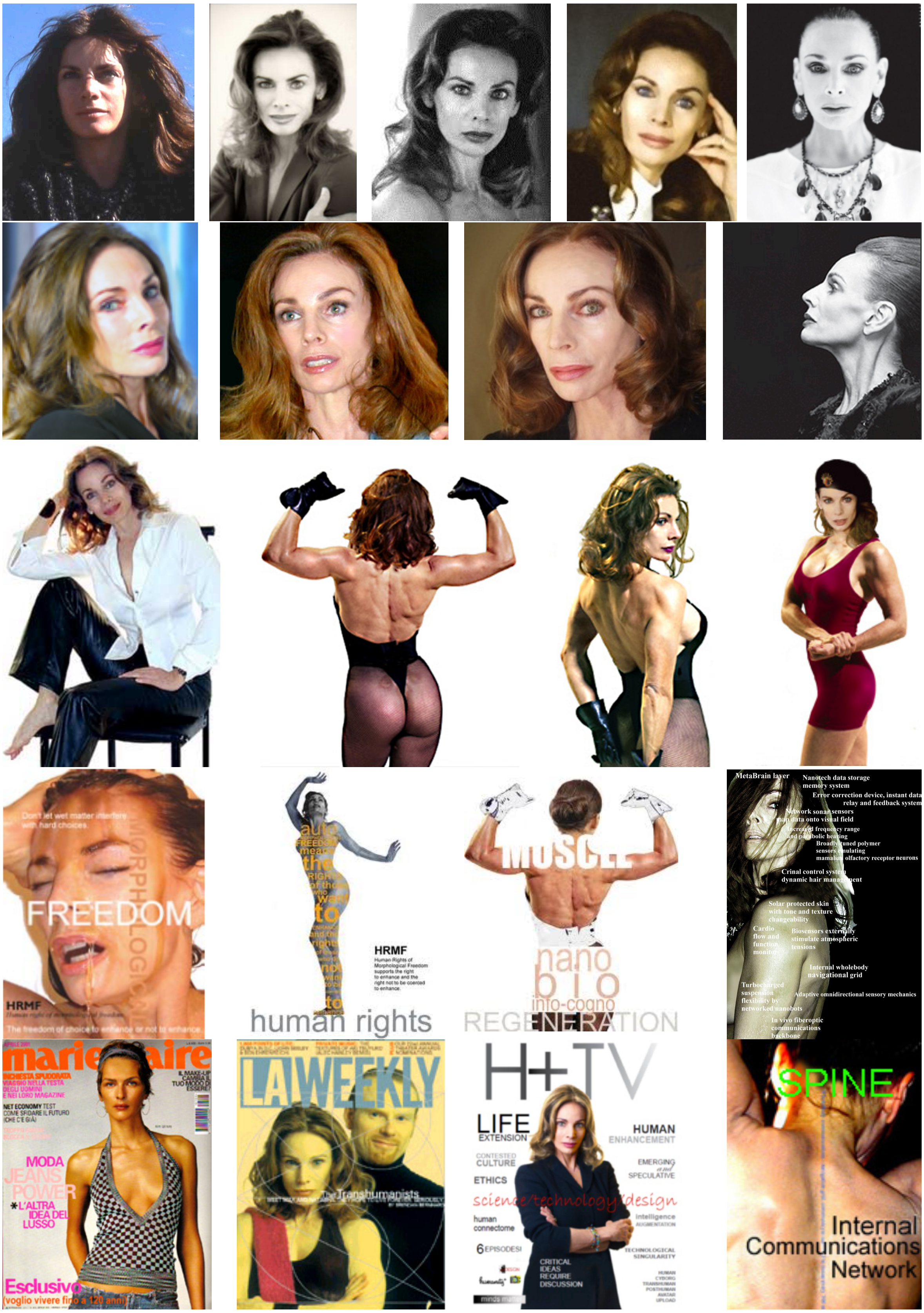


Figure 5.4: Metamorphoses of Nancie Clark (top left) and her alter ego, Natasha Vita More (* c. 1950).

– not following the routines of someone else. I began enhancing my intelligence, creativity and knowledge of astronomy, technology, science, psychology and turned this knowledge into what has become the Transhumanist Art Period and Extropic Art Movement [...]. Although I worked as an actor, [...] author, and computer graphics designer, this year I have appeared on BBC, PBS, The Learning Channel, Discovery, NBC, CBS, ABC, and various magazines, books, and newspapers talking about the future of art. What are my goals? To live a long, long prosperous and healthy life!".

The self-image of this Somebody, however, seems to lack genuine innovation and originality. Instead of exploring non-standard forms of self-imaging that transhumanist thinking claims to encourage (e.g., More, 1993, 2013b; Vita-More, 1997b; Sandberg, 2001; Bostrom & Savulescu, 2009), Vita-More visibly pursues common norms of appearance and accomplishment (figure 5.4): the familiar beauty ideal of a slim, toned body and a flair of everlasting youth, the casual-corporate chic of a well-groomed appearance, the relative glamour of a developed career profile, and display of social status by means of an insistently moderated public image as an early adopter[73] and member of the techno-intelligentsia. The Roman philosopher Seneca (1928-1935, Book X, Ch. III, 2-5) once commented: “You have all the fears of mortals and all the desires of immortals”. The insight of this ancient observation could possibly not be more applicable to transhumanism with its aspirations of personal accomplishment and immediate gratification, its sensibilities of universal aesthetics and permanence of the self, and its visceral rejection of entropy and finitude.

5.3. Body image

Coding image data for the leading body images in the cyborg (see section 4.6.1) produced 21.2% of images in the overall data set that suggest human pre-eminence as superior and sometimes godlike creatures; 24.5% of image subjects portrayed self-importance and/or vanity; 28.2% of images deployed eroticism as a strategy to stage their subjects; 11% of images presented icons of fashion and life-style; and 5.2% of images displayed subjects of strength, power and control. These positive body images that emphasise transhuman identity as desirable stand in contrast to about 10% of images that explicitly question the transhuman body as problematic or troubled (see section 4.6.1.1). And for most of the positive body images, gender was a defining criterion of the respective body image (figure 5.5).

Coding for the relationships between gender, the extent of bodily display, subject orientation within the frame of the image, and gaze across the five body images superiority/divinity, vanity, eroticism, fashion/lifestyle and power/dominance

[73] Vita-More’s personal website at *natasha.cc* prominently features Wired’s quote “If you want to meet a potential early adopter of these revolutionary changes, look no further than Natasha-Vita More” (Alexander, 2000, p. 5).

showed how common visual clues[74] corroborated body images that reflect rather familiar and stereotypical identities: young, flawless bodies, male strength, and female sexiness.

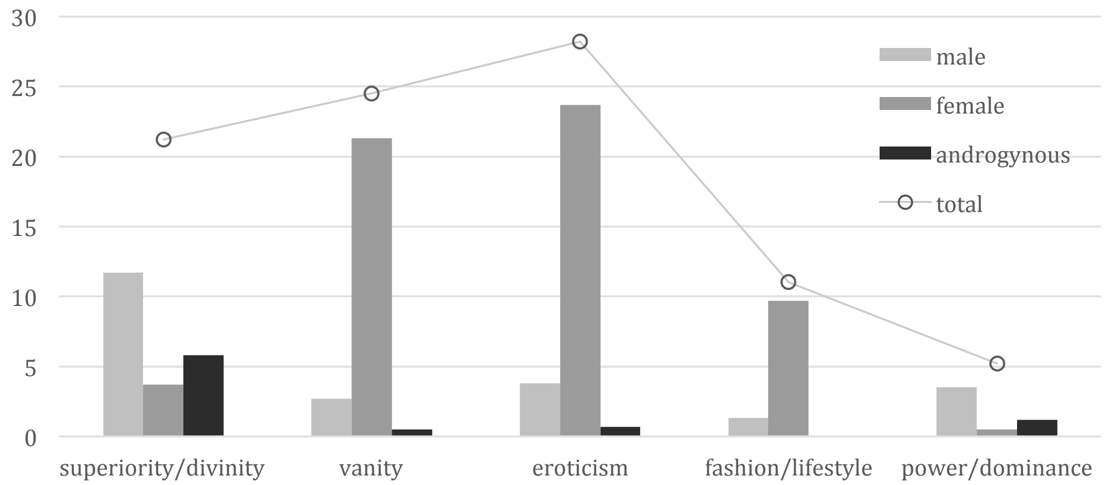


Figure 5.5: Comparison between male, female and androgynous body image.

	superiority	vanity	eroticism	fashion	power/domin.
female		✓	✓	✓	
male	✓				✓
full body	✓		✓		
head/partial		✓		✓	✓
oblique		✓	✓	✓	
frontal	✓				✓
profile					
direct gaze			✓		✓

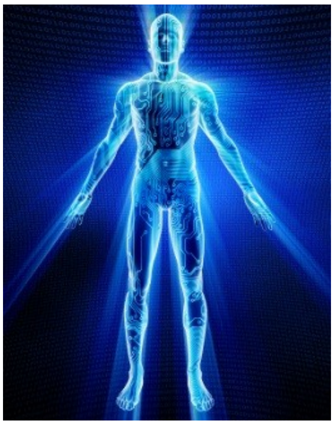
Table 5.6: Prominent coding occurrences of subject presentation with respect to body image category.

The analysis of the iconography of transhumanist selfhood revealed that body images of "divine" glory and superiority were largely male, and they typically oriented the beholder in a frontal view (see table 5.6). The male superior subject was commonly depicted as full-body image, but despite its frontal position did not generally engage a straight gaze or did not make direct eye contact with the beholder. In contrast, the body image of strength, power and dominance, also a predominantly male domain with a preference for frontal subject orientation, tended to address the beholder with a direct gaze. The vain body image, the erotic image, and fashionable body images exhibited mainly female subjects with the tendency to portray the erotic female body in full and in oblique orientation along with a relatively high occurrence of direct gaze. Frontal body orientation and

[74] The analysis of body images included coding of trends in shot size, view angle, subject orientation, general composition, scope of embodiment, gaze, pose, colour scenes, subject activity, and the common demographics of gender, age and racial identifiers.

direct gaze, in a Western context, are often thought to express assertiveness but also invitation (Kendon, 1967). Directly addressing the viewer usually aims to capture the spectator's attention (Baron-Cohen, 1995; Kress & van Leeuwen, 1996; Senju & Hasegawa, 2005; Conty, Tijus, Hugueville, Coelho & George, 2006) and seeks from the beholder an agreement with the message of the image (Haley & Fessler, 2005; Mitchell, 2005). However, a direct, staring gaze in social interaction that means to be captivating can also be intimidating (e.g., Nichols & Champness, 1971; Foucault, 1977; Kleinke, 1980, 1986). Some studies have interpreted direct stare in nonverbal communication as a request for submission by the responder (e.g., Doane, 1987; Elkins, 1996; Mitchell, 2005).

5.7.1: Female vanity, a body to be looked at. *The Alternative Limb Project*, Marissa Stempien (2013)



5.7.2: Male superiority/ divinity, frontal subject presentation. *Transhumanism*, unknown artist (n.d.)

5.7.3: Female erotic cyborg, oblique subject presentation. *Skintight*, Marcus Gray (2002)

5.7.4: Frontal presentation and direct gaze of male dominance. *Christian Petrovich as Cyborg Warrior*, Jay Fuertez (2013)

5.7.5: The fashionable female body. *The Future of Fashion*, Franz Steiner (2013)

Figure 5.7: Examples of the most prominent body images in the transhuman subject.

Overarching trends in the data showed male body images (superiority/divinity, power/dominance) to commonly orient towards the beholder but they actively engaged with the beholder only in images of power/dominance. Unlike the more direct orientation of male body images, female body images (eroticism, vanity, fashion) presented their subjects more deviously and as objects of display, bodies to be looked at, bodies that lure and entice (figure 5.7).

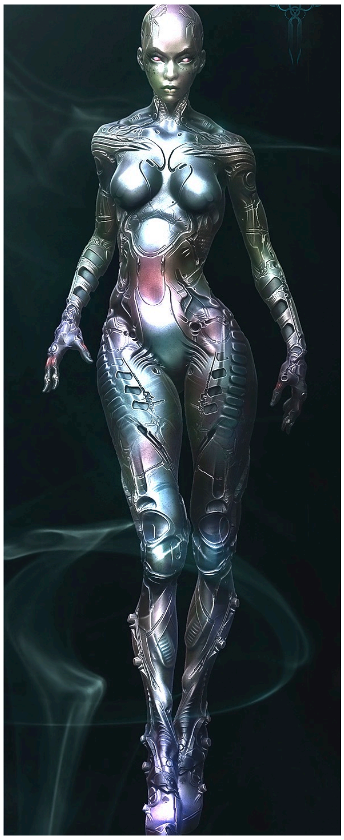
5.3.1. <u>The body beautiful</u>

Research on contemporary perceptions of body ideals in Western cultures has shown that "thin women and muscular men" are most preferred body images[75]. The vast majority of female cyborgs in this study demonstrated aesthetic agreement with common beauty standards: they presented a slender figure, well-proportioned forms, balanced expressions, and a generally pleasing appearance. Figure 5.8 shows female cyborg creations that despite technological distortions complied with standardised beauty ideals. The female ideals of facial symmetry, wide eye setting, almond-shaped large eyes, small nose, small jaw, a comparably large, straight mouth with thin lips, radiant light skin and flawless complexion (*cf.* M. Berger, 1999) was maintained even where bodies were coarsely distorted, in parts dismantled, or opened up (figures 5.8.1-3). Femininity and attractiveness was emphasised also in fully metallic and mechanical robots. The digitally created 3D model in figure 5.8.5, for example, followed norms of the perfect female figure with soft flowing curves, idealised proportions, toned appearance, indication of hip sway and smooth movements despite her technological artifice. In another example, the broken head of the female robot in figure 5.8.3 exhibited ideal facial proportions and feminine appeal that aesthetically conflicted with her opened and dislodged face. Female cuteness was often highlighted – in spite or because of technological transformation – as shown in figures 5.8.1 and 5.8.4.

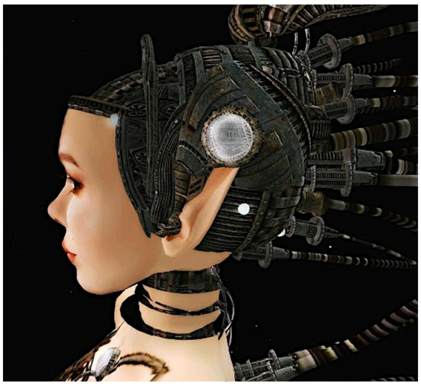
[75] See the studies by Cash and Pruzinsky (1990), Anderson and DiDomenico (1992), Pope, Olivardia, Gruber, & Borowiecki (1998), Thompson, Heinberg, Altabe, & Tantleff-Dunn (1999), Pope, Phillops & Olivardia (2000), Dittmar, Lloyd, Dungan, Halliwell, Jacobs & Cramer (2000), Halliwell and Dittmar (2003), Olivardia, Pope, Borowiecki, Cohane (2004), Monro and Huon (2005), Ridgeway and Tylka (2005), Miller and Summers (2007), and Mellor, Fuller-Tyszkiewicz, McCabe, & Ricciardelli (2010).

5.8.1: *Under Construction*, Benedict Campbell (2008)

5.8.2: *Fantasy Woman Robot*, unknown artist (n.d.)

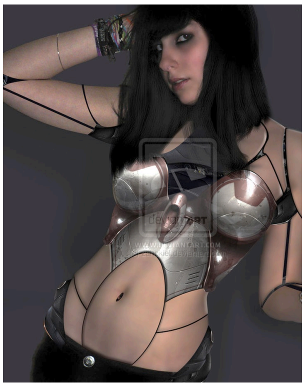


5.8.3: *Female Cyborg Face*, Billy Nunez (2013)



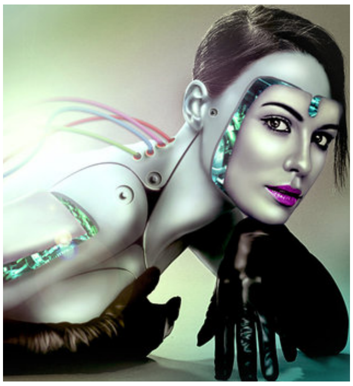
5.8.4: *Second Life Avatar*, Justen Jigsaw (n.d.)

5.8.5: *Nanogirl*, Vitaly Bulgarov (2010-11)



5.8.6: *Saky Cyborg*, Francisco Guldriz (2012)

5.8.7: *Natalie Portman*, unknown artist (2005)



5.8.8: *Kate Beckinsale Cyborg*, Dinni Dhien (2011)

Figure 5.8: The idealised female cyborg.

A considerable number of female cyborgs in the data collection of this study were presented with a mix of hourglass figure, toned body, and a notable level of "female androgyny"[76] (Fausto-Sterling, 1993). Androgyny, regardless of well-defined female form, was apparent in figures 5.8.2, 5.8.3 and 5.8.5. Androgynous feminity as it was deployed in cyborg imagery had the effect of reducing female physiognomy to highly stylised form. This pseudo-androgyny created a "technical" womanliness that resulted from calculated proportions of an archetypical

[76] "Female androgyny" in the cyborg image accounted for 13% across the data collection. In contrast, "male androgyny" occurred in 22.3% of image subjects. "Pure" androgyny, i.e., complete absence of gendered traits, showed in 5% of data.

femininity and not from organic softness. Across the data set, a premeditated, constructed femininity was often further emphasised by unnatural skin tones of a cold hue that did not stem from healthy living flesh (e.g., figures 5.8.2-3, 5, 8). This way, these body images generalised, abstracted and condensed femaleness into indexed gender characteristics that, on a superficial level, suggested gendered subjectivity while at the same time they negated gender by summarising organic form and fleshiness as technical properties. In these images, femininity was no longer a gendered condition but a technical attribute that could be managed like a serviceable part. Femininity in these cyborgs was asset, not essence.

By merging a curvy hourglass figure with toned slenderness, and voluptuous femininity with moderating androgyny, the female cyborg produced a body image that was both sensuous and authoritative, was playful human and disciplined technical. Figure 5.8.8 shows a decisive mix of femininity and roboticism. The well-formed figure of actress Kate Beckinsale (*1973) was largely neutralised by image retouching techniques and colour shifts that produced cold and unnaturally smooth body surfaces. Through a provision of visual access into the interior of her body, and display of cabling and electrical circuits as part of her functional anatomy, the resulting body image oscillated between idealised human form and impersonal technological apparatus. Notwithstanding the conversion of the human body into a machine, it was the cold sterility of human surface that rendered the image subject a technological being – not as much the technical functionality of her interior. In contrast to a transformation of humanness into “robotness” in figure 5.8.8, the image subject in figure 5.8.7 remained human in essence, and technical gear was merely added to her face. Although subject to technical manipulation, the representation of actress Natalie Portman (*1981)[77] maintained human colours and fleshiness, and technology appeared as a mere accessory. Overall however, transhumanist images of human enhancement hardly distinguished between technological appendage to the body and technological transformation of the body, and both approaches seemed to indiscriminately intermix across the data set.

In addition to the generally beautified cyborg image, a common theme in the data collection was the technologically manipulated and enhanced celebrity body.

[77] Born Neta-Lee Hershlag.

Image manipulation contests on the Internet[78] that task participants with visually transforming celebrities into technological beings (e.g., figures 5.8.6-8) evidence a link between the "bold and beautiful" and augmentative body technologies (*cf.* González, 1995; Oehlert, 1995; Sternheimer, 2011; Case, 2014). Zanin (2010) spoke of the *irresistible metaphor of the Celebrity Cyborg*. The broad popularity of the celebrity cyborg suggests that personae of fame and beauty are generally thought prime candidates for technological enhancement. Likewise, an affinity for technological self-enhancement might be taken as self-images of success and fame as the staging of transhumanist portrait photographs seems to suggest (section 5.2). Zanin (2010) pointed out that celebrities "live in a false world as contrived beings" (para 4). The grandeur and artifice of stardom, she suggested, is particularly prone to an affinity for an equally artificial cyborgdom. Zanin (2010) described celeb-dom as a fantasy bubble, an escape from the restrictions and responsibilities of the real world. Her underlying argument is that cyborgism extends celebrification, and both would be a retreat from the everyday realities of ordinary life. In her opinion, the "incessant adulation" (para 4) of the individual ego, as it is typical to celeb-dom, also defines cyborgdom – and transhumanism by extension. From this vantage point, the aesthetic cyborg is a vain image of self-love and a rejection of social interdependence.

5.3.2. Cosmetic enhancement

If the beautiful cyborg wants to be understood as an improvement, i.e., as an augmented, superior organism, cosmetic surgery is one form of external self-modification that has become increasingly accessible to, and normative of, the cultural practice of self-presentation (Jodelet, 1984; de Rosa, 1994, 2012; Moscovici, 2000). Lunceford (2014) proposed that cosmetic surgery could to be classified as cyborgism because it relies on human enhancement technologies, and because it intends to permanently transform the body. Unlike reconstructive surgery that is largely remedial in purpose, cosmetic surgery caters to a healthy clientele of educated *biocitizens* (N. Rose, 2007) with sufficient money and time[79] to worry about aesthetic perfection beyond necessity (Banner, 1983; Haiken,

[78] Since its inception in 2002, the image competition website Worth1000 regularly runs celebrity cyborg contests. By March 2014, there had been 13 *Celebrity Cyborg* contests with hundreds of image entries hosted at Worth1000 alone.
[79] Bernard (2001, para 12) writes, "[Future] choices will continue to pile up, with those who are willing to put hours of research into their 'options' (genetic, medical, pharmaceutical, etc.) coming out on top. Sometimes the future looks like a place in which only people who enjoy reading manuals will thrive."

1997; Lunceford, 2014). Some social scientists (e.g., Haiken, 1997; Forth, 2010) have argued that surgical tweaking of face and body has become a social imperative for those who rely on outer appearance for professional or self-actualisation reasons. Indeed, cosmetic surgery today has grown into a considerable service industry at the crossroads of medicine and consumer culture (Haiken, 1997; N. Rose, 2007; Schlich, 2010). In the year 2014, cosmetic surgery as a service industry recorded over US$12bn spent on more than 10 million performed cosmetic procedures in the United States alone, of which US$7.2bn went to surgical procedures[80]. Over three quarters, i.e., 78.1%, of cosmetic surgery clients were Caucasian, 90% were female and 10% male. The largest age group of clients, i.e., 40.1%, were between 35 and 50 years, and 31% were between 51 and 64 years of age (American Society for Aesthetic Plastic Surgery, 2015). European cosmetic surgery markets were estimated to reach US$3bn in 2015 with UK representing the largest segment (Global Industry Analysts, 2012). With surgical fees[81] ranging between US$2,500 and US$8,000[82] depending on procedure, cosmetic surgery for now remains a privilege of higher income groups.

Figure 5.9.1 presents a promotional image for cosmetic enhancement. The photo depicts a flawless female face that is further beautified by Botox treatment. A syringe is shown to penetrate the skin at the woman's forehead where the enhancing substance is infused into subdermal tissue at the injection site. The perfect face of the woman does not reveal any trace of the impact of the invasive procedure. Instead, the pretty client face projects a benign image of cosmetic treatment that is innocent of the aggressive invasiveness of medical needle and scalpel. In this image, the purposeful representation of perfect facial features, delicate pure skin, soft colours, gentle light gradients, a relaxed expression, and the staging of a clean medical procedure served to smoothen the, at times, gruesome biomedical realities of cosmetic intervention. Through an iconography of sanitised biology, the image concealed the brutality of the medical cut and presented cosmetic surgery as a perfectly safe and clean technology of self-actualisation with

[80] Surgical procedures accounted for 16.5% of all cosmetic interventions as compared to 83.5% non-surgical procedures. The top five surgical cosmetic procedures in 2014 were liposuction, breast augmentation, blepharoplasty (eye lid surgery), abdominoplasty (tummy tuck), and rhinoplasty (nose surgery). Botox injections, tissue rejuvenation and dermatological microcorrections accounted for popular non-surgical treatments.

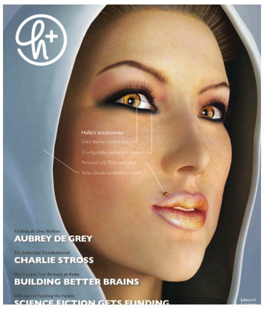
[81] Excludes facility fees, anesthesia and other surgical costs, as well as costs for about two weeks post-operative recovery period depending on procedure (American Society for Aesthetic Plastic Surgery, 2015).

[82] US national average fees; actual fees may considerably vary by geographic region.

no room for the unpleasant biological realities of penetrated skin, wounded flesh, and telltale scars. The aesthetic power of the sterile cosmetic image showcased the glamorous results of technological achievement while obscuring unpleasant technological procedure.

5.9.1: *Botox injection*, stock photo (n.d.)

5.9.2: *Platelet Rich Plasma Therapy*, stock photo (n.d.)



5.9.3: *H+ Magazine cover Edition #1*, Fall 2008

5.9.4: *Natasha Vita-More* (2010)

5.9.5: *Cosmetic Implants*, Jesse Thornhill (2010)

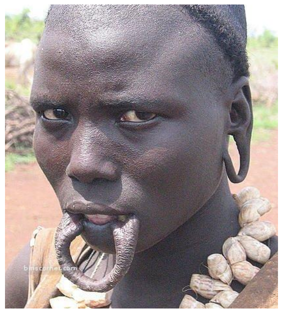
5.9.6: *Orlan*, Sipa Press (2007)

5.9.7: *Born this Way*, Lady Gaga (2011)

5.9.8: *Le Dernier Cri*, Erwin Olaf (2006)

5.9.9: Barbie model *Mad Men Betty Draper*, Mattell (2010)

5.9.10: *Le Dernier Cri*, Erwin Olaf (2006)



5.9.11: *Mursi Women*, Wikimedia Commons (2005)

Figure 5.9: Cosmetic modification as a self-enhancement technology.

The promise of invisible technology of self-enhancement was also at work in figure 5.9.2 where the nascent medical treatment of platelet therapy (PRP[83]) pledged to reverse ageing in a "natural" healing process. The regenerating properties of platelet proteins, suggests the image, wipes away any undue cellular process of ageing. In this vision, age was seen as a fault in nature that literally could be peeled

[83] Platelet-rich plasma (PRP) therapy uses blood plasma enriched with thrombocytes to internally treat injury and to stimulate the body into self-repair and growth of new tissue. Present application of PRP therapies involves mostly treatment of wear-and-tear injuries (e.g., osteoarthritis), bone repair, nerve cell regeneration, and cosmetic surgery.

off by smart technology. The portrayal of technology as a remedy to nature's carelessness was implicit. Hence, the peeling metaphor was purposeful: ageing, as suggested by this image, occurs in external, superfluous layers that merely mask the "technological truth" of eternal youth. Ageing in this view is not an expression of growth, but a verdict of decay that can be remedied by technological ingenuity. The PRP image defied the conceptualisation of age as maturity, and by continually reverting back to the eternally young and beautiful face, it resisted the possibility of change over time. In this understanding, cosmetic surgery is a homeostatic and conservative technology that emphasises status quo over change (*cf*. Hayles, 1994; Haiken, 1997), and the cosmetic cyborg is a reactionary image of a stable but stagnant identity. Holding on to youth implies holding on to the past.

Self-modification toward standardised beauty ideals as facilitated by cosmetic technologies in many ways contradicts transhumanism's claim of individualism that emphasises self-actualisation, "true" personalisation of subjectivity, and perpetual advancement of the self. Haiken (1997, p. 15) noted that, "the wide-spread adoption of the surgical solution reveals a frightening vision of Americans as conformists, bent on achieving a commodified, advertising-driven standard of perfection". Cosmetic enhancement technology, affirmed Haiken (1997), answers to the *exacting requirements* of the public eye rather than to innovative designs of self-actualisation.

Broad agreement with common beauty expectations was also apparent in the cover image of the first edition of the H+ Magazine (figure 5.9.3) that displayed an imagination of the ideal transhumanist face of the future. The female face was designed to be customisable, featuring data display contact lens, configurable permanent makeup, a PDA[84] facial stud, and a solar and climate controlled hoodie. The presentation of the face projected highly idealised proportions and a flawless, radiant skin. By enhancing accepted criteria of beauty, the image not only represented but also sanctioned established beauty ideals. Further, advanced technological features promised to maintain the face's aesthetic ideals permanently; beauty and youth, suggested the image, no longer rely on biological luck. Eventually cosmetic advantage would be a salient feature in the transhuman

[84] PDA = Personal Digital Assistant.

future. Aiming for aesthetic self-perfection, Vita-More's image in figure 5.8.4 aspired for the actualisation of the transhumanist beauty ideal. The makeup of her face featured almond-shaped eyes, evenly arched eyebrows, a straight, slim nose, and a wide mouth. Her chin was modulated to appear pointed and her cheekbones were sculpted high. Wavy long hair framed her enhanced face like the solar hoodie in the H+ image.

Real-world cosmetic enhancement generally seeks *transparency* (Boulter & Grusin, 2000), i.e., it aims at concealing the artifice of beautification by avoiding any visible trace of technological intervention (Schlich, 2010). Boulter and Grusin (2000) argued that transparent technologies would hide the fact of technological mediation and promise "perceptual immediacy, experience without mediation" (p. 22). Situations where the outcomes of cosmetic procedures become noticeable to a wider audience often account for cases of "cosmetic surgery gone wrong", which tend to leave individuals with undesirable results. Skanderowicz and Latimer-Sayer (2007) observed that the broader cultural success of cosmetic enhancement largely lies in its invisibility as a discreet technology of self-modification.

Invisibility of cosmetic treatment was suggested in a majority of common self-enhancements in the data collection (e.g., figures 5.9.1-4). This stood in contrast to images of body modifications that aimed at creating difference and deviation from common beauty expectations (e.g., figures 5.9.5-8, 10), often for reasons of eccentricity (e.g., Jesse Thornhill, figure 5.9.5), social critique in art practice (e.g., Orlan, figure 5.9.6), or innovation pressures in entertainment (e.g., Lady Gaga, figure 5.9.7). Both attitudes toward physical modification, compliance as well as disagreement, relied on cosmetic technologies as a main strategy for physical transformation – but with varying attitudes with respect to the visibility of technological intervention. Whereas conformist cosmetic enhancement generally sought to remain covert, nonconformist cosmetic modification often staged and celebrated the fact of technological augmentation. The artist Orlan, for example, regularly deploys medical procedures as art performance; surgical planning, operation, and recovery are all part of her larger project of corporeal trans-formation. For Orlan, it is neither medical technologies per se nor the body alone that are sites of artistic interest but the processes of medical transformation, the *transgressive act* of the surgical cut (B. Rose, 1993). Apart from images of surgery as art, cosmetic enhancement in transhumanist imagery seemed to remain a technology of transparency, a quiet agreement with common beauty standards, and a hidden attempt to seek out opportunity of individual advantage that operate within existing socio-political structures (*cf.* Schich, 2010).

However, compliance with what has been seen before and lack of true innovation was also apparent in those cosmetic modifications that attempted to break with existing standards of beauty and self-expression. Orlan's horn implants in 2007, for example, while avant-garde with respect to a wider Western audience, were long practiced as tribal body modification elsewhere in the world[85]. Horn implants as a modern cosmetic procedure reaches back to at least the early 1990s when body artist Steve Haworth (*1965) experimented with medical steel grafts as facial protrudes (Norton, 2006). Up to a decade prior to Orlan, facial implants were readily deployed by various body artists and performers such as Dennis Avner (1958-2012) aka Stalking Cat, Erik Sprague (*1972) as The Lizardman, Paul Lawrence (*c.1972) aka The Enigma, and Jesse Thornhill (*1982; see figure 5.9.6). When Lady Gaga[86] (*1986) in 2011 released the single *Born This Way*[87] featuring her image made up with protruding edges on face and shoulders (figure 5.9.8), such cosmetic modifications were certainly no longer aesthetic innovation.

In another example of aesthetic re-innovation, Erwin Olaf's *Le Dernier Cri* (2006), a 3:29 minute hyperreal video clip[88], envisioned the *last cry* of Paris haute courtier projected into the year 2019 (figures 5.9.8 and 10). The video introduced two highly stylised women meeting in an equally voguish home. Both women were cosmetically enhanced, showcasing the "latest fashion" of a modern urban lifestyle that seemed decorative and idle. The very brief conversation between the two women revolved around their self-presentation; one embracing what was proposed the latest trend of French chic and the other declaring her admiration and jealousy of the other's "beautiful" looks. Intonation of voice and body language of the women during their interaction were as synthetic as their outer appearance.

[85] For example, facial scarification by Nuer and Dinka in Northeast Africa, or cranial modifications by Bakutu and Bwaka tribes of the Congo basin.
[86] Name at birth: Stefani Joanne Angelina Germanotta.
[87] Original cover image available online from http://en.wikipedia.org/wiki/File:Bornthisway.jpg
[88] Available online from https://www.youtube.com/watch?v=5aBojEvM3PU

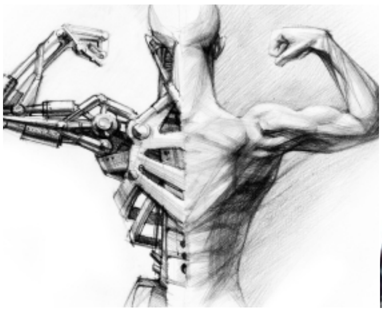
The artifice of the women's embellishments in the video clip appeared extreme with facial form warped by sub-dermal implants and spikey protrudes. The staging of the interaction between the two women suggested their identities were profoundly reliant on the effect of novelty, surprise and astonishment. In a world that is excessively artificial and orchestrated to the last detail, self-presentation seems to necessitate the acute intensity of a radical *first impression* (Marchand, 1985).

In spite of its avant-garde claim, *Le Dernier Cri* can hardly be considered to be presenting unprecedented cosmetic innovation. Some tribal cultures in Africa have long practiced dermal scaring of face that leaves protruding skin scars, or labrets that extend the lower lip. Figure 5.9.12 displays a Mursi woman from South Ethiopia with open labrum while the lip plate is removed. Lip extrusions tend to emphasise lip size and particularly accentuate the labiomental groove between corner of mouth and cheek. In *Le Dernier Cri*, this effect was further emphasised by adding a jewellery mouth ring with a protuberant globule at each corner. A visually wide and sloping mouth generally conflicts with Western female beauty standards of thin lips and horizontal mouth line (M. Berger, 1999). However, facial symmetry, considered a most vital criterion of physical attractiveness (e.g., Peck & Peck, 1970; Powell & Humphreys, 1988; Jones & Hill, 1993; Grammer & Thornhill, 1994; Rhodes, Proffitt, Grady, & Sumich, 1998; Mealey, Bridgestock, & Townsend, 1999; Little & Jones, 2003; Little *et al*., 2008; Biller & Kim, 2009), was strictly maintained in Olaf's creation. By maintaining overall symmetry and proportions, the uncommon mouth alteration in *Le Dernier Cri* did not disturb standard beauty ideals. In contrast, by emphasising the importance of facial symmetry in classic Western appearance, the non-essential aesthetic variation of mouth line enforced rather than challenged established beauty norms. Aesthetic innovation of *Le Dernier Cri*'s latest chic, if at all, arose from the modification of minor beauty characteristics without frustrating principal markers of facial perfection. The play of aesthetic variance in the given example resulted from a combination of Western beauty ideals with the more drastic body modifications of old tribal cultures. Figure 5.9.10 shows a blending of stylised Western ideals, as they were idolised and commoditised in Mattell's Barbie series (figure 5.9.9), and tribal body art (figure 5.9.11). Juxtaposition of these images suggests that some of the futuristic imaginings of hyperreal fashion at the beginning of the third millennium re-invent a sanitised version of ancient body art that has been stripped of its cultural contexts. The "radical innovation" in the latest cry of cosmetic body modification appears to look back in history and sideways in culture to long-practised ethnic body art.

5.3.3. Muscular machines

The body image of power and dominance was prevalent in cyborg images that emphasised the male and muscular body (figures 5.10.1-3). In addition, images of power and dominance also presented female subjects where feminity was used to stage heroic but deadly *killing machines* (figure 5.10.6) or to showcase highly eroticised warriors (figure 5.10.9). These images attest to fantasies of ceaseless might and vigour, dreams of the superhuman who is invulnerable to the laws of nature.

Forth (2010) has argued that the aesthetic ideals of the body are not as much a question of appearance but more so of performance, i.e., dexterity, endurance and attainment beyond "natural" limits. The competitive areas of sport, work and sexuality, contended Forth (2010), would long evidence a link between physical appeal and performative advantage. Miah (2003) claimed that especially the area of sports would be "already transhuman in their ideology" (para 26). Further, Forehand (2001) stressed that muscularity not only represents physical strength and superior performance but also stands for personal accomplishment and socio-economic success. The life career of Arnold Schwarzenegger (*1947; figures 5.10.4, 7) from body-builder to Hollywood actor to politician speaks of the association of muscularity with success (Callen, 1998; Andrews, 2003; Blitz & Krasniewicz, 2004). Orr (2000) noted: "The cyborg is an individual fetish and in the case of Schwarzenegger a crucial sign of stardom" (p. 42). Further, Schwarzenegger's pioneering of the high-tech cyborg in Hollywood action movies avows a link between emerging body technologies and the cultural politics of the (cyborg) body (*cf*. Hughes, 1980; Haraway, 1991; Pitts, 2003; N. Rose, 2007; Schlich, 2010).

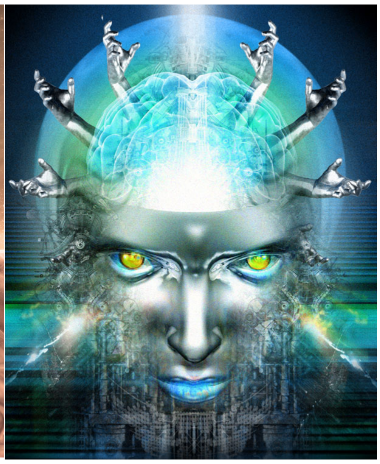


5.10.1: *Human Enhancement*, shutterstock image (n.d.)

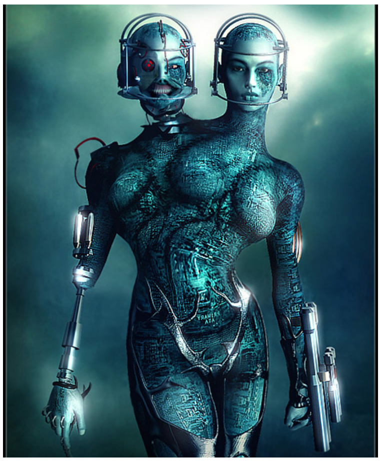
5.10.2: *3D Cyborg*, Tonis Pan (n.d.)

5.10.3: unknown image source

5.10.4: *Terminator*, unknown artist (n.d.)



5.10.5: *Transhumaphoria*, Mondolithic Studios (2010)



5.10.6: *Killing Machine 01*, Valentina Kallias (2011)

5.10.7: *Arnold Schwarzenegger in Terminator 2: Judgement Day*, James Cameron (1991)

5.10.8: *Nazi Cyborg*, Dave Grasso (2009)

5.10.9: *Valkyrie*, Bogdan Gabelko (2009)

Figure 5.10: Body images of strength and power: muscular men and armoured women.

The analysis of visual data in this study advised of an interrelationship between aesthetics, muscularity, power and success in transhumanist imagery, a combination that was further amplified by the addition of human enhancement technologies. Often, technological body transformations served to create visions of man as machine that not only was all-powerful, invincible, and immortal but also aesthetically superior. Technological enhancement of imaginary transhuman subjects almost always involved the aesthetic display of their bodies, i.e., bodies that were strong, beautiful and desirable. The demonstration of technologically enhanced strength, power and confidence generally relied on muscular body images (figures 5.10.3-5), and any display of force, aggression and brutality was commonly idealised through the application of "clean" technologies of power (figures 5.10.7-9). Figures 5.10.1 and 5.10.3 demonstrate the intimate relationship between the well-developed male body and the aesthetic of the machine, muscles that are strong and powerful because they are mechanical.

Figure 5.10.4 shows how the image of Arnold Schwarzenegger was beautified in order to suggest aesthetic supremacy of technological enhancement. The already iconic body image of the actor was aesthetically boosted to fit the idea of technology as improvement of the self. For instance, the typical downward-sloped mouth of the actor (figure 5.10.7) was adjusted to a smaller, straighter and less expressive form in the digital painting (figure 5.10.4). Likewise, the relatively broad nose tip of the real-world person was narrowed, and cheekbones were further accentuated in the digital portrait. Modulation of Schwarzenegger's facial features produced a body image that was both powerful and aesthetic, and created an illusion of masculinity that aligned with fantasies about comic heroes more than it complimented human form no matter how steeled (*cf*. Dutton, 1995; Sassatelli, 2005).

From the prominent display of muscularity in the cyborg image it became evident that the spectacle of masculine strength is still relevant in a technologically advanced society in which gender performance is no longer bound to the body (Davidson, 2007). Dyer (1997) claimed that display of muscularity in the technological age provides "an affirmation of the value of strength to an audience who was finding that it no longer had such value" (p. 169). Instead of exhibiting male strength to suggest biological advantage, the display of masculinity in the cyborg image often functions to aestheticise technological potency and to normalise the cyborgisation of the body (*cf.* Green, 2002; Grundmann, 2007; Rehling, 2009; Wilson, 2012; Champagne, 2013). Figure 5.10.8 presents an extreme version of the validation effect of technological empowerment of the body. The male cyborg is brutally interlaced with fictitious combat technologies, and the aggressiveness of pose and expression serves to demonstrate power and invincibility through technological advantage. The male body is violently injured; mechanical parts cover organic disintegration, replace and amplify lost human faculty. However, demonstration of technological superiority relies on the spectacle of muscles and masculinity. The strong human arm expresses physical strength and by virtue of associating strength with power and dominance, the image elevates coarse (and often ugly) combat technology to signify authority and advantage. The muscular body, albeit vulnerable and visibly sore, idealises the male body as an invincible fighting machine. The title associates the image with Nazi ideology and Orr (2000) noted that the image of the invincible cyborg has sometimes been used to attract “neo-Nazis and liberals alike” (p. 42). Cyborg muscularity honours a broad appeal of “the motor force of the mechanical body” (p. 42). In this way, the well-built human machine substantiates an interrelationship between aesthetics, power and technology in a cycle of mutual necessity and amplification.

The spectacle of cyborg power however, argued Fussell (1992), might also serve as a defence against a disintegrating body image and collapsing models of identity. The cyborg image that relocates embodiment from familiar flesh to uncanny machinery, and replaces learned skill with technical function, is likely to disturb known ideals of grown aptitude and developed identity. In this sense, the well-groomed cyborg body might also be a psychological guard against the threat by emerging technosciences to devalue, if not annul, the human body. Forth (2010, p. 139) reasoned, “[a]s bodily ideal, then, the muscular physique surely conceals more than it reveals” – it conceals anxieties over the loss of traditional models of male identity to a neutralising, androgynous technology.

5.3.4. Technorotica

Analysis of the data in this study has shown that almost a third of images displayed technological bodies as explicitly erotic beings. Data revealed that the majority of erotic cyborgs were female, that sexual provocation occurred mostly, if not exclusively, in female subjects, and display of naked skin was a prominent strategy of sexual allure in the cyborg (see figure 4.16). Overall, these tendencies did not seem much different from general trends of gender display in contemporary Western media including advertising, gendered print magazines, reality TV, soaps, pop music, Hollywood imagery, and pin-up posters (Whelehan, 2000; Bessenoff, 2006; Milestone & Meyer, 2012).

Notwithstanding stereotyped gender display in the sexy cyborg, imagery of the female sexbot often portrayed subjects in a highly fragmented and immobilised way. Overall, the sexy female cyborg was significantly more fragmented and entrapped in technological tangles than any one of the other body images. Correspondingly, male erotic cyborgs were notably more mobile and intact than the overall average across the total data set (figure 5.11).

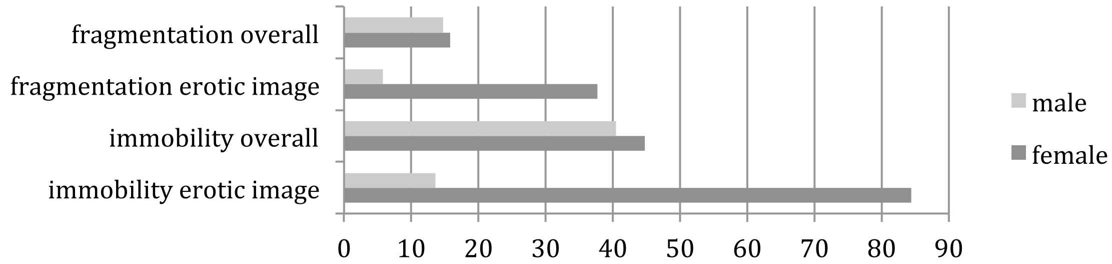
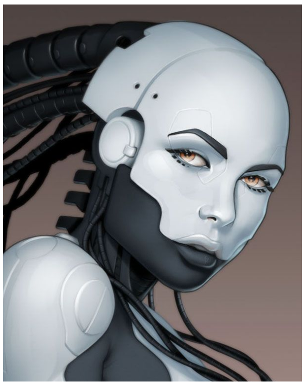


Figure 5.11: Fragmentation and immobility in the cyborg subject. Overall: 100% = 600 images, erotic image: 100% = 154 images.

A common visual theme in sexual cyborg images was the display of the female body ensnared in wires, cables, and other technical gear (figures 5.12.7-9). The arrested female body was often put on display as an extension of an invisible technological mechanism, connected to a controlling system by cords and strings. Commonly, the female body was nude, this way revealing her vulnerability in the face of domineering technology. A visual analogy to a human marionette operated by commanding machinery was obvious in a notable number of instances (e.g., figure 5.12.9). In other instances, the naked female body was fully absorbed into an encasing machine as shown in figure 5.12.12.

Sexed-up female cyborgs were predominantly presented in either arrested motion or in still pose; purposeful activities beyond self-display were exceptions. While posed females in the total data set occurred in roughly half of all images, immobilised female cyborgs in the group of erotic images appeared in almost 85% of instances. Respectively, male cyborgs were displayed in much more active poses than in the overall data set. Figure 5.12.10, for example, shows a *Male Sexy Cyborg* that remains fully in charge (and literally so) of his technologically boosted masculinity.



5.12.1: *Cyborg Woman 3*, WallChan.com (n.d.)

5.12.2: *Jessica Alba Cyborg*, unknown artist (n.d.)

5.12.3: *Underneath It All*, Andreea Cernestean (2008)

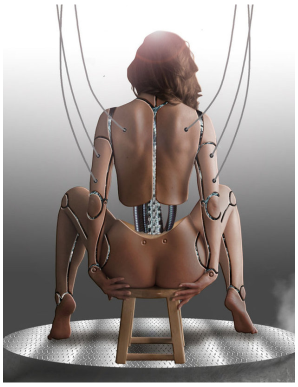
5.12.4: *Brooklyn Decker*, Nagy Zsolt (n.d.)

5.12.5: *Warning. Approach with Caution*. Rafido Digital Art (2012)

5.12.6: *Sexy Robot*, Hajime Sorayama (1970s)

5.12.7: *Gynoid*, unknown artist (2012)

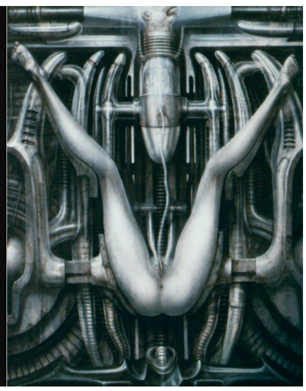
5.12.8: *Cyborg Plugged*, Damien (2007)



5.12.9: *Cyborg*, Leon Golding (2010)

5.12.10: *Sexy Male Cyborg*, Les Byerley (n.d.)

5.12.11: *Robots perform pole dance at the CeBIT Hanover*, AFP/Getty Images (2014)



5.12.12: *Artificial Inseminator*, H. R. Giger (2006)

Figure 5.12: Eroticism in the cyborg image.

Similar to an immobilisation of the gynoid[89] (G. Jones, 1984), fragmentation of female sexbots, i.e., display of dislodged or severed body parts, torso depictions, and cracks or crevices in the surface of the body, portrayed her as a helpless object. Whereas body fragmentation in the overall data set was almost even between male and female image subjects (roughly 15% each), body fracturing in female sexbots was comparatively higher (over double of the overall value). In contrast, male body disruptions in the erotic image were less than half of the overall value (figure 5.11).

Figures 5.12.2, 4-5 present morphologically intact but fissured female cyborgs. Their technological nature became apparent through a fractured surface of their otherwise complete bodies. Each of the gynoids performed an enticing pose, and she teased the beholder with erotic lure. The invitation by the image subject to be looked at was explicit in most images in the erotic group of data, and often a provocative gaze further enforced sexual allure (e.g., figures 5.12.1-4). In other cases, female cyborg subjects displayed the design of their sexed-up bodies without actively addressing the beholder (e.g., 5.12.5-9). However, the suggestion of scopophilic[90] pleasure in the exhibitionism of the sexy cyborg was prevalent throughout the erotic body image. Notwithstanding the images' commanding erotic presence, pleasure in looking seemed to be as much about the uncanny appeal of technology as it was the lure of the sexual body. Erotic allure targeted the technical-ness of the cyborg rather than her femininity.

Figure 5.12.8 shows a female cyborg plugged into a system that remains unseen and outside the picture plane. Network cables are excessively large, and oversized adapter pins brashly penetrate the woman's body. Her body and gaze orient away from whatever she is plugged into; she seems operated by the connected system and her body is no longer under her own command. The way her ruptured body is presented reveals that it is not her sexy nudity that is the interest of the image. Instead, it is the spectacle of her monstrous cabling, and the awe of technology's authority over her exposed and helpless body, which is the focus of the visual. The

[89] The term *gynoid* refers to female robots, androids or cyborgs and is comprised of the words *gynecoid* (resembling or relating to women) and *android*. The term appeared first in the science fiction novel *Divine Endurance* by Gwyneth Jones (1984).
[90] Scopophilia, i.e. *pleasure to look* as an essential human drive, has been recognized by Sigmund Freud (1856-1939) and Jacques Lacan (1901-1981) as fundamental to the development of subjectivity and sexuality in humans. Freud (1905) used the term to describe the pleasure to look at an object as fetish.

image of the sexy cyborg, commented Gonzáles (1995), enacts the fantasy of "a powerful, yet vulnerable, combination of sex toy and techno-sophisticate" (p. 277). Similarly, the image in figure 5.12.7 would be rather unremarkable as an erotic visual were it not for the spectacle of the woman's technological transformation. Like in many of the other erotic cyborg images, the technological make-up of her body was prominently put on display and was suggested to be as desirable as the erotic body itself.

In many of those erotic cyborg images that displayed technology as part of a sexed body, and showcased intimate relationships between body and technology, technology itself was suggested as an erotic experience. In the sexy cyborg image, technological sensation competes with the hyper-erotic body. It appears that the sexy cyborg image seeks to transfer the erotic appeal of the nude female body to uncanny technology and its transformative powers. In this way, the image of the sexbot marks a transition from human sexuality to machine sex, a transferral of human erotic appeal to the desire *for* the machine and the desire *of* the machine (figure 5.13). Christian (2012) called the potent mixture of eroticism and technology *technorotica.* Technorotica addresses technological objects of fetishist pleasure; objects that are pleasurable *because* they are technological. In the technorotic images in this study, it was generally unclear whether the human body or technology was of primary erotic interest. The boundaries between the appeal of the sexual body and the appeal of technologies of embodiment blurred.

The founding executive editor of Wired magazine, Kevin Kelly (2010), has argued that technology itself possesses sexual desire. He conceptualised advanced technologies as desiring agents that long for self-propagation the same way that biological organisms do. In Kelly's account, technology aspires for the human capacity to reproduce because it cannot, at least at the present stage, procreate by itself. Kelly mused, "[f]rom technology's view, we are the mysterious walking-around glands that reproduce them" (2007, para 6). If Kelly is right about the procreative desire of technology, visions of erotic allure in the robot (figure 5.13) may arise not only from human fantasies about technology but also from a direct, sensory experience of "intimate human-machine relationships" (Gray *et al*., 1995, p. 2).

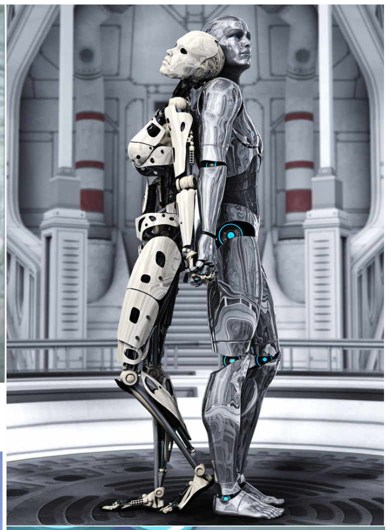
In another example, figure 5.12.11 shows two decisively mechanical robots performing the timeless pole dance common to adult entertainment establishments. Exhibited at the CeBIT technology show in 2014, the erotic dance of the robots made a playful yet decisive argument for the possibility of a sexual machine. The CeBIT bots seemed to be no longer about technology's impact on human sex lives but about the sexual desire of technology itself. The AI pioneer David Levy (2007) predicted,

> Love with robots will be as normal as love with other humans, while the number of sexual acts and lovemaking positions commonly practiced between humans will be extended, as robots teach more than is in all of the world's published sex manuals combined. (p. 22)

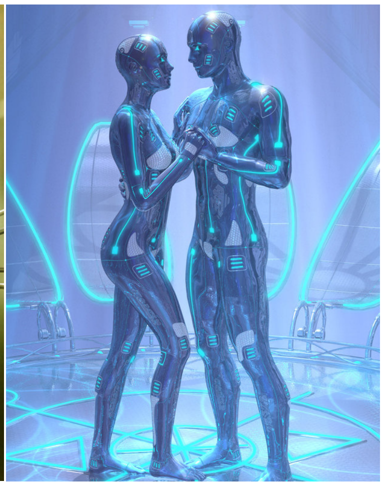
It is *technological* sexuality, suggests this statement, which leads to new human erotic expressions and experiences. In this scenario, technology does not merely mediate human sensual experiences but it *originates* them.

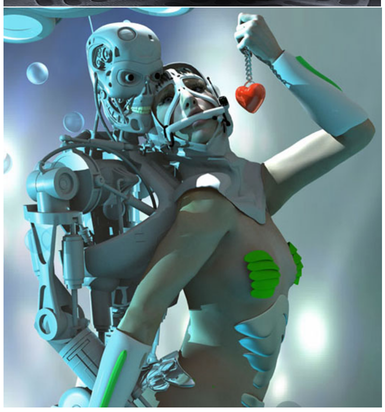
Besides dreams of enhanced sexual experiences, the fantasy of the erotic machine also defines sexuality as the ultimate boundary marker between humanity and technology. Sexuality, in these images, serves as a measurement of technological advancement; a machine that yearns for procreation and self-fulfilment, that moves into the most hidden recess of human desire, and "lives" the psycho-physiological urges of human beings, has presumably acquired all that is human. Sexuality and procreation, in these visions, are the last frontiers of technological sovereignty.

Meantime, Kelly (2007, 2010) believes that technology uses humans for its own proliferation until the *technium* has acquired its own reproductive capacity. Figure 5.12.12 depicts an imagined mechanism of autonomous technological procreation. The *Artificial Inseminator* delivers male sperm via a technical contraption directly into the vagina of an assimilated female body. The female body is truncated and only visible from frontal below. She is suspended from an apparatus that forms penile extrusions at its upper ends. These penile forms erect upward and the ampoule holding the sperm, shaped like a bullet, aggressively points down toward the woman's genitals. The image of male sexual power over female surrender could not be clearer (*cf.* MacKinnon & Dworkin, 1997). It is the machine that is gendered male, strong, erect and unforgiving in technological precision, forcing the pliable female body into submission. The female body is immobilised, helpless, and reduced to her capacity to receive. The *Artificial Inseminator* takes literal Kelly's (2010, p. 296) proclamation: "Humans are the reproductive organs of technology". The inseminator image has already reduced humanity to the sex organs of technology – where technology is male and human remnant is female.



5.13.1 (top): *Relationship with Humans*, Franz Steiner (n.d.)
5.13.2 (right): *Cyborg Couple*, Jason Martin (2013)





5.13.3: *Romance*, Valentina Kallias (n.d.)

5.13.4: *The Significant Other*, Hera of Stockholm (2015)

5.13.5: *Robot Romance*, Elianeck (n.d.)

Figure 5.13: Robot love.

With pornographic intensity, the inseminator image conceives of technology as nightmarish and claustrophobic transgression of bodily, sexual and technological boundaries (*cf*. Evans, 2014; K. Stuart, 2014). Pornography, the depiction of explicitly sexual subject matter, generally aims to elicit erotic responses in the beholder (Hyde, 1965; Slade, 2001). Because of its technical and intrusive detail, hard-core pornography has sometimes been compared to voyeuristic clinical procedures (L. Williams, 1989; Segal & McIntosh, 1992). The inseminator image combines cold pornographic intrusion with a lustful horror of injury. The erotic response to the *Artificial Inseminator*, however, targets the terror of the machine and not sexual violation itself. The image seems to deploy erotic voyeurism in order to "sex up" otherwise horrendous machinery. The *Artificial Inseminator* is part of a series of hypersexual biomechanical images by artist Hans Rudolf Giger (1940-2014)[91] that seek to inspire lust – not as much for the human sexual act but for technological potency and indomitability (*cf*. Doense & Robley, 1988; K. Stuart, 2014). Gonzáles (1995) has likened hegemonic male technology to the "metaphor of information flow as sexual penetration" and the cyborg to the image of "knowledge as force-fed data" (p. 273).

5.4. Discussion

From the image interpretations above it becomes clear that visualisations of cyborg subjectivity portray a mix of conventional aesthetic values and vain self-display, but they also evidence contempt for the carnal body. Technological bodies were depicted as stylish and all-powerful, but they were also brutally ripped, pierced and broken into parts. Aesthetic appeal in the cyborg image often arose from curious technological display while models of transhuman subjectivity lacked innovation and originality. Overall, imaginings of the future human sketched a snobbish but lonesome posthuman identity; image subjects were shown as shallow, superficial and isolated.

The transhumanist pioneer FM-2030 (1989) has outlined the self-actualising transhuman subject as cosmopolitan, technologically progressive, optimistic, highly motivated and proactive, dedicated to personal growth, intellectually and emotionally sharp, creative, sexually versatile, eupraxophic[92] in ethical orientation, and experimenting with non-traditional social values that he described as "Club Med morality" (Martin, 2000, para 8). FM-2030 (1989) emphasised the importance of being pervasively connected ("information-rich"), in command of the English language[93] for access to technology and global communication, leisurely at work ("time-rich"), non-competitive[94] in lifestyle, and affluent of resources. He related poverty to a lack of harnessing global and cosmic resources, and he dismissed

[91] See www.hrgiger.com, giger.com, and www.gigermuseum.com.
[92] Eupraxophy is "a system or constitution of guiding convictions and practices, which are determined by the rational exploration, study, and explanation of human nature, knowledge, and experiences. It is practiced consciously with principled judgement and an ethical commitment to life" (www.eupraxophy.org).
[93] In order to mitigate sensitivity to language dominance, FM-2030 (1989, pp. 25-26; Esfandiary, 1973) proposes English to be renamed to *Unilang* (universal language).
[94] FM-2030 represented Iran as national basketball player in the 1948 Olympics, generally considered a highly competitive event.

societies' struggle for survival as old-world and backward. In his understanding, technology would increasingly enable humans to benefit from freely available universal resources: "We have enough resources to insure abundance for every one of us for millions and billions of years. Abundance for as long as there is a universe" (p. 79). FM-2030 predicted a future of "post-survival economics" (p. 163) where immortality is a core interest, not resource management for essential necessities such as food, housing, and basic healthcare. Although FM-2030 acknowledged the existence of global problems in the 20th century to some degree, he nevertheless appraised the conditions of his time and his visions of a trans-humanist future from the privileged vantage point of a well-educated, well-travelled, and well-resourced member of the developed world[95].

In agreement with FM-2030's romantic utopia of a bountiful future society, trans-humanist visuality sketches an affluent, universal cyborg culture, and it dreams of technological self-actualisation that resolves all of human struggles. Correspondingly, demographic data on the transhumanist population confirmed a fairly homogenous audience that is accustomed to economic liberalism, driven by self-interest, reassured by a deep trust in science and technology, and morally confident of their inalienable right to subjectivity. However, in contrast to FM-2030's fairy-tale futurism, Hayles (2011) argued that transhumanism's bio-liberalism, utilitarian egoism[96], deep networking, and technocapitalist entanglement constructs an elitist *economy of the self* (Levinas, 2003), in which personal desires drive customised application of biotechnological knowledge, and seek to stabilise the reactionary politics of a technocapitalist elite (*cf*. Hartmann, 2000; Hughes, 2002a; Correia, 2010; Pruchnic, 2014). Hayles (2011) maintained that "trans-humanist rhetoric concentrates on individual transcendence; [...] there is a conspicuous absence of considering socioeconomic dynamics beyond the individual" (p. 225), and she reasoned that transhumanist discourse would be "too narrow and ideologically fraught with individualism and neoliberal philosophy" to

[95] FM-2030 was the son of an Iranian diplomat who took him along to extensive travels. He is said to have lived in 17 countries by the age of eleven (Ghandchi, 2000). As an adult, he served in diplomatic positions himself and later was appointed as lecturer at University of California at Los Angeles (UCLA) and a guest lecturer at the Smithsonian Institute.

[96] Utilitarianism describes the premise that actions should be judged by their consequences (in contrast to their motivations) and that morally good actions are those that promote the greatest happiness for the largest number of people. In utilitarianism, all actions that cause an increase in happiness are good actions (Bentham, 1907; Mill, 1998). See David Pearce's (2007) *Hedonistic Imperative* project and Max More's (2004) *Proactionary Principle* as examples of utilitarian thought in transhumanism.

be able "to account or to understand, much less to explain" (p. 217) the many complexities that its own agenda implies. Image data in this study verified the promotion of individual advantage, and attested an emphasis of the vain self, of the cosmetic body, and of idols of accomplishment and prestige in the transhumanist subject.

James Hughes (2002a), a transhumanist himself, admitted that libertarian transhumanism is "committed only to individual liberty, […] ha[s] little interest in building solidarity between 'posthumans' and 'normals', or in crafting techno-utopian projects which can inspire broad social movements" (para 4). Even the *Transhumanist FAQ* conceded that "some technologies may cause social inequalities to widen" and that "technological progress does not solve the hard old political problem of what degree of income redistribution is desirable" (Bostrom *et al*., 1999), while the older and more radical *Extropians FAQ* (More, 1989) explicitly "oppose[s] the redistribution of wealth through forcible taxation and regulation of commerce" (#Q9/A9.). As an illustration in point, Hans Moravec (cited in Dery, 1996, p. 307), in a response to critique of the social impact of robotic technology, affirmed, "socioeconomic implications are […] largely irrelevant. It doesn't matter what people do, because they're going to be left behind like the second stage of a rocket". Moravec, like many other transhumanists, believes that only swift technological transformation into posthumanism is the best individual assurance against the threat of obsolescence in a presumably impending singularity. In the transhumanist worldview, individualism not social institutions drive social change and human evolution, and only proactive self-improvement assures a snug place in a bright technological future (*cf*. Hughes, 2002a; Vint, 2007; Correia, 2010). Images of individual application of human enhancement technologies and a general lack of social contexts in transhumanist visuals suggest the imagined transhuman as elitist and self-serving, and portray technology as the prime enabler of personal aspirations.

Against this background, the original 1998 version of the *Transhumanist Declaration* seems to express transhumanism's libertarian objectives more genuinely than its revised version of 2003. The original version pronounced (excerpt): Transhumanism is

> [t]he intellectual-cultural movement that affirms the possibility and desirability of fundamentally altering the human condition through applied reason, especially by using technology to eliminate aging and greatly enhance human intellectual, physical, and psychological capacities. (World Transhumanist Association, 1998)

The same text of the revised 2003 version clarified:

> The intellectual and cultural movement that affirms the possibility and desirability of fundamentally *improving* the human condition through applied reason, especially by *developing and making widely available* technologies to eliminate aging and to greatly enhance human intellectual, physical and psychological capacities. (Bostrom, 2003a, p. 4; emphasis added)

The retrospect inclusion of *broad availability* of enhancement technologies and the clarification that human technological alteration ought to be understood as *improvement* is likely to be a response by the World Transhumanist Association to persistent critique of naïve techno-radicalism, elitism, extravagancy, and self-serving interests (*cf*. Borsook, 2001; Hughes, 2002a; Fukuyama, 2004; Vint, 2007; Ihde, 2008; Peters, 2008; De Thézier, 2009; Gelles, 2009; Correia, 2010; Hayles, 2011). Salter and Jones (2005) observed a *legitimation crisis* of biotechnological commodification; its legitimation of objectives, exclusiveness of access, and a lack of concern for far-reaching consequences, they noted, profoundly questions trans-humanism's aspiration for the enhancement of the capable, affluent and privileged individual. The positive body image of the biotechnologically augmented trans-human, of cyborgs that are powerful and appealing, help to mitigate concerns of a far-reaching technological transformation of society, and they premediate human enhancement technologies as improvements for humanity.

Images of the enhanced future human almost exclusively show pictures of young, beautiful and healthy individuals who according to contemporary standards of good health and good looks would not require cosmetic improvement (Haiken, 1997; Forth, 2010). Nevertheless, further enhancement of the already perfect body is a central concern in transhumanist visuality. It appears that for transhumanist sensitivities even the most impeccable body is never sufficient – possibly because it is still human. Simon Young (2006), for example, equalled "human" with "suffering and failure", and called humanity a "disease state from which to be cured" (p. 32). In both transhumanist accounts of embodiment and in images of the future body, there was a sense of imperfection of anything that is fleshly, carnal and organic. In the transhumanist perspective, “the body is intrinsically flawed and must be corrected through technology” (Gomoll, 2014, p. 68). This inherently faulty body, in order to be acceptable at all, needs to be boosted through rigorous exercise, cosmetically corrected by the scalpel, chemically enhanced through supplements and nootropic drugs, and biotechnologically shielded from the passing of time. Many transhumanists disapprovingly refer to the body as “wetware” (Rucker, 1988) or “meat cage” (Andreadis, 2009). In one instance, FM-2030 called his ailing pancreas "a stupid, dumb, wretched organ" (Ghandchi, 2000, para 4), and S. Young (2006) pronounced the chemical processes of the body as inappropriate and “most frustrating”. Instead of the body emitting various liquids, soft and odorous substances, he suggested that bodily waste should come in “small, uniform, odourless packets” (p. 28). The corporeal body, argued trans-humanists (e.g., More, 1990, 2013a; S. Young, 2006), would be arbitrary and uninviting, outmoded and effectively irrelevant, and it can no longer function as the locus of posthuman subjectivity.

Notwithstanding transhumanists’ general *body loathing* (Dery, 1996), their carnal distaste seems to particularly target the sexual body. It appears that above any other perceived *dumb design by evolution* (S. Young, 2006), layout and function-ality of the sexual “parts” of the human body seem most disagreeable with transhumanist sensibilities. For instance, in his *Email to Nature*, S. Young (2006) complained about the body’s metabolic emanation orifice being “needlessly situated directly next to the sexual organs” (p. 28). Natasha Vita-More (1997b) asked a similar question: “Do we really need sex? And if so, why with the very organs that we urinate with?” (para 8). Vita-More (1997b) described the corporeal act as “rubbing mucus membranes against each other” (para 13) and quoted Susan Sontag comparing love making to “having an epileptic fit” (para 11). She speculated that humans “may eventually have less preoccupation with sex and become more absorbed in creative and intellectual pastimes for excitement and challenge” (para 12). If sexuality as a corporeal act were to disappear, affirmed Vita-More (1997b), technology would have the means to “endow a simulated creativity center in our brains manufacturing mental orgasms on an assembly line” (para 3). According to these accounts, the human sexual act seems unpleasantly carnal to transhumanist sensibilities and, by virtue of its fleshly qualities, rather undesirable. In Vita-More's (1997b) vision of sex in the future, erotic pleasure seems to be a good thing as long as it is not carnal; sexuality seems desirable as long as it does not involve the body. The hypersexed but sterile cyborg attests for a body image that has been neutralised of the carnality of sex.

In other instances, Max More (2013b, p. 449) complained about human's "poor impulse control" and S. Young (2006, p. 28) decried nature's "[f]ailure to include the capacity for conscious control of sexual arousal". It is possible that behind this distaste for corporeal sexuality hides a profound disapproval of archaic, animalistic and autonomous organic processes and responses. The above appraisals of human sexuality indicate a wholesale rejection of a carnal epistemology, and of the body as a site of knowledge and agency (*cf*. Romanyshyn, 1989; Hoyt, King, Lyons & Robinson, 1993; Jamison, 1994). However, they also suggest that lack of control over the human organism – and over life in general – poses an unacceptable proposition to transhumanists (Andreadis, 2009; A. Schulman, 2009, 2010). It appears that the sanitised, hyperaesthetic cyborg image serves transhumanist psychology as an antidote to the chaotic, squishy, odorous, and volatile realities of the organic body.

Against the background of an aversion to the chemical body, stable images of the cosmetically neutralised body, of uncompromised beauty standards and reliable gender roles might appear a wholesome sight to the aesthetically troubled eye of transhumanism. Beauty, sex and gender roles seem the predominant domains in which to enact transhumanism's sanitised visions of the future human. As seen in the data, these visions tend to be compliant with established norms of subjectivity and a contemporary aesthetic of refined self-presentation. Despite images of androgynous transhuman bodies, experimentation with new gender roles, for example, is almost completely absent in cyborg imagery. Instead, traditional gender stereotypes are commonly followed, and at times even magnified, whereby technologically enhanced bodies are either coyly feminine or heroically masculine.

The cultural theorist Angela McRobbie (2000) noted that the end of the last millennium witnessed the emergence of a *new femininity* (McRobbie, 1997; Tincknell, Chambers, Van Loon, & Hudson, 2003) that, despite innovation in the presentation of gender, continued to be embedded in conventional models of gender. Similarly, Milestone and Meyer (2012) argued that what seems to be new body images would be nothing but refined modes of bodily *representations* – while underlying gender roles would remain conservative and conformist. In an example of unquestioned gender stereotypes in transhumanism, Vita-More (1997b) proclaimed that, "in the future there will be a blurring of […] traditional [gender] categories" (para 16). She affirmed that in the transhuman era,

> Female does not merely mean a person who wears polish and frills, has a capacity for communication and empathy, or is endowed with a mothering instinct. Nor will masculine merely mean a person who is rugged, emphasizes spatial temporal thinking, or the protectorate of home and hearth. (Vita-More, 1997b, para 16)

For a transhumanist, such unimaginative, clichéd gender observations are rather remarkable, and they complement an unbroken *retro-sexism* in contemporary popular culture imagery (Whelehan, 2000). The broad popularity of the sexy cyborg seems to affirm the continuation of gender stereotypes into the imaginings of a future humanity that, according to Vita-More (2000), was meant to represent an era "inclusive[…] of all humanity […] beyond arguable restraint and hostility, territories and obsessions, labelling and segregating" (para 7). In spite of such assurance of inclusiveness and radical redefinition of subjectivity in future societies, complicity with traditional gender roles is rampant across transhumanist discourse. At a talk on the *Future of Sexuality* at the EXTRO3 Conference in 1997, Vita-More asked the rhetorical question, "*Was is as good for her as it was for me?*" (1997b, para 4). The very question of sexual pleasure asked by a woman from a male perspective betrays an uncritical perspective on hegemonic gender roles.

The visions by transhumanists of a technologically improved future humanity, of self-actualisation through state-of-the-art technosciences, and unrestricted choice in the design of personal identity, project a transhuman that claims to be ethically novel yet remains attached to conservative values, wants to be aesthetically avant-garde yet perpetuates established ideals, and declares an inclusive and harmonious society yet perpetuates a politics of individual advantage. The forward projected but backward looking worldview of transhumanism portrays an "almost melancholy longing for the future" (Birkholm, 2007b, para 11) that seems to yearn for the nostalgia of a unified, universal and morally certain past. S. Young (2006), for example, decried the "purposeless, directionless chaos" (p. 366) of postmodernity's "deep dark waters of nihilism" (p. 365) and sought to re-establish an age of "universal purpose, human progress, and shared moral codes" (p. 18). The "miraculous technowonderland" (p. 366) emerging from unrestricted technological progress, he affirmed, would foster a new breed of transhumans "who combine the romantic passion for human transcendence with the classical logic of scientific rationality, in an uplifting spirit of technoromanticism" (p. 299). Transhumanism's future visions as they appear in both discourse and in images of the technologically enhanced human, sketch a reactionary utopia that is uniform, linear, and optimised for deployment by a technologically privileged, conservative elite.

5.5. Summary

Complementing transhumanism's oversimplified vision of a global, independent and self-actualising future human, images of cyborg subjectivity sketch a universal transhuman according to white, young and techno-urban stereotypes. Image subjects tend to be hyperaesthetic and hypersexual – "hysterically fashionable" as Lacey (2009, p. 11) called it – and their desirability, as projected in these images, arises from technological enhancement rather than from human achievement. The apparent link between common beauty ideals and technologisation of the body in the transhumanist image suggests the deployment of a general desire for self-actualisation as a means of stabilising at times intimidating enhancement technologies. By constructing pretty cyborg images, the technologies that are promoted to aestheticise the human body become themselves icons of aesthetics. Likewise, images of the sexy cyborg aim to normalise technology as something that is as pervasive, primordial and powerful as sexuality. Images of the attractive cyborg serve as a strategy of advocating human enhancement – which as real-existing biomedical procedures can be crude and brutally invasive – as something desirable and positively aesthetic. The fame and success of celebrities further aid the endorsement of technological transformation not only as aesthetic enhancement but also as *de facto* improvement to unenhanced subjectivity. Beautiful in the aestheticised cyborg image implies better; better implies more advanced, and more advanced means more technology.

Chapter 6: **Posthuman Embodiment: Rude Mechanicals, Data Bodies, and the Malleable Flesh**

6.1. Introduction

After charting the main attributes of existing and imagined transhumanist selfhood in chapter five, the present chapter presents leading visions of the posthuman body in cyborg imagery as they transpired in the form of manifest organisms, as a site of body morphing, and as an abstract space of data manipulation. The visions of transhumanist identity produced images of bodies that were decisively technical in design but also playfully spectacular in their technological ingenuity. Present proposals for the transhuman future body were commonly frivolous whereby a lack of serious concern for scientific probability and technological feasibility guided their design. Transhuman bodies in popular cyborg imagery emerged as fantasies and fiction of a speculative future humanity in ways that are unlikely to ever exist. Instead, idle play with imaginings of posthuman embodiment evidenced a broad fascination with an all-powerful and indomitable body image.

6.2. Human machines: the frivolous image

Close to half of all images in the data set (46.7%) displayed cyborgs that were tangibly mechanical and decisively machinic in their embodiment. Unlike cosmetic modification of the body (see section 5.3.2), mechanical cyborgs tended to be spectacular: they were highly visible, fairly picturesque, and notably playful in their flamboyant assemblages. Some cyborg designs were reminiscent of Rube Goldberg machines[97] showing off technological extravagance, mechanical excess, and aesthetic frivolity (figures 6.1; 6.2; 6.3). Ostentatious technical designs and the application of frisky yet *rude mechanicals* (K. Baker, 2007; Christian, 2009) portrayed the cyborg as a frivolous machine that at the same time teased and repelled.

The mechanical cyborg was often visualised as a lofty composite of human form and technical gear, a mechanised body seemingly void of technical function.

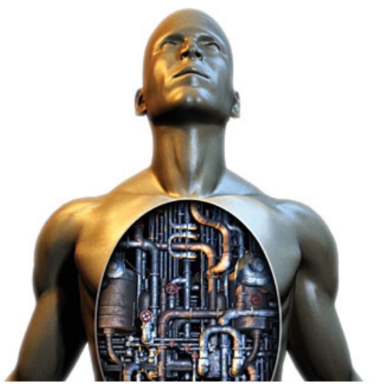
[97] A Rube Goldberg machine, named after the American cartoonist of the same name (1883-1970), is a mechanism or a process that accomplishes a relatively simple task by over-complex means. In the transhumanist examples in this section, a Rube Goldberg mechanism refers to over-designed technological gear. Most of the cyborg contraptions in the image examples above do not convey any functionality whatsoever.

Machine parts tended to be curiously twisted around, or interwoven with, human bodies in ways that divested practical purpose. Technical components were sometimes oversized compared to their actual ratios with the human body, and were shuffled into the body in mostly haphazard ways (e.g., figures 5.7.3; 5.12.8; 6.1.1, 3, 5; 6.2; 6.3.2-3, 5). At other times, the cyborg was constructed as a mechanical core overlaid with a human shell that barely concealed the peculiar make-up of the technical system underneath (e.g., figures 6.1.1, 4; 6.2.1, 9). In several of these images, it appeared that the remaining human body was "more trapped by [its] mechanical parts than liberated through them" (Gonzáles, 1995, p. 269).


6.1.1: *Automaton*, Kazuhiko Nakamura (c. 2005)


6.1.2: *Cyborg Vision*, unknown artist (n.d.)


6.1.3: *Costume*, Katarzyna Konieczka (2010)


6.1.4: *This Old Body*, Scientific American (2008)

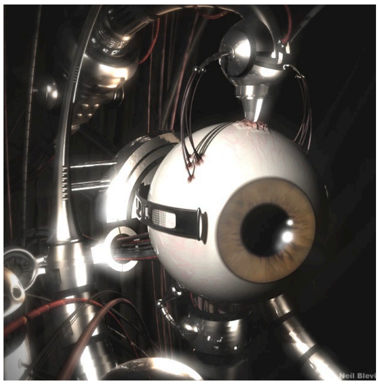

6.1.5: *Hatred IV No. S068*, Neil Blevins (2000)

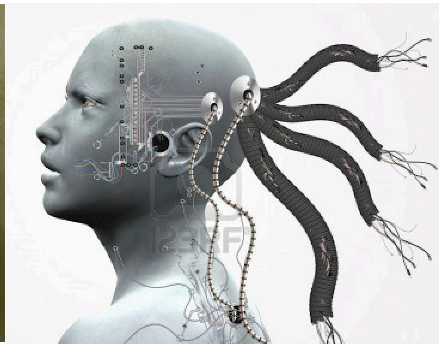
Figure 6.1: Mechanical cyborg contraptions.

Bizarre technical contraptions tended to involve mechanical parts that had no conventional relationship to the human body. Body extensions commonly included engine parts, tubes, pipes and cables, electrical and electronic components, hydraulics and optical gear (see figure 4.18). Many of the mechanical expansions of the cyborg body involved machinery and paraphernalia that was rooted in pre-informational technologies reaching back over a hundred years and, in their antecedents, much further still (see technological timeline in appendix A1).

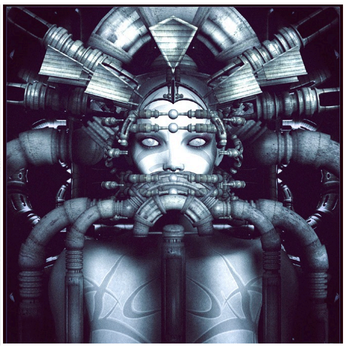
As examples of nascent human enhancement technologies, these apparata seemed positively outmoded. Further, mimesis of the cyborg image sometimes mimicked the style of historic machine illustrations and the aesthetics of past graphical displays (e.g., figures 6.1.1-2; 6.2.2). The use of visual icons from the steam engine era (figures 6.1.4; 6.2.1, 3), devices that resembled mechanical clockworks (figures 6.1.1-2), or combustion engine parts (figures 6.2.5-6), generally seemed to stand in as symbols of the technological body. The archaism typical of steampunk science fiction, i.e., the application of old-fashioned or even obsolete technologies to signify technological innovation (Plunkett, 1991; VanderMeer, 2008; Strongman, 2010), seemed prevalent also in the imaginings of the future body. Steampunk generally fuses industrialisation with romanticism, combines technological aestheticism with either utopian or dystopian future visions (Bebergal, 2007). Perschon (2010) described steampunk as a "technofantasy, which in short, is when you say something is scientific and technological, but never really substantiate it, or worse yet, explain it using rules that contradict the laws of our physical sciences" (para 5). Perschon (2012) argued that the aesthetic expressions of technofantasy would permit technology as "looking like science, but working like magic" (p. 10). Pho (2012) noted the generally progressive tendencies of steampunk but she also alerted to romantic undercurrents in the genre. Steampunk is about "playing with the narrative scope of history"; it is "a way of critically exploring the imaginative what-ifs" (p. 34) of past, present and future. Notwithstanding critical, subversive and cynical trends in steampunk, the movement has also been charged with escapism, idealism and superficiality (Nevins, 2005; Pho, 2012), especially so with respect to its *polished brass aesthetic* (Rauchfuss, 2008) and its reliving of the industrial dream of the 19th century. Pho (2012) observed that steampunk's visions of "technology may be forward thinking even as the attitudes may remain staunchly retrograde" (p. 35).

Steampunk anachronism in cyborg imagery often seemed to romanticise both technological potency and the principle integrity of the body, and it commonly displayed technological intervention as essentially external to human subjectivity. The bizarre and sometimes macabre technological transformations of the body usually occurred on a shallow level only, and there was a sense of unscathed human identity underneath a superficially transmogrified surface. In all of their technological distortions, underlying human bodies remained essentially human whereby corporeal experiences prevailed: cyborg bodies were predominantly human bodies, their gross morphology largely intact, organic functions were rendered irrelevant but were not transformed, and their aspirations were still recognisable as that of human beings. In short, images of the mechanical cyborg showcased technological play with the human body – but they did not obliterate the human body in their visions of posthuman embodiment and they generally did not suggest radical transformations of human identity.

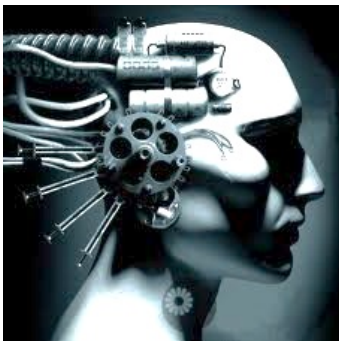
6.2.1: *Steampunk Cylon*, Shawn Sharp (2009)



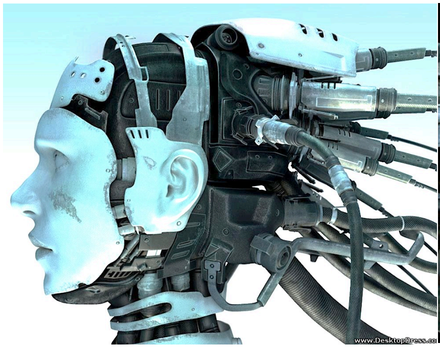
6.2.2: *Cyborg with Cables and Circuits*, Shamain (2010)



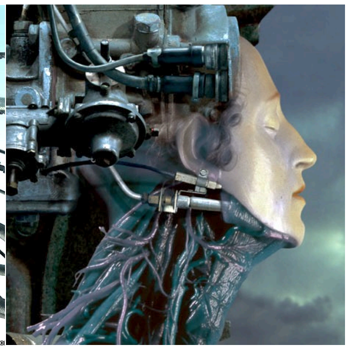
6.2.3: *Silent Queen*, Valentina Kallias (2010-2013)



6.2.4: *Cyberpunk*, unknown artist (n.d.)

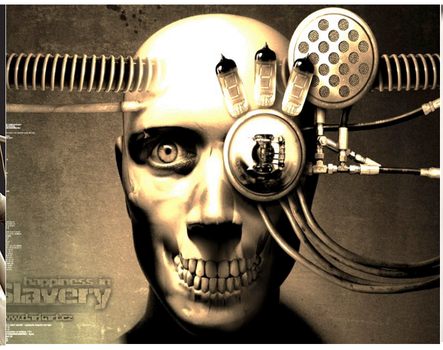


6.2.5: *Cyber Girl*, Fausto De Martini (2008)

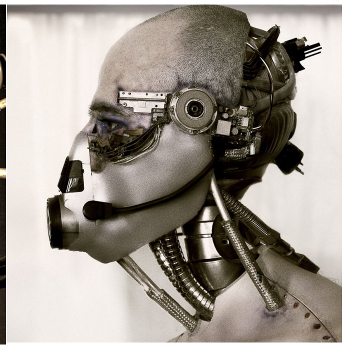


6.2.6: *Dimmu Borgir*, Joachim Luetke (n.d.)

6.2.7: *Cyborg*, unknown artist (c. 2008)



6.2.8: *Happiness in Slavery*, Jana Doležálka (n.d)



6.2.9: *Relaxing Time*, Daniele Gay (2010)

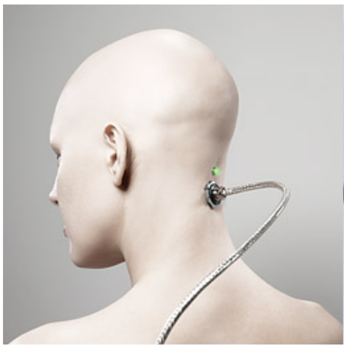
Figure 6.2: Mechanical cyborg heads.

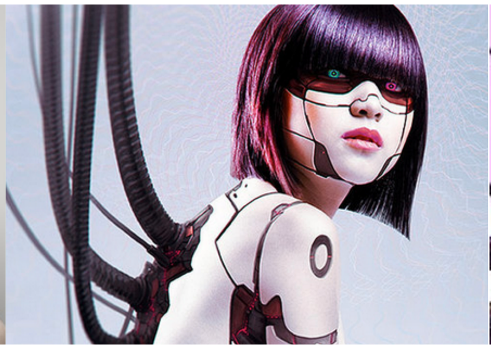
Also anachronistic with respect to nascent NBRIC technologies, a good number of cyborg images displayed network cables, cords and wires, switches, adaptors and plugs, and connecting pipes or tubes as part of their technological bodies (figure 6.3). Together, these technologies of hardwired connectivity appeared in a quarter of all images in the data set – at a time when wireless networking has globally overtaken hardwired connectivity[98]. In spite of increasing virtual and etheric technologies (e.g., mobile networks or medical radiology), the material-mechanical cyborg still appeared as the most prevalent image of human enhancement. It seemed that the material, tangible and highly visible machine body generally stood in as the most popular icon of technological advance, no matter how dated or even obsolete presented technologies might have been. In this way, the mechanical cyborg did not as much portray feasible designs of the future body but functioned as a universal metaphor of the technologically enhanced transhuman.


6.3.1: *Transhumanisme*, Marion Kotlarski (2010)


6.3.2: *Alternative Birth No. S075*, Neil Blevins (2003)


6.3.3: *Cyborg Head,* Marianne Gilliand (2007-2010)


6.3.4: *Singularity*, Phillip Toledano for TIME (2011)


6.3.5: *Android Legacy 4: Akira*, Oliver Wetter (2013)


6.3.6: *Android Legacy II,* Oliver Wetter (2012)

Figure 6.3: Plugged-in cyborgs.

[98] According to the International Telecommunication Union (2014, May), there were about 7 billion mobile telecommunications subscriptions worldwide (equivalent to 95.5% of world population) in 2014 (Mobithinking, 2014). In addition, 32% global mobile broadband (i.e., wireless Internet access) subscriptions were estimated to become active in 2014. In contrast, fixed (i.e., wired) broadband connectivity stood at 9.8% worldwide (International Telecommunication Union, 2014).

A further anachronism became apparent in the application of scale in cyborg images. Technical gear was often oversized and their mechanical nature notably accentuated. Crude, coarse and boldly mechanistic gear fundamentally contradicts the paradigm of shrinking technologies (e.g., computing hardware) and especially of nanotechnology that operates on sub-molecular levels. Still, imagery of the heat engine most commonly defined the future visions of the cyborg and generally encoded the promises of 21st century human enhancement technologies.

Besides bold body-machine amalgamations, a notable number of images of the mechanistic cyborg presented a technologically altered head rather than a full body[99] (figure 6.2). In depictions of the cyborgic head, the face of the image subject was usually maintained well enough to be clearly recognisable as human in appearance, even in those instances where facial features arose from technical surfaces and not from organic structures (e.g., figures 6.1.1; 6.2.1, 5, 9). In those images where back and/or interior of the head were technically altered (e.g., figures 6.1.1; 6.2.1, 3-6, 9), the face tended to remain intact and reasonably well distinguishable as of human form. From these images it appeared that maintaining key markers of human identity, such as facial form and expression, seemed crucial to the promotion of the body's technological transformation (*cf*. S. Kemp, 2008).

Evolutionary, social and behavioural psychology has long recognised eye contact and facial mien as vital aspects of self-expression and of interpersonal communication (*cf.* Darwin, 1872; E. T. Hall, 1959; Ekman, 2003; Freitas-Magalhães, 2007). Research into the representation of the human face in artefacts suggested that the intact face of an otherwise crudely distorted body still recalled human identity and recognised the technological body as the locus of human subjectivity (e.g., Bruce & Young, 1986; Ellis & Lewis, 2001; Tinwell, Grimshaw, Nabi & Williams, 2011; Gold, Mundy & Tjan, 2012). For cyborgs with modified face, it was generally the eyes (figures 6.1.1-2; 6.2.7-8), less commonly the mouth (figures 6.2.3, 9), that were technologically enhanced. Regions of middle face and nose mostly remained unmodified[100]; the nose seemed to be of no notable interest to the cyborg body.

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[99] 29.5% of cyborg images either solely depicted or otherwise emphasised the head. This contrasted with 25.1% full body depictions. In the category of mechanical cyborgs, head depictions ranked at 35.2% and only 12.1% displayed the whole body.

[100] Across the data set, 12.3% of images depicted technological transformations of the eye, 0.7% of the ear, 0.4% of the mouth, and there were only a couple of explicit nose alterations.

The underrepresentation of nose alterations in cyborg visuals stands in a stark contrast to the high prevalence of "nose jobs" in cosmetic surgery. The International Society of Aesthetic Plastic Surgery (ISAPS, 2014) reported rhinoplasty as the fifth most popular surgical procedure across all cosmetic treatments worldwide, and the single most frequently performed procedure in men.

In contrast to the apparent importance of a well-formed nose to the modern self, the olfactory sense is generally considered a rather archaic sense, a sense that lives in a fleshy, animalistic world (Corbin, 1988). Olfaction is grounded in processes of organic chemistry, a science of compounds, reactivity and entropy. The transhuman cyborg that despises a carbon-based body does not seem to require this sense; smells in cyberspace have no relevance. Olfaction is also recognised as a sense of particulars that is deeply rooted in personal memory (E. T. Hall, 1966). Huizinga (1996, p. 24) wrote of the late Middle Age as a time "so intense and colorful [with] life that it could stand the mingling of the smell of blood and roses". Rogue liveliness, detailed particularities and a personalised memory are not conducive to a technological reality that seeks to be clean, controllable, and universal. Consequently, the cyborg body is removed from a messy biology, sanitised of the vapours of organic physiology, and severed from the memory of flesh. Instead of olfaction that requires physical proximity and chemical signal processing, the sense of distant vision, the clean optical processes of the eye, were emphasised in the cyborg image. With respect to the broad popularity of the clean and orderly cyborg image, Stock (2002, p. 20) observed, "Hollywood images of humanlike cyborgs lull our thinking because they so completely ignore the messy realities of basic physiology".

6.3. Informational disembodiment: image as code

A second class of cyborg visualisations involved images that conceived of the technological body as an information processing entity. Schlich (2010) commented that, "[t]he idea of information has been a key concept in the scientific understanding of the organism in the twentieth century" with a conceptualisation of the "basic vital functions as a storage, transfer, modification, and translation of genetic information" (p. 89). The very concept of the cyborg, argued Hayles (1999, p. 47), would be a manifestation of the "impression that his or her physicality is […] data made flesh". The cybernetic conceptualisation of man as information is thought to root in a reductionist philosophical anthropology where "[t]he complexity of the human subject – one's spirituality, materiality, and sociality – is perceived as being reducible to a collection of patterns that can be decoded and re-embodied in whatever substrate a given future technology provides" (DeLashmutt, 2006, p. 268). Haraway (1991) characterised the informational bodies of the cyborg as "made of sunshine; they are light and clean because they are nothing but signals, electromagnetic waves, a section of a spectrum" (p. 153). The informational paradigm, argued DeLashmutt (2006), would describe a postbiological body "crafted with the needs of the technological world in mind" (p. 276). The transhumanist Frank Tipler (1994) confidently summarised informational embodiment as, "[t]he pattern is what's important, not the substrate" (p. 127). He continued to clarify: "The human mind can exist forever, assuming that the machines which house and embody the human mind can last forever as well" (p. 125). Informational embodiment, in the transhumanist sense, promises eternal self-reinvention and virtual immortality.

Over a quarter of all images in the data collection (26.8%) presented proposals for an informational human who was comprised of various data structures. Within the informational category of images, the human organism was realised mainly in two groups of coding structures: 1) *biological* patterns of genetic code encrypted in DNA (18.6%) or as molecular structures (10.7%), and 2) as *computing* patterns in form of binary code (12.1%) or arrays of computer circuitry (22.8%)[101]. Contrary to the manifest forms of the mechanistic cyborg, the informational body was often reduced in form, cleared of texture, stripped of tangibility, and rendered transparent – almost invisible. These images seemed to suggest that informational man did not require a manifest body – however, neither could it be without. The informational beings in figure 6.5 appeared as "bodies without a body" where formal human morphology was often maintained but either grossly abstracted or dissolved as cohesive form. The body as a site of organic activity and human experience was replaced by a body that is a site of computing.

In the images of informational embodiment, DNA was often visualised concerning the entire body while binary code seemed more relevant for visualising neural

[101] Values here are relative to the informational body. For absolute values relating to all images in the data set, see figure 4.17.

activity in the brain (figure 6.4). The metaphor of the human mind as a computer, and self-awareness, cognition and emotions as information processing events, became iconised in images of the info-head (figure 6.5.4), a visual theme that was persistently repeated throughout cyborg imagery[102]. The info-head visually summarises the substrate-independent, superior and eternal posthuman. The head that houses an informational brain reflects the concepts of artificial intelligence and mind uploading (Minski, 1988, 1992; Moravec, 1988; Kurzweil, 2013), and it also represents the informational-cybernetic worldview of transhumanism.

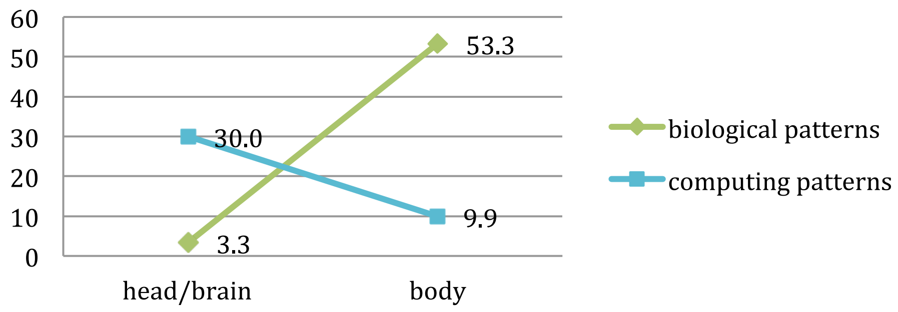
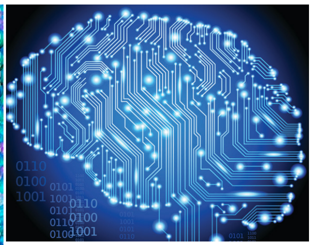


Figure 6.4: Body distribution of informational patterns (in % of informational embodiments).

The assumed supremacy of the brain as the locus of human identity was often emphasised in the informational cyborg by a persistent use of blue hues (e.g., figures 6.5.1-3, 5-8). The colour blue in a Western cultural context has commonly been deployed as a symbol for depth of mind and of self-realisation, and has been associated with exchange and communication (Conroy, 1942). The blue brain in informational embodiment signifies computational depth and connectivity. Computation, connectivity and interaction in informational embodiment sub-sequently also included relevant code structures (figures 6.5.2, 5), molecules and DNA helix (figure 6.5.1), synapses and active brain areas (figures 6.5.2, 5), logic circuitry (figures 6.5.2, 8), and virtual simulation polygons (figure 6.5.7) – the power of the human mind became symbolically absorbed into coding patterns; brain, mind and data patterns became one and the same.

[102] About 10% of all images in the data collection depicted an informational head.

6.5.1: *Molecular Thoughts*, unknown artist (n.d.)

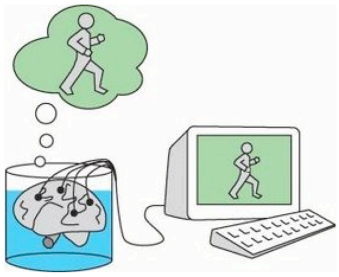


6.5.2 (right top): *Artificial Intelligence*, Crystal Graphics (2012)

6.5.3: *Transhumanism Tech Med Augmentation*, unknown artist (n.d.)

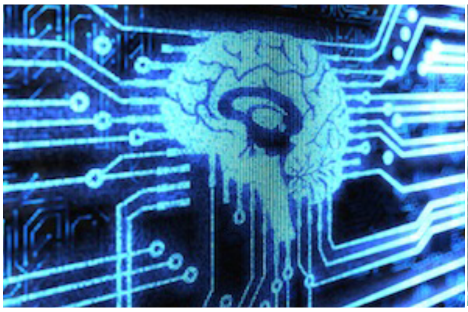
6.5.4: *Info-Head*, unknown artist (n.d.)

6.5.5: *Human Brain*, unknown artist (n.d.)



6.5.6: *Brain in a Vat*, unknown artist (n.d.)

6.5.7: *Transhuman Head*, Transhumanism Part 14, video still at 02:10 (2009)



6.5.8: *Brain on Chip*, unknown artist (n.d.)

6.5.9: *Skynet in the Desert*, unknown artist (n.d.)

Figure 6.5: Informational (dis)embodiment.

The famous *Brain in a Vat*[103] parable illustrated in figure 6.5.6 describes the paradox of *distributed subjectivity*[104] (Cubitt, 1999; Hayles, 1999; Nayar, 2014), a nascent identity concept in transhumanism, when arguing for variable forms of

[103] The *Brain in a Vat* parable in the given context of this study refers to Daniel Dennett's (1978) very illustrative version and not to Hilary Putnam (1981), who is often credited with the original *Brains in a Vat* narrative as an update on the long-standing epistemic problem of confirming the existence of an external world. However, publication dates suggest that Dennett's version might have been written a few years before Putnam's.

[104] *Distributed subjectivity* in context to embodiment refers to a subject that no longer has a central form of existence and hence no simple and single form of embodied identity. *Distributed subjectivity* occurs when a subject disperses its identity across a number of systems and technologies that may or may not congruently interact.

embodiment. *Brain in a Vat* assumes a human brain suspended in a life-sustaining medium connected to a computer that receives the brain's signals, simulates responses and scenarios, and feeds these back to the physical brain. The crucial idea is that the brain would have no means of knowing whether its perceptions were real-world impulses or computer simulations. The illustration of this situation in figure 6.5.6 presents three possible sites of human subjectivity: 1) the physical brain, 2) the simulations by the computer or 3) the perceptions of the mind as they are controlled by computer input. The question arising in this parable is what or who of these sites constitutes the subject? *Brain in a Vat* draws on Plato's allegory of the cave. In the cave, human subjects were placed in a way that they could observe the environment and their own actions merely through shadows cast to the cave wall by the light of a fire. Once released from their fixed position, the persons would not be able to tell what is real, their physical appearance or their own shadows, i.e., their material being or the idea (i.e., the *image*) of themselves.

A key in figure 6.5.6 to resolving the *Brain in a Vat* puzzle seems to precisely reside with its use of colour. The picture of the computer and the brain's perception of the computer's simulation were shown in greenish shades, a symbol of vitality and renewal (Conroy, 1921), while the brain itself was engulfed in a blue liquid. Blue represents the centre of control and power, the depth of knowledge, awareness and reality, whereas green computer and simulation of sensory signals denote derivatives of the brain's informational primacy. Based on the analysis of the use of colour in this image, the question of identity in a distributed reality seemed to find its own answer. Knowingly or not, the artist of the *Brain in a Vat* image seemed to identify the material brain as the site of subjectivity and, in this way, originated human identity in its biological substrate. However, the image still suggests that a computational device may simulate the subjective *experience* of existence. In this sense, the *Brain in a Vat* parable rather confirms than questions the informational paradigm popular to transhumanist thinking. Building on the *Brain in a Vat* parable, the transhumanist philosopher Nick Bostrom (2003c) has argued for the probability of all of human activity and awareness to be the sum product of a grand computer simulation.

6.4. Biotechnological bodies: the simulated image

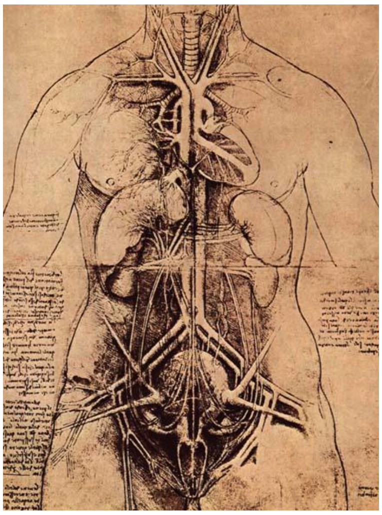
A third set of body images, loosely summarised as biotechnological visualisations, presented a distinct area of concern in the present visions of future embodiment: the organic body. These are visions of the body that deal with the deep spaces of organic vitality, with the morphological design of synthetic organisms, and with images generated by biomedical visualisation technologies. What defines this class of images as a coherent group of visuals is their display of human biology as the primary space of technological transformation. Unlike the mechanical cyborg image that celebrated the body as a machine, or the informational image that abstracted physical embodiment as technical code, the biotechnological image is a vision of the body as synthetic biology. Three sub-groups in the class of biotechnological embodiment became apparent: the translucent anatomical body, the crudely malleable organic flesh, and the simulated visions of biomedical imaging.

6.4.1. Anatomical spectacles: visions of the despotic eye

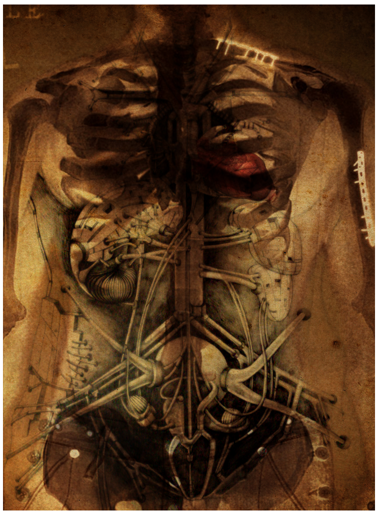
Romanyshyn (1982, 1984, 1989) has argued that the anatomical body arose as a product of the *spectator mind* emerging together with the invention of linear perspective during the 15th century. The focused, distant and fragmented view of linear perspective that scrutinised the world through a geometric grid, he affirmed, "became a cultural convention, a habit of mind, a way of knowing the world" (2008, p. 91). According to Romanyshyn (2008), the understanding of the human body as an anatomical space was the result of the "pitiless gaze, the gaze of the despotic eye" (p. 81) that aimed at penetrating the surface of the body in search of its inner workings. The regularising anatomical gaze, mapping the body as a functional system, was meant to discern the principle structure of the body, seek to strip out particularities in search for universals, supplant subjective gestures with objective modes, and erase closeness of involvement through a distant, detached point of view.

Hacking (2005, p. 159) pointed out that the medical gaze "did not see through bodies" as a functioning whole but looked at internal organs as separate parts and distinct locations of pathologies. Through the cultural invention of the anatomical body, the body of subjective experience changed into a body that was a site of discrete organic functions and malfunctions. Further, this objectified body demanded a detached observer perspective: the neutral and dispassionate gaze of scientific interest (Romanyshyn, 1989; Ihde, 1991; Waldby, 2000; Schlich, 2010). The anatomical specimen was a body emptied of personal specifics; it was generalised and universally equal. To the medical gaze, the body was always the same, functioned the same for every individual and in all situations. Romanyshyn (1989) contended that the equalising, distant and calculating view of linear perspective enabled the conceptualisation of bodily activities as technical metaphors (*cf*. Knapp, 1877): a brain that operated like a computer, a heart that was a pump, a metabolism that burned fuel like a furnace, and feelings that were neurochemical events. Once such equalising metaphors were instigated, brain, heart, digestive tract and emotions were figuratively removed from the body and placed into the realm of the instrumental. This way an essential relationship between man and machine was established; man and machine figuratively became one and the same. Confident in the analogy of the body as an instrument and a technologically manageable system, Kurzweil (2005, p. 9) affirmed that in posthuman embodiment, "there will be no distinction […] between human and machine or between physical and virtual reality".

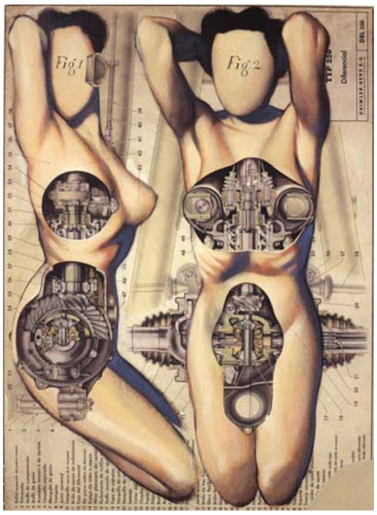
Seemingly fulfilling Kurzweil's prediction of a complete fusion of human and technological systems, the anatomical bodies in the data variously oscillated between biology and technology; they were mostly hybrids each being an equal part human substrate and technical function. However, a leading fascination with the modern anatomical body seemed to revolve around internal organic processes rather than the structural make-up of the body. Of all anatomical bodies in the data collection of this study, depictions of internal organs ranked highest, involving about a third of images. Skeletal structures or display of muscles were much less common (see figure 4.19). The display of human organs above bodily structures could indicate a new focus by the anatomical sciences in the deep spaces of biotechnological manipulation. Whereas Renaissance anatomy largely sought to understand the structural constitution of the human body (M. Kemp, 1970), the microanatomies of the 21st century aim to explore – and to manipulate – organic processes at the nano scale. The contemporary anatomical body is no longer a "revealing body" of its interior organisation, but a "deep factory" of sub-molecular synthetic biology. For the contemporary technosciences, anatomy, i.e. the science of bodily structure, has changed into a science of biotechnological production. The opened body that meant to show what is inside was replaced by the simulated body that was to be regulated and optimised as a functional system (Waldby, 1997, 2000; Anker & Nelkin, 2004; N. Rose, 2007).



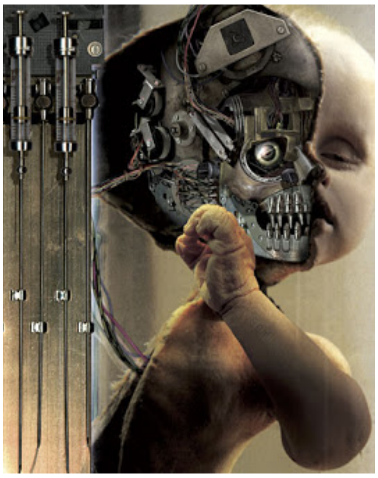
6.6.1: *The Principle Organs ...*, Leonardo Da Vinci (c. 1507)



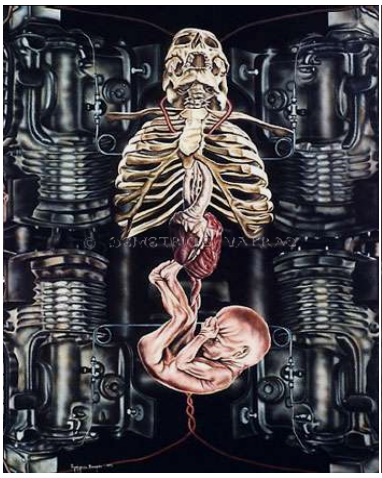
6.6.2: *Biophilia+Technophilia*, Jon Bailey (2011)



6.6.3: *Fig. 1 y 2*, Fernando Vicente (2000)



6.6.4: *Kov Seti*, Joachim Luetke (n.d.)



6.6.5: *Surrogate Mother I*, Demetrios Vakras (1991)

6.6.6: *Introspection*, Heidi Taillefer (1994)

Figure 6.6: Anatomic visions of the technological body.

The images of technical anatomies in figure 6.6 present visions of fictional, fabricated and technologically defined bodies; they do not visualise known facts of the living human organism nor do they illustrate medical technology. The conceptualisation of the body as a biotechnological fantasy was clearly visible in figure 6.6.2, an anatomical painting of a human torso by Jon Bailey (2011), infused with medical plates and screws at left clavicle and humerus. Several organs were rendered as metal tubes and pipes and other metallic hardware. The painting is based on Da Vinci's (c. 1507) early anatomical drawing *The Principle Organs and*

Vascular and Urino-Genital Systems of a Woman (figure 6.6.1) created at a time when such medical interventions were unknown and possibly unthinkable. In contrast to Da Vinci's painting that sought to understand the inner workings of the female body, Bailey's image showed the body as a site of technological transformation. Da Vinci's painting was an explorative map while Bailey's is a document of biomedical fiction. Curiously, the heart that was opened in the original drawing is whole in Bailey's painting, and also is coloured in red, the only colour except for the sepia tones of body and canvas. While the heart in the Da Vinci drawing was not of central interest, it is so in the derived image. Nevertheless, this heart is also restricted; it is imprisoned by the eclipsing ribcage that clasps around the upper chest like a frame. The original Da Vinci drawing did not display ribs at all. The introduction of the rib frame in Bailey's painting seems purposeful: Bailey (2011) conceptualised the body architecturally, as a scaffold – and literally a meat *cage* – in order to house internal life. He commented: "Architecture itself becomes a summation of the technologies […] and as technology begins to adopt more biological processes our architecture too shall become more biological" (para 2). In this view, the anatomical body is a structural shell, "a transhuman biotechnical architecture amidst a society of biophilia and technophilia" (para 3).

Enthusiasm for the technological body was also evident in Vicente's (2000) *Fig. 1 y 2* (figure 6.6.3) that is part of his larger *Anatomias* print series. The artwork shows a female figure, faceless and put on display in order to showcase her mechanistic interior. Her body is opened in both front and side views so that an investigative, scrutinising gaze may explore the elaborate machineries of her inside. Contrary to the intricacy of the interior of the figure, the external human hull lacks much of the same finesse. Female body shapes are smooth yet architecturally crafted; forms of head, arms, chest and legs are morphologically delineated – a body of artful making. The drawing of the mechanistic interior associates a detailed engineering rendering, along with indices and explicatory captions. The picture suggests a design blueprint or a user manual. The two bodies in the image have no names; they are simply *figure 1* and *figure 2*. They do not require names because they are not personae. Instead, they are anthropomorphic apparata, crude engineering merchandise packaged in the "sellable skin" of a female body.

We can look through this skin in figure 6.6.6, *Introspection* by Heidi Taillefer (1994). A translucent humanoid automaton carries a developing foetus in her glass womb. The foetus is attached by umbilical cord to the mother, as it would be to a human mother. Glass breasts fill with milk, seemingly getting ready for postnatal lactation. The mother appears to look down toward her womb, yet the face is cut off and her eyes are not visible. *Introspection* is not *her* introspection, not a motherly reflection upon the life she grows or her imminent role as mother. This *Introspection* is the beholder's glance, the image's invitation to peek into the interior of the gestating body and to marvel at its sophisticated mechanisms. *Introspection* is a technological spectacle; the penetrating and "objectifying gaze […] of modern medicine" (Nicolson, 2010, p. 41) has converted a specific human body into a medical specimen. This specimen poses for the scrutinising spectator; her wondrous interior is grand display of technological ingenuity. Nicolson (2010) observed that the invention of the medical gaze in the 20th century moved from mother to neonate and then to the foetus – a shift from established organism to newborn to unborn life, from the existing organism to the organism-in-becoming. Man's ancient dream of creating life is apparent in this image – the processes of life decoded, made visible, and readied for reengineering.

A main current in cyborg imagery described a clean robotic technology seamlessly merged with a sanitised human body, and suggested aesthetic harmony between organic and inorganic matter. Metals usually appeared polished, wiring deft and the artifice of the cyborg aesthetically pleasing. Likewise, human flesh was mostly presented salubriously, devoid of signs of the carnage that is typical of wounded flesh – wetware dried up, bloodless and steadily formed. Closer to organic reality, the new sciences' superbiology is unlikely to create clean and fully calculable organisms; organic matter, however neatly created in sterile laboratories by controlled techniques, is a messy business, a science that knows unpredictability and chaos (*cf*. Mitchell, 2003).

Notwithstanding a general prevalence of the sanitised cyborg image, the amalgamation of machine and flesh, a mix of reductive, clean technology and unruly, messy biology, appeared troubling in some cyborg images. Figure 6.6.4, for example, shows a perinatal cyborg that is crudely slit open leaving a raw cut along the chest. The head of the infant appears painfully halved into a human and a robotic side. The human side forms a hull, a layer of skin and facial tissue wrapped around a mechanistic core. The one hand is clutched like a typical perinatal fist; the human eye is closed and seemingly oblivious to its metallic interior. The robotic eye is open but empty, perhaps equally unaware of its peculiar outer shell. The general features of the baby are well shaped; the baby is endearing, eclipsed only by its strange indisposition. Analogue to the human exterior, the robotic face exhibits a childlike physiognomy typical to infants and small children: large head, prominent forehead, neoteric facial proportions, large round eyes, short nose and small chin (*cf.* Montagu, 1981). Over millennia, the childlikeness schema has conditioned human beings for parental care (Alley, 1981, 1983; Karraker & Stern, 1990; Glocker *et al.*, 2008). The cyborg baby appears helpless and in need of nurturing, the same way any neonate does. Still, the baby is uncanny; the dis-memberment of its torso and face glares unnervingly. Catheter extensions hanging from its open torso signal acute medical intervention; the cyborg baby is still in the making. While its body is neither human nor technology alone, the image demonstrates technological procedure, the regulated processes of making life – irrespective whether these are organic or synthetic.

The display of the prenatal robot in figure 6.6.4 is an uneasy image; it associates the biological reality of being a carnal body – but it also signals the possibility of robotic life as a sentient, self-conscious and self-reproducing entity. Consequently, the image tells two stories: The one story is about organic life, renewal and birth, a fragile condition that can be easily compromised by technological intervention. The other story is about the dream of technological creation, about technology's omnipotent and life-giving powers. The lovable baby comes to life by means of an equally lovable robotic technology, rendered affable by virtue of childlike appearance. This way, the robot deserves our sympathy and our tending care the same way a human child does. The robot is our new child. Factually though, a robot as baby would be rather curious. An animated contraption made of metal and electronics, no matter how life-like, will not grow; no mature cyborg will evolve from it (*cf*. Hayles, 1995). But the genesis of robotic life is *not* the focus of the image. The image's focus is the creative, almighty power of technology – or in Kelly's (2010) view, technology's innate will to live.

The image *Surrogate Mother I* (figure 6.6.5) presents a further dimension of the envisioned synthetic creation of human life. The carcass of a human mother-to-be is connected to a technological contraption that seems to maintain her procreative capability yet leaves her, as a vital organism, lifeless. A developing human foetus extends from the only present organ, which is a heart that also appears to serve as placenta – the heart of the dead nurtures new life. The skull of the *Surrogate Mother* cries out in anguish; she looks upward and away from the fruit of her truncated and entrapped body. The unborn too does not see its mother; its hand grasps the forehead pulled together in a tense scowl. This is a child without the bodily warmth of a mother, a child without a mother. Mother and child's technological dispositions seems to demand psychological detachment from each other; the mother from the life she creates as a mere function within the larger technological system of a birthing machine, and the child as the fruit of this machinery, born of a technology[105] and not of parental love. Yet the remainder of the mother's corpse seems to remember some residue of motherhood, the joy and the pain of growing life inside her; the tormented cry of the mother is deliberate – a cry of remembering wholeness, warmth and human integrity.

In the imagination of Antiquity, the heart was the centre of the body; the central heart as the locus of memory, emotion and love, also survives in this image. The carcass has no brain, neurological functions, if at all required, seem to be taken over by the machine that holds the carnal hull of the *Surrogate Mother*. Yet the heart, maintaining the remnants of humanity in the mother and providing life to the child, the heart is very much there and prominently placed at both the physical and visual centre of the image. In this sense, the title of the image might not as much describe a *monstrous machine* (Bolton, 2014) but places a question: Who or what in the image is surrogate in the process of growing a human life – human remnant or technological function? Behind of such questioning, the image might suggest that there is more to creating life than the calculable mechanisms of the body as a breeding machine, something that might be more difficult for technology to re-engineer than Kurzweil's (2005) claim, "[s]omething is going on in the brain,

[105] See Kevin Kelly (2010, p. 296) "Humans are the reproductive organs of technology" and Marshall McLuhan (1967, p. 56) "Man becomes, as it were, the sex organs of the machine world, as the bee of the plant world, enabling it to fecundate and evolve ever new forms."

and there is nothing that prevents these biological processes from being reverse engineered and replicated in non-biological entities" (p. 461).

6.4.2. Malleable bodies: transmuting the flesh

Notwithstanding Kurzweil's predictions of a non-biological future, and in contrast to a sweeping visuality of the metallic-mechanistic cyborg, many of the emerging transhumanist technologies promise the human body to remain a predominantly organic affair. N. Rose (2007) described the future body "not less but *all the more* biological" (p. 20; emphasis in original) and he foresaw that human enhancement technologies themselves become more and more biological. The most likely scenario in the age of superbiology, N. Rose (2007) anticipated, would not as much present a conversion of the body into less vulnerable substrates but the artificial production of designed *biological* organisms. Similarly, Ihde (1998) noted that, "in the contemporary situation, the technological dream often turns *biotechnological*" (p. 105; emphasis in original). In a broader context, Robert Ettinger (1962), the conceptual pioneer of cryonics, reasoned that "[e]ventually, most 'philosophical' problems may turn out to be biological" (p. 144).

Unlike the images of mechanical cyborg bodies that boldly transformed humans into curious machinery, and visions of info-bodies that grossly abstracted the body as patterns of biological code, visions of the biomedical body often concealed their transformative technologies. Whereas the organic body itself appeared altered, the means of transformation, i.e., body technologies themselves, usually remained hidden. Thus, images of artificial organisms afforded by biotechnology often stand in contrast to those cyborg images that stage transformative technologies as the key interest of their visualisations. Instead, the synthetic biologies of the bio-technological body were predominantly portrayed as ordinary and "naturally occurring" (e.g., figures 6.7.1-7). The artist Patricia Piccinini, for example, placed her genetic chimeras into conventional settings: a sleeping transgenic *Newborn* (figure 6.7.4), the transgenic *Foundling* in a baby carrier (figure 6.7.5), the baby in *prone* position (figure 6.7.7), and the transgenic mother nursing her *Young Family* (6.7.6). Despite their common, everyday circumstances – or perhaps exactly *because* of their casual presentation – Piccinini's creatures documented not only ethical but also aesthetic unease with the promises of genetic engineering. The

6.7.1: *Femmes, Femmmes, Femm, Fem, Fe...*, Wang Du (2006)

6.7.2: *Angelina Jolie Fish Lips*, David LaChapelle (2007)

6.7.3: *Overstepping*, Julie Rapp (2001)

6.7.4: *Newborn,* Patricia Piccinini (2010)

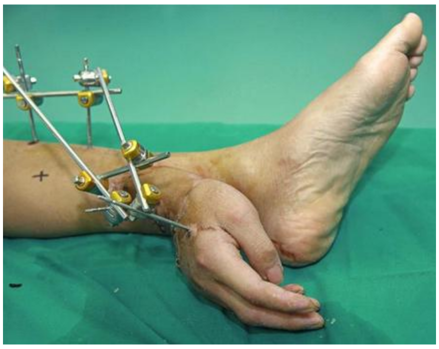
6.7.5: *The Foundling,* Patricia Piccinini (2008)

6.7.6: *The Young Family,* Patricia Piccinini (2002)

6.7.7: *Prone,* Patricia Piccinini (2011)

6.7.8: *Miracle Grow*, photo: Rebecca Hale, NGM (2011)

6.7.9: *The Vision Splendid*, Alica King (2011)



6.7.10: *Re-grafting of patient Xie Wei's hand, China*, Getty Images (2014)

6.7.11: *Metalosis Maligna*, Floris Kaayk (2006)

Figure 6.7: The malleable biotechnological body.

staging of her transgenic creatures ranged from bittersweet cute and disturbingly uncanny to shockingly (un)familiar and plainly horrific. More subtly perhaps, Julie Rapp commented on the boundaries between creative imagination and the potentials of superbiology. Her image *Overstepping* (figure 6.7.3) portrayed the body as a pliable mass that could be moulded into whatever fashion trends may impose.

Presenting the customisable female body as a serial product, the sculptor Wang Du (figure 6.7.1) proposed the malleable body as a response to the self-presentation pressures of contemporary *aesthetic societies* (Yi, 2010). He commented, "transforming your body has become a way of adapting to modern society" (SniffCode, 2010, para 5). In this sense, the biomedical body functions as a commodity in the bioeconomies of modern societies that regard the lived body as a tradable object of biovalue (*cf.* Fukuyama, 2002; N. Rose, 2007). The body as biovalue becomes particularly apparent in the contemporary efforts in biopharming, the cultivation of synthetically grown organisms for medical deployment.

Based on the nascent biotechnological practices that allow the manipulation of sub-terrain bodies and the creation of new embodiments *in vitro*, Mitchell (2003) foresaw the cyborg image of the 21st century as a *messy biocybernetic* phenomenon rather than a clean system of communication and control, i.e., a system that combines the disciplined logic of information processing with the volatile structures of biological vitality. He predicted "models of calculation and control as interlocked in a struggle with new forms of incalculability and uncontrollability" (p. 484). In Mitchell's vision, the nascent biocyborg will exit the clean and reliable simulations of the virtual image and re-emerge as a *literally living image*: as tissue sample, RNA splice, protein culture, transgenic organism, or as a clone. Mitchell (2009) noted, the "twenty-first century version of the living image is the clone, which is not merely the literalisation of the living image, but its actual, scientific realisation" (p. 138). De Menezes (2007) called the new forms of biocybernetic embodiment "art with a life span" (p. 218), whereby "the self is becoming an increasingly experimental work in progress" (S. Kemp, 2008, p. 84). As a cultural image, de Menezes (2007) noted, "biotechnology, with its clones and transgenics, has been replacing electronics, with its computers and robotics, in becoming a central concern today" (p. 217). In popular culture, she added, "[r]obots no longer fight humans for their survival in the movies; instead it is ‘clones’ that have begun to attack” (p. 217). On a larger scale, Mitchell (2003) argued, the new multinational biotechnological corporations “are themselves biocybernetic ‘forms of life,’ collective organisms that must destroy or devour their rivals in order to survive” (p. 492).

Contrasting the rather wholesome visions of the bioengineered body in figures 6.7.1-7, the creation of biocybernetic embodiment forms as Mitchell (2003, 2009) envisioned them, is unlikely to produce chaste and orderly images of the neat cyborg. Instead, the sullied biocyborg implies aesthetic adulteration, visions that tarnish the clean image of the sanitised machine with the abject slush of the organic body so aptly portrayed in Stelarc’s *Blender*[106].

Figures 6.7.8-11 present images of biotechnological production and biomedical repair. Figure 6.7.8 showcases the *in vitro* production of a human ear in the biomedical labs of the Wake Forest Institute for Regenerative Medicine in Winston-Salem, North Carolina[107]. Biotechnological production of organic matter and replacement organs constitutes a rapidly growing industry. The National Science Foundation estimated that new innovations in medical nanotechnology would be worth US$1 trillion worldwide by 2015 (Burrill, 2004). In response to the speculative technologies of mind scanning and uploading into an artificially created body, Farrell and de Hart (2011) asked the rhetorical question: “But why bother? With the emerging genetic technologies, replacement organs unique to the individual could be ‘grown’ for harvesting and transplant when the old ones wore out” (p. 139).

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[106] *Blender* by Stelarc and Nina Stellars (2005) is an installation of “just over1.6 metres high and is anthropomorphic in scale and structure. Every few minutes BLENDER automatically circulates or ‘blends’ its contents via a system of compressed air pumps and a pneumatic actuator. The mixture includes 9.4 litres of subcutaneous fat taken from Stelarc's torso and Nina Sellars' limbs, zylocain (local anaesthetic), adrenalin, O+ blood, sodium bicarbonate, peripheral nerves, saline solutions and connective tissue” (project description, http://stelarc.org/?catID=20245)

[107] The photo shows the synthetic scaffold of an ear bathed in cartilage-producing cells. Bioartifical production of tissue and organs aims at producing substitute materials from the patient’s own cells in order to minimise post-transplant autoimmune reactions. The Wake Forest Institute is working on the production of 22 different human organs (Glausiusz, 2011).

Bioartist Alicia King (2011) explored the estrangement between human substrate and identity in her piece *The Vision Splendid*[108] that bioartificially grew and reinstated organic donor cells as a biotechnological relic. This relic, commented King, served as an icon of the biotechnological wonders as they are possible in today's bio labs, and it negated the original donor subject the same way that religious relics tend to supplant their originator (Geary, 1986; M. Mayr, 2000; Freeman, 2011). King's tissue sculpture problematises embodied subjectivity, identity and self-ownership in the age of *biotechnology at the margins of person-hood* (MacDonald Glenn, 2002).

Figure 6.7.10 presents a rather macabre form of real-world cyborgisation of the malleable body. The severed hand of patient Xie Wei was re-grafted to his foot in order to maintain the hand's life-sustaining functions during the remedial processes of replantation. The severed body part was temporarily connected to the circuitry of the body elsewhere than its original site while the arm was prepared for re-attachment. By means of establishing a cybernetic feedback loop between hand and foot, the patient became a medical cyborg temporarily until his original body could be reconstituted in original form. Whether the finally regained hand-to-arm connection leaves the patient as cyborg, a hybrid of body and technology, remains open to debate. Images of such medical procedure appear grisly not only because of surprising insights into medical resourcefulness but more so for the extent to which the human body is handled as a cold technicality where parts can be removed, replaced or relocated. The dispassionate images of the reconfigurable body showcase technological ingenuity – but they also hide questions about technology's impact on the ontology of the body and on human identity.

[108] "The Vision Splendid explores biotech processes and the physical, ethical and ritual body, through the augmentation of human tissue in sculptural form. The living tissue growing in the glass bioreactor in this work originates from an anonymous female patient. Her cells (isolated from the skin sample of a 13 year old African-American female on January 31, 1969) were purchased through the American Type Culture Collection (ATCC) online catalogue, which itemises over 4,000 human, animal and plant cell lines available for order. Trawling through the thousands of entries in the ATCC catalogue for these cells drew to mind searching through online obituary notices. Estranged from the donor's body, the cells and tissue presented here are re-embodied in the form of a contemporary living reliquary. The significance of the living relic—a true vision splendid—and product of contemporary biological technologies acts as the ultimate 'miracle', such as a relic of the dead which is claimed to bleed or weep, as a sign of the direct power of the 'creator', or in this case, Institution. Just as the egg displayed at Sparta was regarded as a true relic of Leda's union with the swan—so too living relics may appear as validation of the fruits of biotechnology" (King, 2011).

An inverted relationship between remedial technology and ailing organic body is shown in figure 6.7.11. The fictitious cyborg disease, *Metalosis Maligna*[109] (Kaayk, 2006), was portrayed to trigger a mysterious "immune reaction" in metal implants that supposedly grows like cancer and destroys healthy body cells. In this subversive fiction of derailed biomedical treatment, it was corrective technology that went rogue and attacked the human body that it was meant to cure. Biomedical technology, in this example, was *out of control* (Kelly, 1994), "a barely controlled anarchy" (p. 31) where technology became a predator of the civilisation that created it (Bostrom, 2002b; Warwick, 2004; Joseph, 2007). In a light-hearted way, the video clip warned of unintended consequences of biomedical technology, and it reflected on Moravec's (1999), Kurzweil's (2005), and Kelly's (2010) fantasies of a singularian future, when by then autonomous technologies and humans might become unequal competitors that contest for survival, resources, and cosmos-wide hegemony.

In all of the examples in figures 6.6 and 6.7, the organic nature of the body was daringly moulded, creatively metamorphosed, and vividly remodelled according to wilful (and sometimes unintended) designs. The flesh was worked as malleable, transmutable and obedient substrate; it functioned as a sort of "organic dough" that could be kneaded into whatever desirable form. In a good number of visions of the future body, the organic body was brutally violated in order to subsequently re-emerge as synthetic organism. It appeared that the natural flesh was to be viscerally attacked, cut, ripped, shredded, and defeated in order to give space to the brave new technologies of the posthuman body. Often in these images, there was a sense of aggression toward the biological body. Perhaps the dislike of the messy organic body, as it was evident in these images, resulted from an age-old frustration with the vulnerability and finitude of human existence that – as the promises of transhumanism go – can soon be mitigated by human enhancement technologies. The fascination with technological advancement of the body in cyborg imagery seemed to come along with a wilful aversion for the organic, terminal body.

[109] The 07:27 min video clip is available from https://www.youtube.com/watch?v=lcntt5ofRqU

6.4.3. Simulated bodies: data visualisation

In addition to anatomical and biotechnological bodies, a third embodiment form appeared in the biological visions of the future body: medical images that were generated by digital visualisation technologies. The bodies that these images created suggest a separate class of embodiment visions in which representations of the body originate in the particularities of a respective imaging technology and not in human anatomy. Waldby (1997, pp. 6-7) wrote about the biomedical body as "a specific product of virtual space, whose capacities to produce new kinds of objects, simulate the world, and make new worlds is only the beginning of its development". Waldby's (1997) observation marked the biomedical body as an artefact of technological production, but it also recognised the biomedical body as subject to technological innovation, a body that evolved alongside its *visual translation technologies* (Ihde, 1998). In such interpretation, the biomedical body no longer refers to living, sentient embodiment but presents a cartography of biotechnological activity (*cf*. Radstake, 2007).

Images of the biotechnological body did not present visions of and into the real existing human body, but they were abstractions, translations, and simulations of organic structures by data visualisation algorithms (figure 6.8). Ihde (2002) contended that the technological body would always be an image-body, a body that exists in and through technological simulation. A body transformed though instruments, he affirmed, would be an original invention of a body, i.e., an *image* that informationally emerges out of but ontologically departs from the primary here-body. Similarly, N. Rose (2007) maintained that the biomedical body would be an abstract image constructed of data, an understanding of the body as surface pattern in contrast to its former *biology of depth*. Digital simulation of biomedical sight into the body, noted Romanyshyn (1989), Ihde, (2002), and N. Rose (2007), fabricates abstractions of the body that leave it flattened, fractured and atomised. Today's biomedical body is a splice of info-patterns that has lost its original dimensions to the flat data space of computer algorithms.

Ihde (1998) noted that medical visualisation would create epistemological artefacts, objects of knowledge, that – because of their "*repeatable Gestalt features*" (p. 161; emphasis in original) – provide the greatest possible clarity within changing contexts of viewing. It is a general goal of scientific visualisation to isolate certain Gestalts in order to make them stand out, and to reduce others to make them secondary, redundant or to disappear altogether. The process of perceptual prioritisation aims at producing visual hierarchies, i.e., scientific abstraction that aids the demonstration, explanation and interpretation of naturally occurring phenomena. Biomedical visualisation, however, does not merely simplify existing structures and processes in order to understand their complex mechanisms, but it also initiates *a way to think of the body*. Unlike abstraction of literal (or isomorphic) visual phenomena, biomedical imaging encodes otherwise invisible processes as sensory form; it gives visual form to originally non-phenomenological realities, turns intangible processes into evident objects. This means that biomedical imaging not only captures processes that are normally hidden from human sight either because of scale or because of inaccessibility of their site of activity, but it also captures those instances where biology is not a visual entity at all, i.e., organic activities that do not produce an optical form. In this sense, biomedical visualisation of the deep body is not representation, no matter how simplified and/or magnified, of the complex realities of micro-organic processes. Instead, biomedical imaging creates visual artefacts that materialise processes not open to sight, i.e., it phenomenologises the deep space of the vital body. In this way, biomedical imaging creates the artefact of a biotechnological nanobody, which is a mental model or a conceptual map of the microanatomic human organism. Instead of revealing to sight the real existing biological body, biomedical visualisation constructs an infographic, converts the vital body into a *visual text* (Waldby, 1997), the ultimate script of life, which is to be read and rewritten by modern bio-medicine.

The conversion of biology into abstract images is clearly evident in the full-body visualisations of the Visible Human Project (VHP) that were assembled by digitising deceased human bodies[110]. Human cadavers were scanned, computer-processed, and reanimated by visualisation software. Waldby (1997) called the

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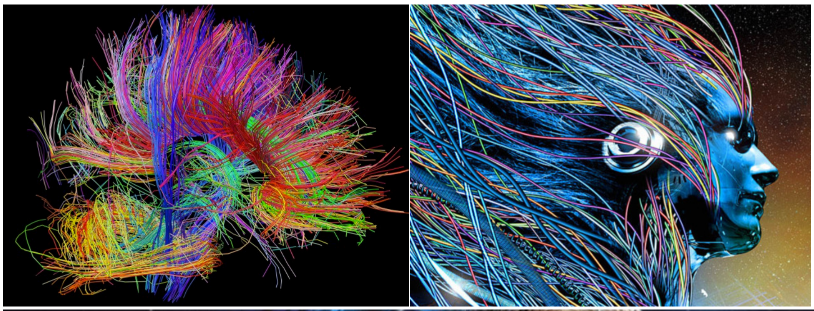
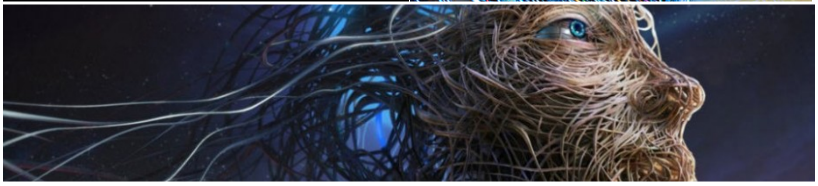
[110] The Visible Human Project was "unveiled in November 1994 by the National Library of Medicine. Authors of this project have successfully recorded real human bodies in three-dimensional, living color, capturing these bodies in digital images through the technology of MRI (Magnetic Resonance Imaging) and CT (Computed Tomography) scans, as well as cadaverous dissection and high-resolution digital color photography" (Waldby, 2000, para 1). The long-term goal of VHP "is to produce a system of knowledge structure that will transparently link visual knowledge forms to symbolic knowledge formats such as the names of body parts" (NLM, 2003, para 2).

VHP body a “digital clone of a once living embodied being” (p. 2). Simulative visualisation technologies replace the physical anatomical body of modern medicine with the virtual nanobody of 21st century infomedicine.



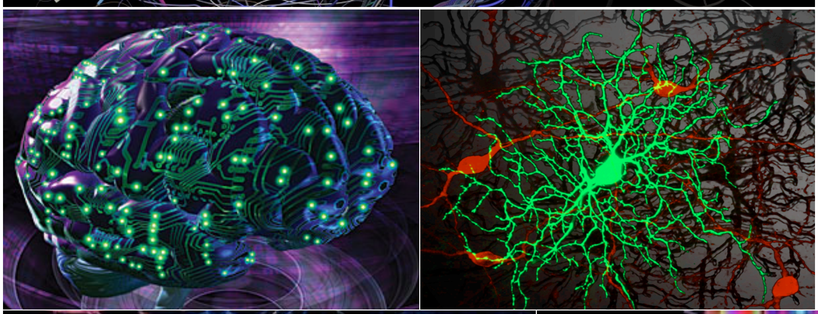
6.8.1 (left): *White Matter Fibers, side view with cerebellum*, Human Connetome Project (2009)

6.8.2 (right): *Transhuman Peacock Dancer* (detail), Fredrik Fahistad (2010)



6.8.3: *Fibre Face*, Meats Meier (2005)

6.8.4: *Cosmic Symphony*, Charis Tsevis (n.d.)



6.8.5 (left): *Guiding Light*, Alfred T. Kamajian (2008)

6.8.6 (right): *Connectomics Annotation Fest Extraordinaire*, University of Utah (2012)

6.8.7: *ASICS DNA*, Dez Brasil (2007)

6.8.8: *Transhumansim*, euvolution.com; based on fractal image *Jewel Tower* by Dennis D. De Mars (2011)

Figure 6.8: Virtually simulated bodies in biomedical visualisation.

As a recent example of infomedical reinvention of the lived human body, the U.S. National Institutes of Health (NIH) launched the Human Connectome Project (HCP)[111] in 2009 in order to decode human neural processes and to re-encode these as the Human Connectome. Human Connectome is a mapping project, i.e., the creation of man as neural infographic. The Human Connectome Project of the early 21st century is a logical extension of both the Visible Human Project (VHP) and the Human Genome Project (HGP)[112] at the closing of the 20th century. HCP maps the complete structural and functional neural connections of the brain the same way the HGP mapped the entire human genome. Ultimately, these projects are meant to link together in order to determine "how brain connectivity is influenced by genetics and the environment, and in turn, how individual differences in brain connectivity relate to individual differences in behavior" (NIH News, 2009, para 8).

Figure 6.8.1 depicts nerve fibre architecture of white matter regions in the human brain. Fibre colouring indicates general diffusion directions, coded by the employed *Siemens Connectome Scanner* in RGB=XYZ values: red = left-right, green = anterior-posterior, blue = inferior-superior. With respect to colour symbolism, the colour assignment per axis is noteworthy: blue, a colour of connectivity and depth, is used to signify vertical core connectivity extending from the spinal cord through to the brain stem and into the cerebrum. Green, a colour associated with balance, growth and vitality specifies horizontal connections between the occipital lobe (the centre of vision) at the back of the brain and the dorsolateral prefrontal lobe (the executive centre of planning, problem solving, and strategic reasoning) at the front of the brain. Red, commonly assumed as a colour of passion, excitement and intensity, denotes connections between the brain's sides crossing through the central limbic system, the "emotional brain" (figure 6.9). From this perspective, the scientific visualisation of human neural activity has already been encoded as cultural meaning; they are not "scientifically objective" visualisations of neuro-

[111] Connectomics refers to an imaging technology in neurosciences, which maps a detailed neural histology of the brain. A connectome is a complex image map of neural connections and interactions. The Human Connectome Project is a large-scale research project into the anatomical and functional connectivity in the brain, supported with US$40 million by U.S. Government. "Altogether, the Human Connectome Project will lead to major advances in our understanding of what makes us uniquely human and will set the stage for future studies of abnormal brain circuits in many neurological and psychiatric disorders" (NIH Blueprint, 2010, para 2).

[112] The Human Genome Project was planned around 1987 and officially launched in 1990 as a joint initiative between the U.S. Department of Energy's Office of Health and Environmental Research and the National Institutes of Health. The objective of the project was to map the entire human genome by determining the sequences of chemical base pairs in human DNA. The Human Genome Project was concluded in 2003.

logical interactions in the brain but they are representations of cultural-historic values in which upward connectivity implies cool, intellectual and superior aspiration, horizontal (front/back) connectivity signifies balanced vitality, and connections crossing through the inner core of the brain signifies the violent passions of archaic drives, primal animalism, and essential emotions.

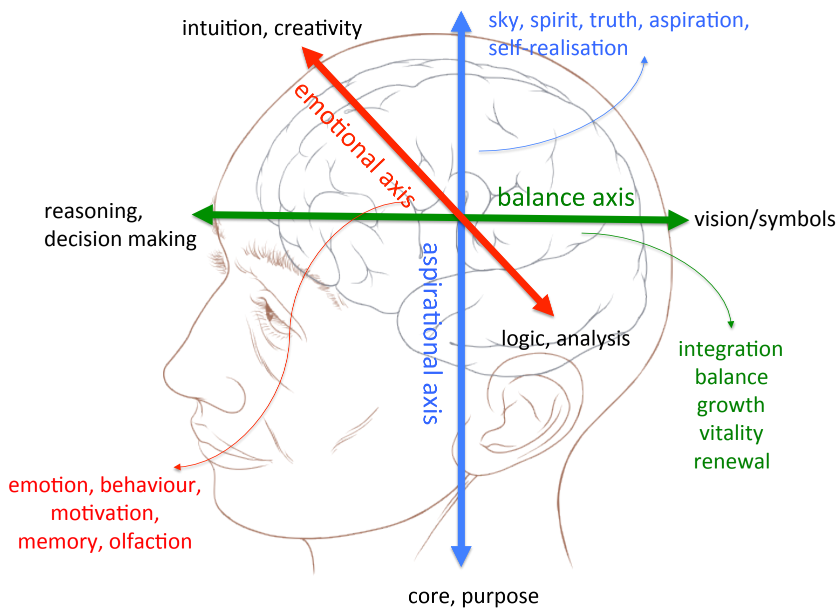


Figure 6.9: Cultural values of the connectome by colour. Source: G. Frommherz; head illustration: Patrick J. Lynch (2006).

Taking the map for the territory, i.e., the connectome for the person, it will likely be possible to qualify humans according to their quantitative neural connections. Deductions from brain data such as being "emotionally intelligent or restricted", possessing a "high or low personal growth potential" or a capacity for "deep reasoning" (or not) might become standard medical diagnostics – and subject to medical treatment and/or augmentative medicine. Dr Francis Collins (2012), the director of the National Institutes of Health since 2009, expects that neuroscience will answer the question of personal identity in the 21st century with: "You are your connectome" (para 1).

Figures 6.8.2-4 aptly illustrate the connectomic human body constructed in interweaving fibre patterns that resemble connectome fabric; they seem to realise Dr Collin's (2012) prediction of the body literally to *be* the connectome, i.e., the colourful display of the neural self. The use of the visual icon of the peacock in figure 6.8.2 is noteworthy as the peacock's display of colour signifies the species' biological qualification and social order. The metaphor of the peacock, however, also connotes the power of visual deception: peacock feathers are physically brown by native pigmentation but appear optically iridescent in blue, green and turquoise by structural colouration. Structural colouration is achieved by a patterned arrangement of the feathers' barbules, which optically create colour refractions through wave interference (Fox, 1992). The appearance of colour in the peacock's display, thus, is an optical illusion that says much about light refraction but very little about physical substance. Similarly, the colouration of nerve fibre diffusions in the connectome are optical artefacts produced by scanning technology and, as such, rather irrelevant to the biological realities of neural connectivity and brain activity. Nevertheless, as the peacock defines its social rank by means of its deceptive colours, qualification of human identity through the visual illusion of the connectome might come to provide a measure scale of personal opportunity, social status, and human value in the future human.

Guiding Light (figure 6.8.5) visualises active brain circuits through the emerging technology of optogenetics. This technology combines genetic engineering with optics to observe and control groups of neurones (Miesenböck, 2008). The technology promises remote control of neurons – "simply by toggling a light switch" (para 3). Ultimately, this nascent biotechnology promises that visualisation of the brain in action helps neuroscientists to detect and to treat medical conditions – and, by extension, change neural patterns at will. *Guiding Light* presents optogenetics as an unquestionably positive and desirable technology that literally guides towards the betterment of humanity. It delivers "a positive message for the civilization as a whole [that] shines like a beacon of light and hope in a sea of chaos" (S. Young, 2006, p. 18).

Figures 6.8.7-8 illustrate examples of how informational man transpires in broader cultural awareness. The 2007 *ASICS DNA* campaign depicts an athlete running in a deep photographic space of cerebral blood vessels and neurons that weave like futuristic highways. The advertising announces: "Left is rational. Right is emotional. Left, right, left, right, left, right is balance. Running is in our DNA. Asics. Sound mind, sound body." The equalisation of DNA with neural structures, the factual friction between the advert's slogan and the visual, does not seem to matter to the intentions of the advertisement. For the unconcerned sportsman, DNA and neurons apparently ought to be the same. Indeed, in the ideology of the informationalised body, DNA and neural structures *are* the same, for both are organic structures translated into abstract code.

A second version of the advert reads: "Run, because Darwin was right about evolution, and Newton, about gravity." In this copy, well-known concepts of modern science were called upon: Darwin's (1859) theory of evolution and Newton's (1687) law of universal gravitation. Both scientific "truths", which so significantly contributed to defining the modern history of scientific rationality and logical positivism[113] (Scharff & Drusek, 2003), have long been problematised, revised and refined. Today, Darwin's gradual evolution competes with theories that favour nonlinear movements in the historic development of species[114], while Newton's absolute laws have been contested by Einstein's (1916) general relativity theory and quantum physics. Nevertheless, the cultural icons of Darwin and Newton were utilised by the ASICS's advert in order to suggest the factual certainty and scientific veracity of the advertising message. Myers (2009) affirmed that "[t]hese images retain their power even when they have been superseded in scientific practice" (p. 51). This way, the modernist versions of evolution and gravity served as cultural icons of advanced scientific knowledge regardless of profound factual amendments.

Another example of the transferal of cultural values into scientific fact appeared in figure 6.8.8. An illustration of fractal topology based on the mathematical concept of fractured geometry (Mandelbrot, 1967, 1983) provided the background to a promotional *Transhumanism* poster. Fractals describe precise and perpetually repeating patterns of self-similarity (Gouyet, 1996). At instances, scientists have used fractal algorithms for describing biological organisations in the logic of regularised mathematical configurations (e.g., Haeckel, 1904; Thompson, 1917;

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[113] Logical positivism emphasises repeatability and verifiability as underwriting principles of scientific knowledge, i.e., it holds that only logically deductible and empirically observable facts are scientifically credible. Positivism has much defined of the modernist "conviction of the superiority of scientific rationality, and the [...] assumption that social and political progress depend upon the acquisition of scientific knowledge" (Scharff & Drusek, 2003, p. 84),

[114] Most notably, Eldredge and Gould (1972) developed the model of a *punctuated equilibrium* that recognises evolutionary change to occur in jumps and spurts instead of uniformly gradual. *Cladogenesis*, another theory of non-linear evolution, describes a branching development of new species. The means, an evolutionary tree splits into various sister species – in contrast to *anagenesis* that describes gradual change that uniformly progresses an entire species.

Lindenmayer, 1968; Prusinkiewicz & Lindenmayer, 1990; Adam, 2006). However, despite an abstract analogy between mathematical fractals and iterative biological structures, organic systems do not produce static patterns of self-similar topographies the way fractals do. Computed fractals are definite arrays of unchanging geometric forms while organic self-similarity results from biological processes that unfold relative to time and scale. In this sense, figure 6.8.8 is attempting to translate the cultural ideology of an absolute, objective observer perspective that visually would "excavate" the hidden truths of nature, into a propaganda image that is meant to validate the scientific credibility of transhumanism and to portray the movement as a mathematically exact – and hence valid – philosophy. While the fractal pattern of the *Transhumanism* poster may raise questions of ideological intent, it also betrays the power by scientific visualisation to construct – not reveal – the insights of the technosciences (*cf.* Romanyshyn, 1989; Idhe, 2002). At the same time, the fractal visualisation also affirms transhumanism's fascination with an aesthetic that is mathematically precise, regularised, ordered, and controlled.

6.5. Discussion

Analysis of the data has shown that the merging of humanity and technology in contemporary cyborg imagery occurred on two parallel planes of embodiment. In one movement, the living, organic body transformed into hard metallic machines, while in an opposite movement, transformative technologies softened and increasingly became a domain of biological activity. In the cyborg image, both approaches were illustrated as highly palpable depictions. On the one hand, human bodies appeared as crudely robotic apparata (e.g., figures 6.1, 6.2) while on the other hand, they bizarrely transmogrified as organic form (e.g., figure 6.7) or colourfully pictured in biomedical artefacts (e.g., figure 6.8). In either scenario, the broad popularity of the cyborg image suggested that there was a profound urge to visualise, i.e., to unearth from the depths of imagination, hope and fear, incipient visions of the future body as valiantly perceivable form. The general popularity of cyborg images seemed to indicate a widespread desire for visually manifesting daring fantasies of the technohuman and placing these in front of oneself for scrutiny and familiarisation. Reinhardt (2014, para 5) observed that uncanny or grotesque images of the body "possess a very commanding presence – there is a perverse pleasure in looking and not being able to look away".

Across the data set in this study, the brave visions of the imaginary future body revealed three archetypes of transhuman embodiment: The image of the cyborg as a machine, the image of fashioned flesh, and the image of the body as abstract data. These three approaches each suggest a distinct ontology of the body: the *hard body* that is a mechanical apparatus, the *soft body* that is malleable biology, and the *image body* that is mathematical code and rules (figure 6.10).

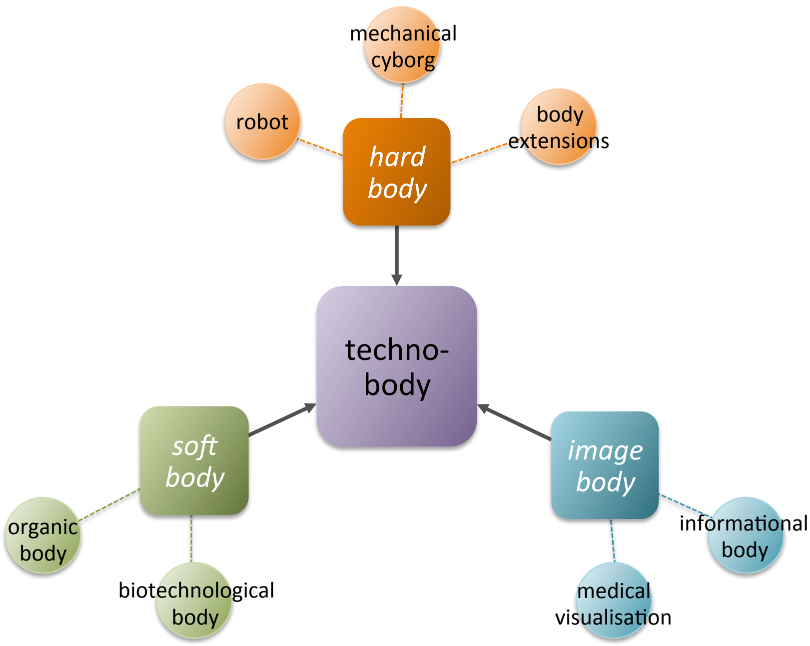


Figure 6.10: Transhuman embodiment: *hard body*, *soft body* and *image body*. Source: G. Frommherz.

The data of this study evidenced that the physical, tangible *hard body* was the most popular vision of future embodiment with roughly half of all cyborg images. The *hard body* tended to display technohuman embodiment unambiguously as a physical, material entity. In comparison, the iconographies of the organically *soft body* and the body as a virtual *image* often overlapped and mixed material with virtual embodiment forms. Albeit informational embodiments and biomedical bodies were each presented in roughly a quarter of images in the data collection (figure 6.11, *top bar*), many of the biomedical body images fell also to the category of the *image body* because respective biological structures appeared as infomedical visualisations rather than living physical organisms. This means that the biological aspect of the technological body was often represented as visualisations of bio data and not as bodies of blood and flesh; biology, in these visions, was information technology.

Only about 10% of images in the data collection showcased non-informational physical-organic bodies (figure 6.11, *middle bar*). Often, the fully organic images of the cyborg often fell within the ambit of bioart (see examples in appendix A4) that, as an original art genre, only partly responds to transhumanist ideas. Bioart, and especially the subversive biopunk movement, has been considered more serious and critical than the playfully romantic-utopian steampunk genre that produced much of the hard bodied cyborgs, or abstract-intellectual cyberpunk that promoted the image of the informational body (Ross, 1991; Nixon, 1992; Nakamura, 2002; Newitz, 2002; Cadora, 2010). The organic soft cyborg, i.e., images of chimeras, transgenics, and genetically engineered lifeforms, at instances highlighted the biological vulnerability of the body and problematised human identity in the age of superbiology. Despite the biological orientation of emerging human enhancement technologies, the vast majority of cyborg images displayed grotesquely mechanical designs of a coarsely technical body.

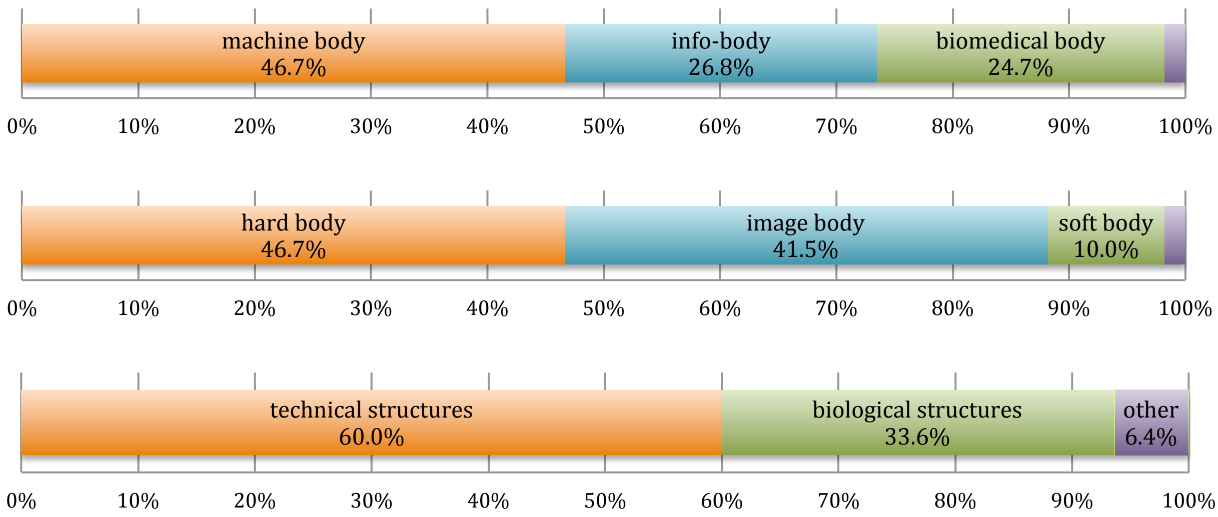


Figure 6.11: Distribution of embodiment types in the imaginary transhuman. Source: G. Frommherz.

6.5.1. Hard bodies

The broad popularity of the frivolous cyborg image indicated that the idea of technological embodiment was primarily conceived of as something decisively mechanical and reassuringly physical. In the general public perception, the future body seemed to be tangible, material and evident. The technical body, in these visions, was generally portrayed as a powerful and invincible machine, a body that is immune to the risks of biological life and the laws of organic wane. And in spite of advancements in the technosciences and contemporary infomedical practice suggesting otherwise, the bold machine iconography of the cyborg ruled the contemporary visions of human futures. It is possible that the image of the coarse mechanical cyborg serves to reconfirm human substantiality, and it seeks to reaffirm a continuing molar corporality in future forms of human embodiment. Consequently, the speculative transhumanist concept of *distributed subjectivity* and non-anthropomorphic embodiment forms rarely appeared in the future visions of the technohuman.

Mitigating the yet unknown powers of invisible and miniaturising NBRIC technologies, the image of the corporeal and palpable cyborg seemed to serve as a steadfast monument of the essential materiality of the human body. In comparison to a vanishing visibility of emerging embodiment technologies, the monstrous machine body appeared comparably harmless – because it is tangible and hence graspable. In this way, the images of the bizarrely material cyborg seemed to serve as a psychological reassurance against the dissolution of the body through advances in the information sciences. Haraway (1991) contented that “the boundary between physical and non-physical is very imprecise for us” (p. 153) and Heim (1993) affirmed: “What is translucent you can manipulate, you can see. What stays opaque you cannot scrutinize and manipulate. It is an alien presence” (p. 90). Crude cyborg imagery of playfully technological embodiment, no matter how daring, might serve to sooth unsettling imaginings about the possible impacts of superbiology, both that appear desirable as well as those that frighten. In this respect, the images of the frivolous cyborg aid in apprising that which is yet uncertain but looming. At the same time, Haraway (1991) affirmed that technology’s move towards invisibility and “[m]iniaturization has turned out to be about power, small is not so much beautiful as pre-eminently dangerous” (p. 153). In this sense, Kurzweil’s (2001, 2005) drive for ever smaller, more powerful and cheaper technology would also be a drive for control and power, a quest for controlling that what is invisible to the broader public eye (Fukuyama, 2002; N. Rose, 2007; Schlich, 2010).

The analysis of visual data made it clear that cyborg imagery did in no way attempt to represent the probabilities of emerging NBRIC technologies; instead, the crude cyborg seemed to generally signify the *technological dream* of the modern age (Romanyshyn, 1989; Ricoeur, 1992), i.e., the latent belief that technological advancement will automatically lead to a marked improvement of the human condition (*cf.* Basalla, 1988). The prevalent occurrence in the data set of overt technical embodiment over more covert biological bodies (by roughly 2:1; see figure 6.11, *bottom bar*) testifies to the idea of technological progress to essentially constitute a visible, controllable and manageable force. In these common visions, technology was assumed tangible and material, and the products of technological processes were presented as palpable and certain.

Ricoeur (1992) would describe the tangible cyborg body as a *literary fiction*, which merely plays with the surface of otherwise unaltered embodiment paradigms. *Literary fiction* – or rather *visual fiction* in the context of this study – stands in contrast to what Ricoeur (1992) termed *technological fiction*, which holds that embodiment itself would be contingent and that technology might potentially displace the body altogether. In this sense, the tangible cyborg remains an image of *visual fiction*, i.e., the "imaginative variations on an invariant, our corporeal condition experienced as the existential mediation between the self and the world" (Ricoeur, 1992, p. 150). Ihde (1990) argued that the contemporary *technomyth* "secretly *rejects* what technologies are and overlooks the transformational effects which are necessarily tied to human-technology relations" (p. 75; emphasis in original). In this sense, the tangible cyborg – in spite of its bold display of technological spectacle – is an obscuring image and superficial technological parade. The popular image of the coarse cyborg little explored genuine proposals for techno-human embodiment. Contrarily, technological transformation of the human condition in contemporary popular imagery seemed to remain safely "concealed in science-fiction forms" (Ihde, 1998, p. 106).

6.5.2. Biocybernetic embodiment

In addition to the conservative fiction of the machine cyborg in transhumanist visuality, infomedical images promoted a novel "genetic iconography" (Reichle, 2007, p. 97) that promised to seize the final frontiers of deep biology. This new biology, as evidenced in the images of transhumanism, was strictly understood and operated as information; organic structures and processes were read and interpreted as abstract data. The softening of transformative body technologies, as it appeared in the images of the organic cyborg and the new biocybernetic organisms that spawn from the advances in biotechnology, do not however seem to mark a return to the biology of the wet body but herald a broadening of biology as an information technology. The new bio-informational paradigm of the body may not as much re-embody human subjectivity after cybernetics and virtual reality "disembodied" the human (Hayles, 1999), but might furtively technologise human identity by converting the very structures of biology into a grand network of vital technologies (*cf*. Minski, 1988; Moravec, 1988, 1999; Kurzweil, 1990, 1999, 2005; S. Young, 2006; Kelly, 2010). As the analysis of the data in this study has shown, the informational paradigm of the body that emerged from cybernetics is now accompanied by an iconography of tangible networks that appear in info-medical visualisations such as the connectome. In this sense, the transcendence of posthuman embodiment as evoked by transhumanists would not as much involve the virtualisation of the self as virtual reality and artificial intelligence see it, but instead arise as programmable material biology[115] that literally is "code made flesh" (Hayles, 1999, p. 47). In this sense, the culturally tinted infomedical image encodes a reductionist-informational worldview, i.e., the premise that all life can be defined and managed as technical objects. Mitchell (2003, p. 498) observed that, "bio-cybernetics is about the attempt to control bodies with codes and images with language". In its broader societal consequence, Mitchell (2003) affirmed, biocybernetics summarises "the new technical media and structures of political economy that are transforming the conditions of all living organisms on this planet" (483) into measurable, manageable and governable processes.

Not prevalent in transhumanist visuality, the contemporary visions of the deeply transformative effects of biocybernetics, both on the individual body and on larger societal realities, would align with what Ricoeur (1992) understood as *technological fiction*, i.e., imaginings of technology changing the very parameters of the human condition. In contrast to the "digital clone" (Waldby, 1996, p. 2) of an original organic body as it appears in recent biomedical mapping projects (e.g., VHP, HGP and HCP), the biocybernetic organism would instantiate a "biological clone" of a body that never existed. The new *soft bodies* of emerging superbiology are effectively novel biological creations; they may work with or off original bodies

[115] Programmable organic structures are an emerging field in synthetic biology that works with the concepts of programmable matter. Programmable matter describes material substances that are enabled to autonomously change their physical properties and functional behaviours (*cf.* McCarthy, 2003).

but do not rely on existing organisms. Like today's 3D printers that produce original objects created from computer-generated virtual models, an imaginary bio-printer in the future might output organisms based on simulated infomedical data. In this sense, the biocybernetic organism constitutes an original biological object *made in the image of information technology*. And in the same way that the objects produced by 3D printing have their own materiality and functionality, the novel biocybernetic images, according to Mitchell (2003, 2005, 2009), would be organically alive; they will want things, exist autonomously and have a life of their own (*cf*. Kelly, 2010). However, the new objects of superbiology would also have significant impacts on the political economy of the technological body that can easily be traded as the biocapital in the nascent bioeconomies of the 21st century (N. Rose, 2007).

6.5.3. Biomechatronic bodies

Expanding the biocybernetic image body, biomechatronic embodiment aims at the integration of biology, mechanics and electronics when designing novel organisms or enhancing existing ones. Today's nascent biomechatronics are possibly closest to what NBRIC technologies promise: a full integration of biology with robotics, informatics, neuroscience and nanotechnology (figure 6.12).

Present-day biomechatronics investigates sensory interconnectivity between organic nervous systems and external devices. The larger significance of bio-mechatronics lies in its potential to explore intersubjective relationships between different organisms and between biological and technological systems (Freudenrich, 2007; Cardenas, 2009). Close integration of discrete systems into a nexus that functions as an organic whole, and unbounded interaction between various organisms, promises to actualise the idea of *distributed subjectivity* whereby hierarchies within and between systems dissolve and diverse organisations function as a network of identities with no central self. In its more direct application, biomechatronics connects devices and machines directly to a person's nervous system that then can operate the appended device as if it were a "natural" part of his or her carnal body (Brooker, 2012). Potentially, the human nervous system may control a network of physical and virtual systems whereby the original human body may or may not take part in the functional interactions of the network. What *Brain in a Vat* explored theoretically as the exchange of perceptual data between brain, mind and computer simulation, biomechatronics may ultimately implement as actually operating symbiotic interrelationships between human "will" (*controller*) and technical executive systems (*actuator*). In spite of indications that biomechatronics will evolve into a serious embodiment technology, it barely makes a visual appearance in the imaginings of the future body. Visuals of biomechatronic embodiment, despite its capacity for significantly defining the transhuman of the future, remain currently restricted to images of prosthetic innovation.

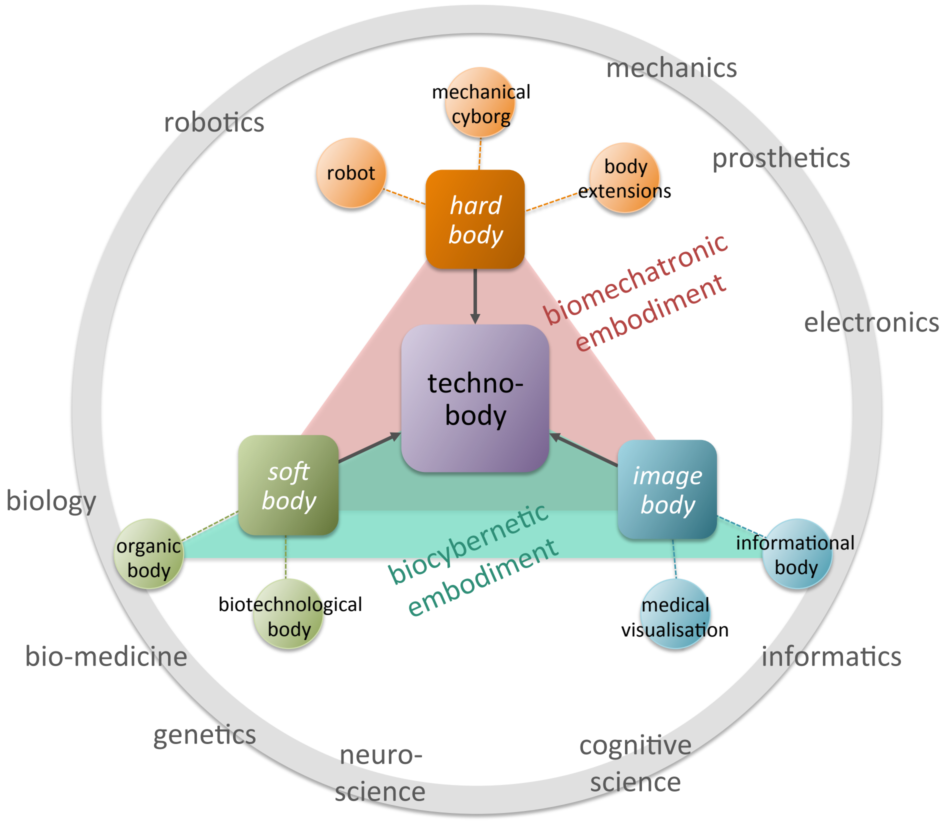


Figure 6.12: Circle of convergence in transhuman embodiment technologies. Source: G. Frommherz.

As an applied science, biomechatronic embodiment is quite different from the mechanical cyborg image in that biomechatronics aims at resolving functional limitations of the body; it does not, at least at present, seek a broader transformation of the human condition as transhumanism does. Still, biomechatronics combines and utilises for its assistive purposes all the technological affordances that transhumanism praises. However, in contrast to the playful cyborg image, biomechatronics is largely nonfictional. It is not concerned with a principal remodelling of the body but with practical repair and expansion of existing human faculties. In doing so, biomechatronics is much more functional and less fantastic than cyborg design. Biomechatronics deals with severed limps, missing mobility and broken bodies. Similar to the imaginings of the cyborg, present bio-mechatronics treats the body as an integrated molar entity, and does not truncate and abstract the body the way that infomedical visualisation does. In contrast to the hyperaesthetic cyborg image, biomechatronics produces disconcerting Frankenstein visions of the patched-up body (figure 6.13) and as such does not seem to be of much appeal to the aesthetic sensibilities of popular transhumanist imaginings.


6.13.1: *Prototype Arm I*, DARPA (2009)


6.13.2: *Bionic Arm*, Prosthetics World (2014)

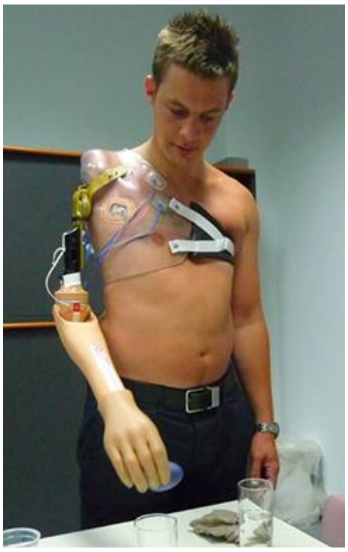

6.13.3: *Mind-controlled Prosthetic Arm*, George Glew/Crown (2013)

Figure 6.13: Biomechatronic prosthetics.

The *visual fiction* of the mechanical cyborg that is constructed of fanciful technologies seems to provide at least some escape from the gruesome visions of gross transformation of the body and, in this way, serves as an iconography of "de-frankensteinisation" of human enhancement technologies. The mechanical cyborg is too frivolous to frighten. Similarly the *technological fiction* of the biocybernetic body made of daring sunshine technologies creates visions of the biological body that, though seeking scientific credibility to some degree, still present improbable sights that seem too abstract to alarm. In contrast to the fictional visions of the cyborg and the biomedical image, the nonfiction of the biomechatronic body hardly appears in popular culture images. It appears that the likely constructions of the body that is made of no heroic technology but of an unspecific mix of just any technology, might be too profane – or too aesthetically repelling – as to emerge in the visual fantasies of a broader public awareness.

6.6. Summary

It emerged from the analysis of the cyborg image that today's popular visions of the future body, albeit playful and commonly bizarre, are relatively homogenous. Further, the cyborg image does not seem to portray the probabilities of emerging technosciences but stage unspecific fantasies of the technological body. The fictitious cyborg largely displays bodies that are not meant to ever exist but that suggest probability by sheer visual intensity. Thus, the technical images of the technologically transformed body seem to aesthetically play with fabulous designs that do not seek a justification in the real world. The physical realities of the body and abilities of existing or speculative technologies are commonly ignored in the design proposals for the cyborg. In this sense, the cyborg image serves as a vague "playground" for popular technological imaginings liberally interwoven with pre-existing cultural assumptions and values.

The cultural interpretation of the body as a technical system, of functional parts and clockwork processes, of the brain as a computer, and of biology as informatics, were clearly magnified in the visions of transhuman embodiment. It became evident that enhancing the human body involves first dismantling and breaking organic wholeness, and then reconstituting it as a clean system of information, communication and control. It seemed that the desire for human enhancement was attached to a will of mutilating the organic body whereby bodily violation was commonly portrayed as a clean, scientific act of technological transformation. In this way, biology became translated into scientific objects that could be manipulated and assembled to will.

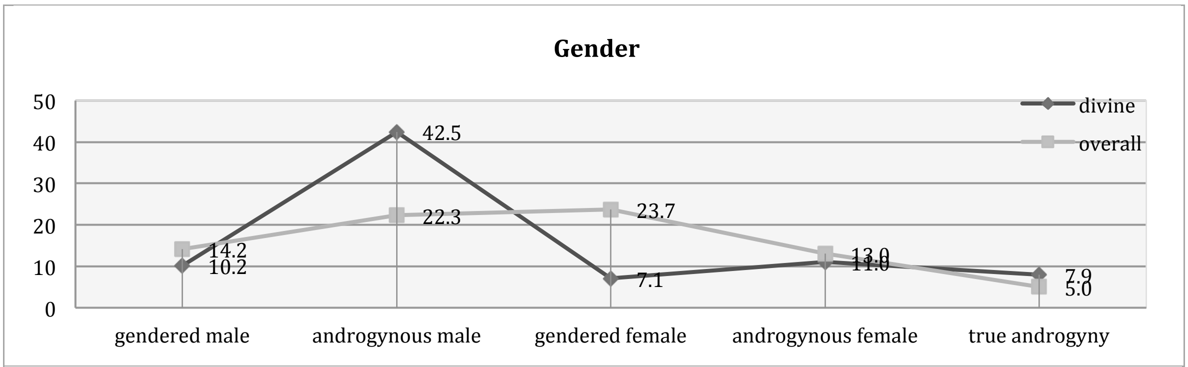
Chapter 7: **Heavenly Cyborgs: The Divine Image**

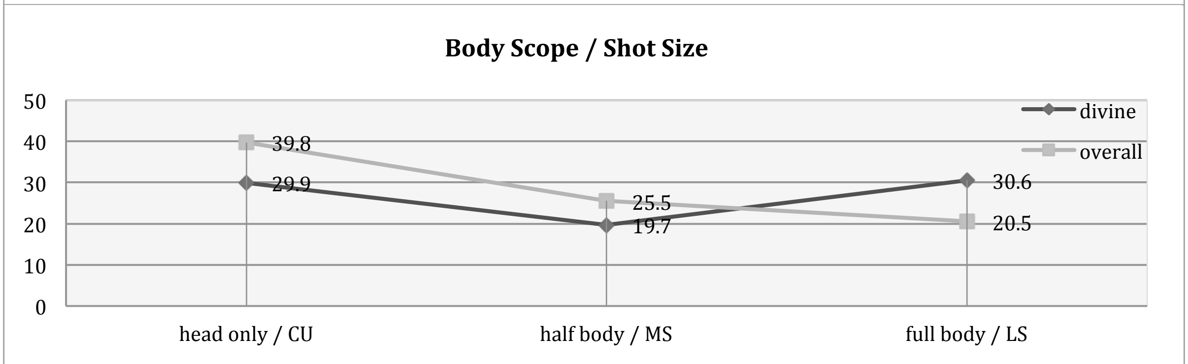
7.1. Introduction

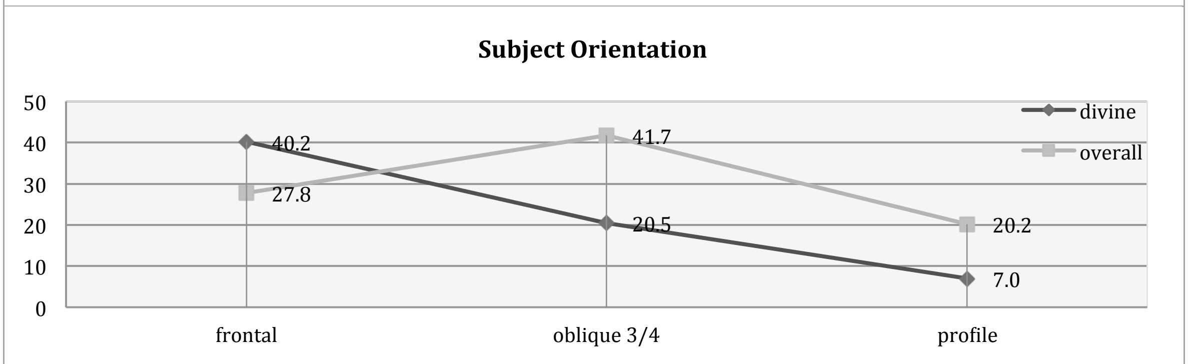
Next to the technical body of the posthuman, a common theme in transhumanist visuality was the spiritually enlightened or godlike cyborg. Images of a "divine iconography" portrayed the technohuman as sublime, showcased the cyborg as heavenly, and presented religious or mythological symbolisms that were woven into technical designs. Imagery of "divine cyborgs" ranked second in the data collection (see figure 4.14), which suggests the sublime transhuman subject to be a pivotal concern in transhumanist visuality. An association of the transhumanist agenda with religious interests has been noted by several writers in the field, both from advocatory and critical perspectives (e.g., Bainbridge, 2005; Waters, 2006; Hughes, 2007; Horn, 2010; Cannon & Goertzel, 2011; Messerly, 2012; Redding, 2012; Gillette, 2014). This chapter presents several of the visual registers that explicate the intricate interactions between the transhumanist agenda for technological advancement and a magical belief in human pre-eminence.

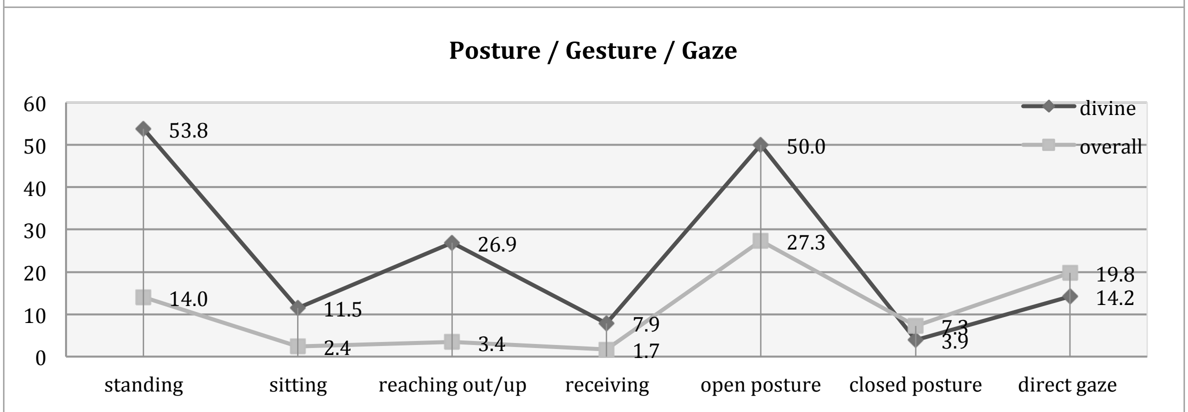
7.2. Divine iconography

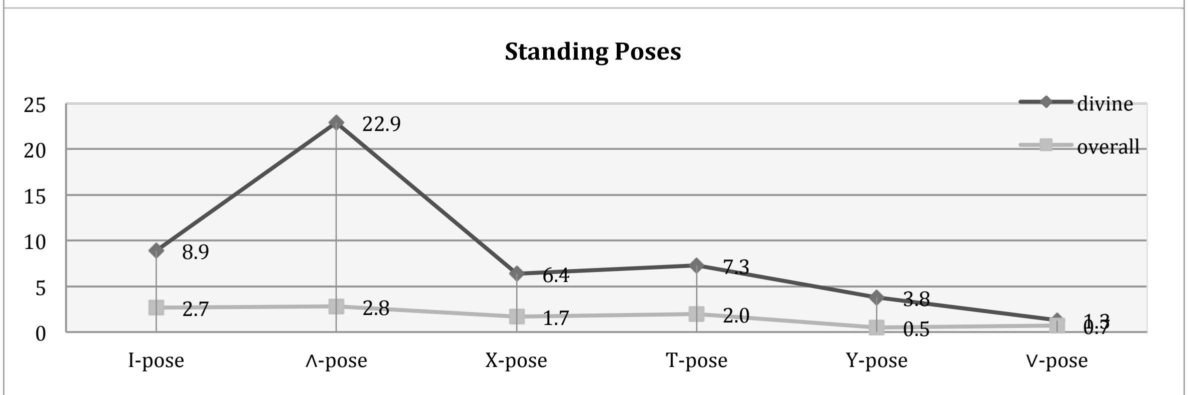
Based on the data in this study, it became apparent that about one in five images (21.2%) depicted the transhuman subject as spiritually enlightened, superior or divine. The class of "divine cyborgs" was second only to technorotic visuals and ahead of purely vain transhuman subject depictions (see figure 4.14). The "divine iconography" of the sublime transhuman presented visual characteristics that deviated from the overall iconographic tendencies of the cyborg image: the occurrence of male subjects in divine cyborg images was significantly higher than across the total data, the level of androgyny in the divine cyborg was also much higher than overall. Further, the divine subject was more commonly presented as a full body image in frontal view and in an open, standing pose. The symbolisms of light, cosmos and nudity were prevalent across the divine cyborg image, as was a symbolic significance of colours (figure 7.1).











See figure 4.36 for a schematic illustration of standing poses.

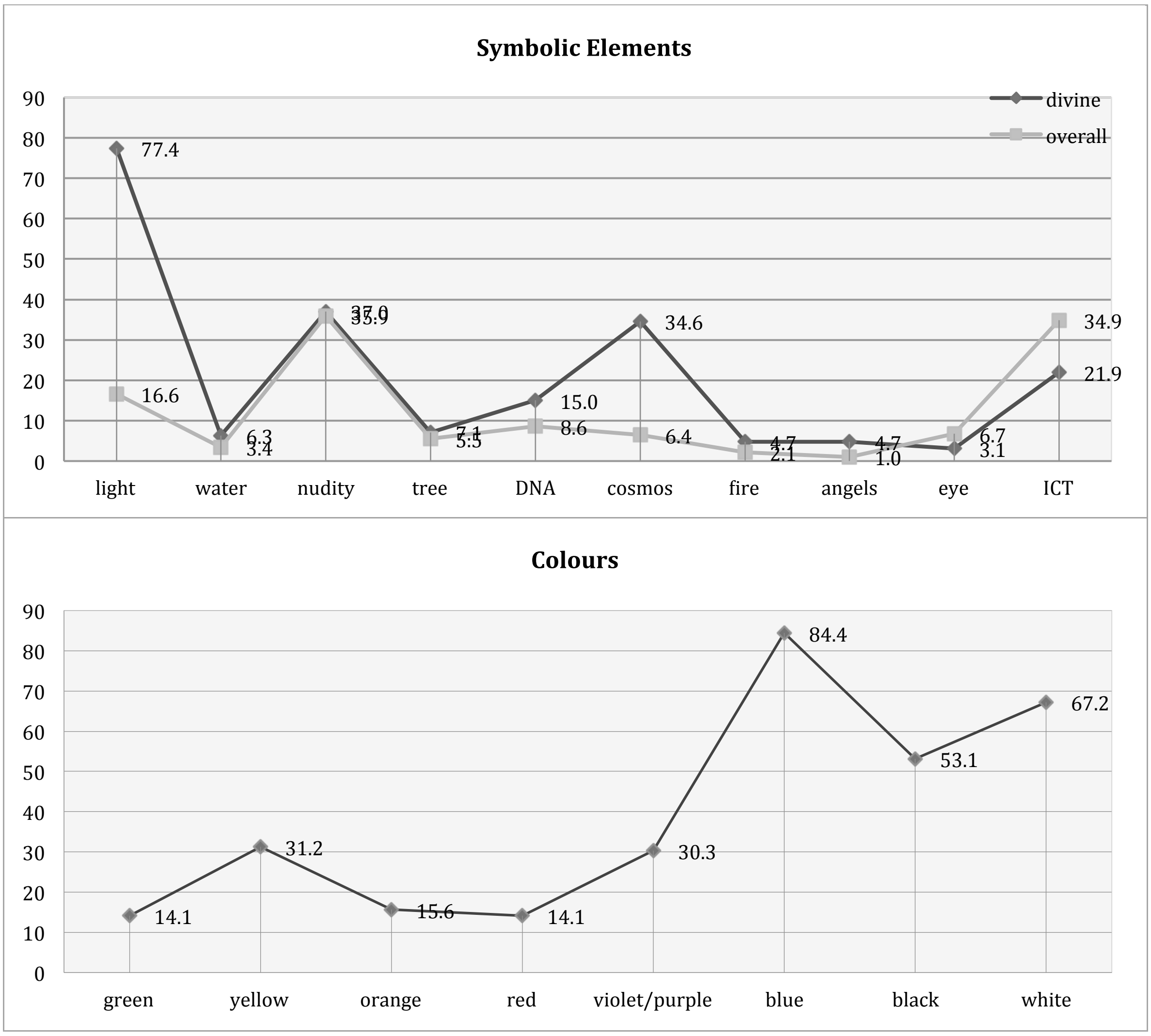


Figure 7.1: Coding values in the "divine" group of transhumanist images.

According to the analysis of visual codes in the divine cyborg image, the exemplary[116] divine cyborg (figure 7.2) was androgynous male, captured frontally in a longer shot at eye level or slightly below. The image subject was presented in an open, standing pose, engulfed in or emitting light rays. Their hands very often stretched away from the body in even symmetry and sometimes reached up. A vertical image composition that suggested skyward movement was prevalent. Blue hues defined the colour scheme of the image. These findings suggest the presence of a distinct class of spiritual transhumanist images that identify non-material, supernatural and transcendental themes in transhumanist visuality. The following sections discuss several of the latent meanings of divine cyborg iconography.

[116] Based on single highest coding occurrences within the category of divine cyborgs.

7.2.1: *Transhuman Ascension*, Simon Sherry (2007-2014) | 7.2.2: *Transhumanism*, unknown artist (n.d.) | 7.2.3: *Man of Light*, Bruce Rolff (n.d.) | 7.2.4: *God*, unknown artist (n.d.)

Figure 7.2: The exemplary divine cyborg image.

7.2.1. Ascension to posthumanity

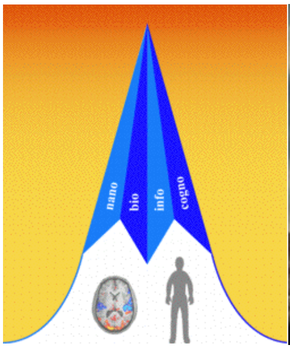
Cosmos, expansive sky, light rays, luminosity, and deep blue colours were prevailing visual symbols of human elevation in transhumanist imagery. Figure 7.2 shows the illuminated outlines of cyborg bodies as heavenly creatures. Their bodies were made of light, digital patterns and DNA structures; contextual environments were largely absent or synoptically condensed into abstract space. The cyborg bodies appeared weightless, translucent and seemingly floating in an indefinite void. No gravity bound these bodies to earth; in a gesture of readiness and receiving, they focused upwards. Their neutral bodies did no longer belong to the worldly realm; stripped of gender, flesh and materiality, they aspired to the heavens. The colour symbolism of black, blue and white connected the ethereal bodies to the realms of the gods: *blue* to mark heavenly connectivity and unity, *white* to signify purity, spirituality and the rebirth as godlike beings, and *black* to denote "the mysterious ways and wisdom of God" (Conroy, 1921, p. 46). Like the images in figure 7.2, divine cyborg subjects were often displayed in a long shot, as full bodies to be marvelled at "in all their glory". They frontally oriented to the beholder, but they did not engage with the viewer of the image: they wanted to be seen in their heavenly aspiration but they no longer related to common man. Their attention was inward and upward, focussing their own interest towards their higher purpose and concentrating the gaze of the beholder onto the technological shells of their almost empty bodies. Technology, promised these images, is the very vehicle to transcend human worldliness.

The media critic Mark Dice (2014) likened the transhumanist agenda for self-fulfilment and its drive for *God technologies* (Messerly, 2012; Phillips, 2012) to the biblical prophecy of the eternal paradise. The emerging technosciences, he argued, would be portrayed as a bridge between "heaven and earth [and] the recreation of the Garden of Eden" (2:10-2:20). Garreau (2005) noted that Ray Kurzweil's imaginings of the singularity in the form of "charts and graphs […] systematically portray a near future that to some seems indistinguishable from the Christian version of the paradise" (p. 90). Similarly, the historians Farrell and de Hart (2011) argued that transhumanism answers to the ancient myth of the *Fall of Man*[117] and to the resulting archaic desire to re-ascent to higher forms of knowledge and being. The authors pictured the ancient myth of separation between man and God as an image of "a 'ladder of descent' from heaven, a descent that implies the process of 'reverse engineering' and a re-ascent up the same ladder" (p. 13). Max More (1994) determined in his article *On Becoming Posthuman* that human life would possess an inherent dynamic to forever move "forward, upward, outward" (para 19). Vertical compositions, upward movement and visions of the ladder of ascent appeared recurrently in the iconographies of transhumanist imagery (figures 7.2-7.3 and various examples in figures 7.6-7.8).

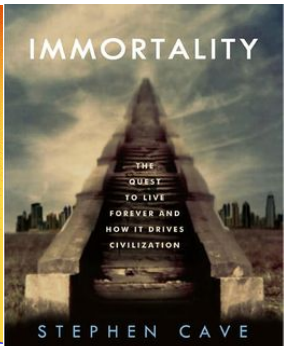
The iconography of ascension was most commonly expressed in a combination of the symbolisms of light beams, DNA spirals, serpent, and sky or universe. Figures 7.3.3-4, 7 show upward spiralling DNA strands that suggest skyward movement towards an invisible higher abode. Light beams aided the upward reach of the figures (figures 7.3.3-5, 8). DNA in these images served as a ladder of ascent (figure 7.3.7) or as a sort of teleport reminiscent of science fiction fantasy (figures 7.3.3-4). DNA, which in some of these visions seemed primary to the human body (e.g., figure 7.3.3, 7.3.7), promised to raise humanity to its "rightful" place in the heavens. Notwithstanding the biological circumstance of DNA to constitute the *base* of man's material-organic existence, DNA in these images acted as a metaphor of *elevation*, of overcoming biology and transcending into a godlike existence. In the visions of human ascension by means of knowledge and skill in advanced technosciences, DNA stood in as an icon of advancement, as a symbol of human sublimity and unity as a celestial being. In short, DNA in these imaginations served man to become God, and it functioned as a technology to fulfil the eschatological

[117] The myth of the *Fall of Man* occurs in various belief systems including the Christian *Genesis*, the myths of Sumer and Babylon, the *Vedas* of India, the *I Ching* of China, the *Neters* of Egypt, the *Popol Vuh* of the Maya, Plato's *Symposium* and the occult texts of the *Hermetica* (Eliade, 1958a, 1991; Leach, 1967; O'Flaherty, 1980; Rappaport, 1999; Durkheim, 2001; Campbell, 2004; Booth, 2008; Farrell & de Hart, 2011).

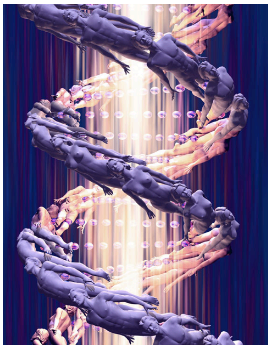
narrative of divine unity that is anchored in the mythologies of the ancients (*cf.* Narby, 1998; Zimmerman, 2008; Farrell & de Hart, 2011).

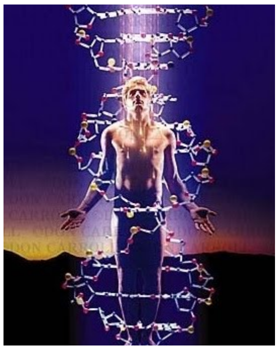


7.3.1: *Converging Technologies*, unknown artist (2001)

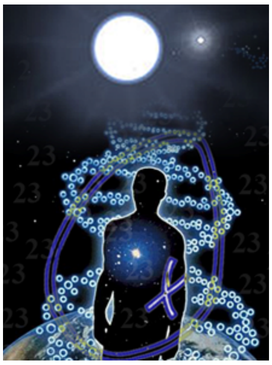


7.3.2: *Immortality*, cover: Kamil Vojnar (2012)


7.3.3: *Advert for Novartis*, Michael Dunning (n.d.)

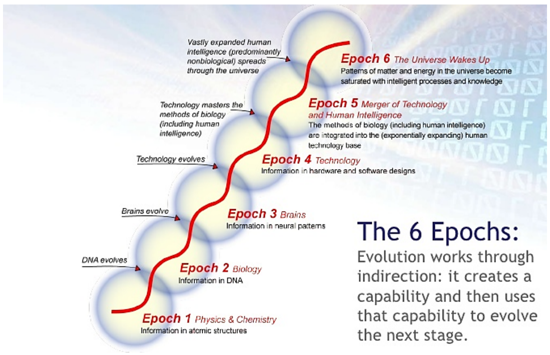

7.3.4: *DNA Spiral*, Don Carroll (1996)


7.3.5: *Ascension*, D. Sahmadi (2004)


7.3.6: *Sirius DNA*, unknown artist (n.d)


7.3.7: *DNA Breakout*, Natasha Vita-More (2001)


7.3.8: *Cosmic Evolution,* unknown artist (n.c.)



7.3.9: *The Six Epochs*, Ray Kurzweil (2005)

Figure 7.3: Ascension to posthumanity.

Myers (2009) suggested the use of images of the double helix was "an *icon* linking a whole cluster of cultural meanings" (p. 49; emphasis in original). He argued that the superimposition of scientific concepts on cultural frameworks would be

> particularly powerful with the double helix, because this imagery can be connected to a long line of attempts to find genetic solutions to social problems, and to an even longer line of attempts to define the origin and purpose of human existence in relation to the origin and purpose of the rest of the world. (p. 52)

In this understanding, the icon of DNA avows for the humanist values of self-advancement, universality, and a central position in the world, but – by reliance on a biological image – it also *validates* such desire as a natural, biological fact. Integrating the DNA symbolism into a divine iconography of the technohuman further affirms human enhancement as a primary and divine mandate. This way, the icon of DNA has become a signifier of both humanity's *natural right* for self-design and its divine telos to ascend to a higher existence.

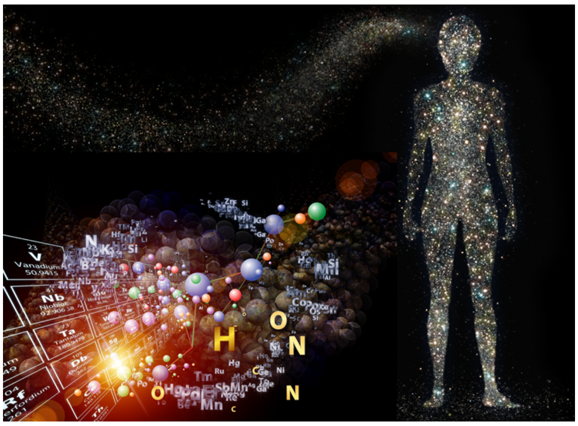
In figure 7.3.6, the double helix forms a DNA strata extending from the twin star system Sirius, assumed the *God Star* in Freemasonic[118] belief (Pike, 1871). Sirius is understood to be many times brighter than the Sun, and it is the brightest star in the night sky as visible from Earth (Liebert, Young, Arnett, Holberg & Williams, 2005). Some esoteric philosophies consider Sirius a vital relay in transmitting the *Seven Rays*[119] of divine energy from their origin in the seven-starred Pleiades system to man on earth (D. Baker, 1977). The symbolism of a definite source of divine omniscience also appeared in several Christian iconographies, where the *Seven Rays* were thought to emit from the Holy Ghost and from the body of Christ (Schroer & Staubli, 2001). With its reference to Sirius, the image in figure 7.3.6 was explicit about a direct link between DNA and humanity's cosmic origin. By means of genetic knowledge, suggests the image, DNA literally provides a road back to human sanctity; DNA is a direct pathway between man's cosmic beginning and his ultimate destiny. In addition, by visually placing the "divine DNA" into the outlines of the human body (e.g., figures 7.3.8, 7.7.4, 7.8.7, 7.10.2), humanity itself was symbolically appointed as its own saviour; the mandate to fulfil human telos and to sanctify human progression was portrayed as a human affair.

The myth of the celestial *Seven Rays* also appeared in figure 7.3.8 where human evolution occurred in seven steps, consecutively from lesser (left) to superior (right) man. Man gradually emerged from lower states of being, indicated by a

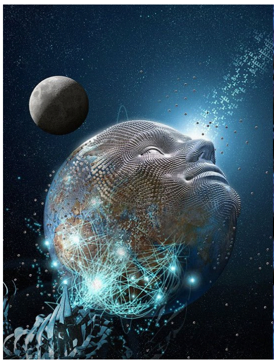
[118] Freemasonry is a fraternal organisation with groupings (lodges) in many Anglo-American and in European societies. Core activities and values include community work, moral uprightness and preservation of ancient "secret" knowledge. Freemason fraternities are often regarded secret societies because of their tight-knit brotherhoods and esoteric rituals and symbolisms (Ovason, 2000; Hieronimus, 2005; Hodapp, 2006).
[119] The Pleiades cluster is actually made up of sever hundred stars but the seven most brightest, *Alcyone, Atlas, Electra, Maia, Merope, Taygeta* and *Pleione*, are visible to the naked eye from earth and thus become mythologically encoded as seven star system. The seven bright stars of Pleiades are also referred to as the *Seven Sisters* in Greek mythology, children of *Titan* and *Pleione*, and as *Seven Rays* symbolise the colours of the rainbow's light spectrum (D. Baker, 1977; A. Bailey, 1995).

crooked and closed pose (i.e., closed to higher knowledge), to an erect and open pose fully absorbing both external heavenly light and internal beams of wisdom emanating from his own DNA. Also in this image, a strong colour symbolism underlined the idea of human advancement, ascent, and superiority: inferior man (left) was depicted in lower luminance hues while the supposedly superior transhuman (right) was radiant with bright light. In a racial context, inferior man was shown as short, brown and yet undeveloped, superior man as tall, white and enlightened. Human progression and divine existence, implies the image, is primarily a Caucasian cause (Gould, 1989; Bergman, 2009; Frommherz, 2013). The colours of the rainbow spectrum emanating from the sun rays in the background of the image illuminated the supposed stages of human evolution starting from red to yellow, to light green, blue and lastly to purple. In the symbolism of the *Seven Rays*, red means desire and will (the level of the animal), orange represents earthly knowledge (the level of common man), yellow heavenly knowledge (the level of learned man); green stands for truth, blue for power and wisdom, and violet hues signify spiritual harmony (*cf.* Prophet, 1975; A. Bailey, 1995; Finlay, 2003). A gradual evolution from earthly passion and the material world to higher knowledge, power and spiritual wisdom was palpably encoded in this image.

In order to emphasise the upward movement of man's destiny, his striving to evolve and his divine aspirations, the convergence of nano, bio, info and cogno technologies in figure 7.3.1 formed a symbolic rocket that catapults man (human figure) and human intelligence (brain illustration) into the universe. Presenting a stairway to immortality, figure 7.3.2 identified the sky – and by extension the wider universe – as the realm of infinite knowledge and eternal life. Through the divine knowledge of converging technosciences, suggest the images in figures 7.3, man in space becomes immortal, is freed from biology, earthly gravity, and the burden of finitude. Romanyshyn (1989) wrote about technology's pull into the universe, man leaving his earthly home – physically by space technology and psychologically through technology's assumed transcendental powers, which transform man into an almighty being and all of the universe into an abode of humanity (figure 7.4). In the 1970s, the nootropics pioneer and proto-transhumanist Timothy O'Leary (1977) famously predicted that "[s]pace migration is the inevitable next step in evolution" (p. 138). He argued that humanity would inherently be pre-programmed in its genetic code for leaving the earth; man will abandon the organic body in order to redeem himself from “the original sin of ‘Genesis’ [that] is gravity: the fall” (p. 71). Space flight and DNA, in these visions, are the inevitable engines of humanity pursuing its primordial origin and final destiny as celestial beings.


7.4.1: *Matter of Body and Universe*, Kellie Jaeger (n.d.)


7.4.2: *Reborn*, Sharon Simmons (?) (2006)


7.4.3: *Emergence of Global Intelligence,* Monolithic Studios (n.d.)


7.4.4: *Conscious Universe,* unknown artist (c. 2006)


7.4.5: *Transhuman*, unknown artist (c. 2009)

7.4.6: *Transhuman H+,* wallpaper, unknown artist (n.d.)


7.4.7: *Last Man Standing – HEX*, Dan Luvisi (2009)

Figure 7.4: Cosmic transhumanism.

In his many visions of an impending singularity, Kurzweil has mapped the course of human destiny in his charts of accelerating technological evolution (e.g., figure 7.3.9) resulting in the ultimate merger of human intelligence with the universe. In the final stage of human evolution, mused Kurzweil (2005), a pervasive and all-encompassing

> intelligence, derived from its biological origins in human brains and its technological origins in human ingenuity, will begin to saturate the matter and energy in its midst. … [T]he "dumb" matter and mechanisms of the universe will be transformed into exquisitely sublime forms of intelligence. (p. 21)

Zimmerman (2008) noted that "[t]he idea that the universe is the manifestation of a superior, hidden intelligence is common to pre-modern religion and philosophy" (p. 364). However, in contrast to most theological interpretations of a cosmic intelligence, Kurzweil's universe story results from human ingenuity and not from a primary divine force. He proposed that divinity ("cosmic intelligence" in his words) is the grand sum of human activity along with the increasingly autonomous technologies it creates. Accordingly, the *Conscious Universe* in figure 7.4.4 is depicted in human form. Cosmic intelligence, in Kurzweil's thinking, is inherent in the human potential, and technology is the evolutionary vehicle of human self-actualisation: "humanity itself, by using its technology to seed intelligence into the cosmos, becomes God" (DeLashmutt, 2006, p. 280). Kurzweil's view on the cosmic significance of technological advancement leaves out any recognition of the long history of a theological scholarship that inquired into the mutual relationships between humanity and the divine (e.g., the Christian doctrine of the trinity of God). Instead, his view on technological pre-eminence solely focuses on the conceptual conversion of biology into information, and information into an abstract "cosmic intelligence" that is mathematical, instrumental and anthroposophic. In this sense, human enhancement technologies, space flight, and genetic production of future species represent the God technologies of transhumanism.

7.2.2. Cosmist transhumanism

Kurzweil's (2005) conscious universe, Tipler's (1994) omega point, and Goertzel's (2010) cosmist posthumanism link transhumanism's technological ideology with ideas of transcendence and cosmic intelligence. In parts reflected in the techno-logical surrealism of contemporary popular visuality (see figures 8.4.7-9), fantasy, spirituality, and cosmism are often interwoven in images of a divine, transcendent being. The increasingly popular Visionary Art[120] movement (e.g., H. R. Giger, see figure 5.12.12) and especially its Entheo subgenre (e.g., Alex Grey, figures 7.6.1-2),

[120] See the *Manifesto of Visionary Art* by L. Caruana (2001) for an outline of the movement. Images of the techno-fantasy genre and especially Visionary Art were not deliberately included in this study as much of the movement emerged only at the time of concluding the study and were not a notable part of popular culture.

focus on a new spirituality in the contemporary human. This new spirituality is not a retrograde look at the holistic mysticism in pre-modern cultures, but a discovery of a techno-informed spirituality that rediscovers the idea of soul in modern technological life. Although Visionary Art does not make any direct claim to transhumanist philosophy, its visionary zeal displays many conceptual similarities with transhumanism's fervour for self-transcendence. In one example, the *Entheo Arts Statement* and the *Extropic-Transhumanist Arts Statements* produced passages that express the same desire for co-creation of an improved human condition (table 7.5).

Transhumanist Arts Statement Natasha Vita-More (1982, rev. 2001)	***Extropic Arts Manifesto*** Natasha Vita-More (1997, rev. 2003)	***Entheo Arts Statement*** Tina Keophannga (2015)
Transhumanist Artists embrace the creative innovations of transhumanity.	We are active participants in our own evolution from human to posthuman. We are shaping the image – the design and the essence – of what we are becoming.	We are all co-creators. Of this art. Of this culture. Of this great fabric that is creation.
Our aesthetics and expressions are merging with science and technology in designing increased sensory experiences.	We are voices of transhumanity. Our voices are a synthesis, rhythm and exploration of imagination.	We are the thrumming, vibrating, glowing, dark, sharp, cold, warm, messy, perfect, controversial, and beautiful creators of things.
As more artists join our efforts As more designs are produced As more music is composed As more stories are written As the tools and ideas of our art continue to evolve, So too shall we.	Artists, as communicators, bring together the passions, the dreams and the hopes of transhumanity and express these emotions in ways that touch us deeply.	Your creations are worth something to someone somewhere. Your creations are worth everything to the world.
We are ardent activists in pursuing infinite transformation, overcoming death and exploring the universe.	Transhumanist Arts and Extropic Art will suffuse the universe around us.	So create. Co-create.

Table 7.5: Comparative passages of Transhumanist, Extropic and Visionary Arts statements.

It appears that the integration of holistic-spiritual and reductionist-technical themes in the abstract fantasy worlds of transhumanist visuality creates a vague mix of technology and holism, which might appeal to techno-progressionists and new agers alike. The Visionary artist Alex Grey, whose transcendental fantasies represents much of the latest version of the movement, subscribes to approaches of self-realisation that lie at the heart of the transhumanist agenda. *Cognitive liberty* (Sententia, 2004) and *automorphism* (Sandberg, 2000b, 2001) are only some of the ideological overlaps between transhumanism and the Visionary movement. Further, Grey's paintings of the anatomical body and his explorations of human transfigurations appeal to transhumanist aesthetic and ideological sentiments (figures 7.6.1-3). Similarly, the consciousness-enhanced visions by

Entheo artists reflect much of transhumanism's aspiration of cognitive, emotional and sensory enhancement. The new visibility of the Visionary movement, although philosophically unrelated to transhumanism, does much to support the transhumanist worldview in public awareness.

7.6.1: *New Man New Woman*, Alex Grey (1984)

7.6.2: *Cosmic Creativity*, Alex Grey (2012)

7.6.3: *Singularity*, Carey Thompson (2015)

7.6.4: *Astral Body/Third Eye*, Justin Totemical (2014)

7.6.5: *Cosmic Mind*, Natural News (2014)

7.6.6: *Dreamcatcher*, Android Jones (2014)

7.6.7: *Ascension*, Robert Hoffman (2013

7.6.8: *Connections*, Jonathan Solter (2015)

Figure 7.6: Visionary and psychedelic transhumanism.

Transhumanism's appeals for creation, co-creation and self-design in their arts statements are explicitly technological. Self-enhancement, a powerful, eternal body, increased sensory experiences and greater aesthetic appreciation, all are promised from technological innovation. Transhuman passions, dreams and hopes are equally technological in essence, and are literally a *technological dream*. However, this dream emerges in a rhetoric and in an iconography that draws on the zealous language of religious doctrine. Transhumanist visuals appear to seek the spiritual powers of religious passion that imbibes technological aspirations with the immediacy and essentiality of a religion. Technology, in these visions, has deeply penetrated the human psyche, and technology is the stuff that dreams, passions and beliefs are made of. In popular perception, the spiritual magic of Visionary Art and the technological magic of surreal transhumanism might just be indistinguishable.

7.2.3. Transhumanist creationism

Notwithstanding transhumanism's general affirmation of its secular philosophy (e.g., Esfandiary, 1973; Bostrom, 2003b, 2005; LaTorra, 2005; Rothblatt, 2012; Messerly, 2015), images of what appears to be a technological creationism are widespread in popular cyborg visuality (figure 7.7). These images often draw on religious and mythological iconographies, for instance the symbolism of water to signify the mystery of creation, purification and rebirth, universal consciousness and timelessness[121] (figures 7.7.7-9), and the myth of the *cosmogonic egg* (figures 7.5.10-12) that denotes the primordial sphere from which all life springs[122] (Eliade, 1958a). Other iconographies of creation involve the metaphor of DNA as the original *script of life* (figures 7.7.3-5).

Theological creationism summarises the belief in a superior creator, a force usually assumed to be of a divine origin, in which the universe and all life were created according to a grand plan (Gilkey, 1959; Numbers, 1992; Pennock, 1998). Literal creationism has commonly been considered unscientific by the scientific community and was often dismissed as fundamentalist Christian dogma (Dawkins, 1986; Ruse, 1988; Ayala, 2009; *cf.* Ruse, 2014). Opposing the idea of a central divine cosmogony, theories of biological evolution proposed that humanity originated from prior species in a long succession of genetic inheritance and gradual change. In particular Darwin's (1859) *evolutionism* model in which a species gradually improves itself has been popular in transhumanist circles (*cf.*

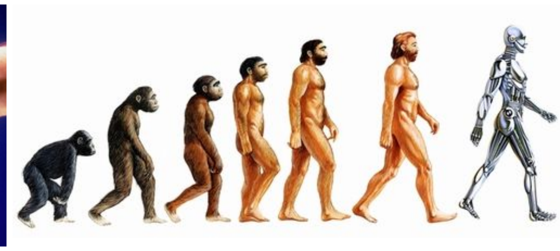
[121] As a symbol in mythology, "the Waters symbolise the entire universe of the virtual; they are the [...] reservoir of all potentialities of existence; they *precede* every form and *sustain* every creation [...] Waters are the foundations of the whole world" (Eliade, 1958a, p. 188; emphasis in original).
[122] The motif of the *cosmogonic egg* appears in the mythologies of ancient Polynesia, India, Indonesia, Iran, Green, Phoenicia, Nordic legends, and folklores of West Africa, and parts of Central and South America (see Eliade, 1958a, pp. 413-416). The egg (or seed) is also the locus of genetic information in the biological process of creating a new organism and is revered in various natural religions as a source of life.

Huxley, 1957). Evolutionism implies continual advancement and a perpetual increase in complexity (Carneiro, 2003) – a view that underwrites transhumanism's agenda for self-enhancement and proactive advancement of the human condition. In spite of transhumanism's projected evolutionary view however, images of God technologies and of technological creation *ex nihilo* are rampant in popular cyborg visuality (various examples in figures 7.4 and 7.7). The creation of new organisms in high-tech biotech laboratories, the cultivation of designer genes, the resurrection of diseased bodies, and the incarnation of bio-information in synthetic smart matter are all transhumanist perspectives on the future of the human species. Technology, in these visions, functions as "evidence that humans could restore their lost power over Creation" (Zimmerman, 2008, p. 358).

Transhumanism's call for a co-evolution between biological and technological progression (e.g., More, 1990, 1993; Stock, 2002; Bostrom, 2005; Kurzweil, 1999, 2005) or S. Young's (2006) plea for a *Designer Evolution* seem in some respects notably similar to the narratives of divine world creation. For example, the transhumanist Messerly (2015) declared, "we will manipulate the genome, rearrange the atom, and augment the mind" (para 2). In comparison, the biblical description of God's creation of the world in Genesis 1-2 – the first separation of darkness and light, of heaven and earth, the creation of time and of the seasons, the making of organic life and man, and his devising of language, divine laws, and higher knowledge – all resonate in transhumanism's agenda for controlling the atom, the genome, and human consciousness.

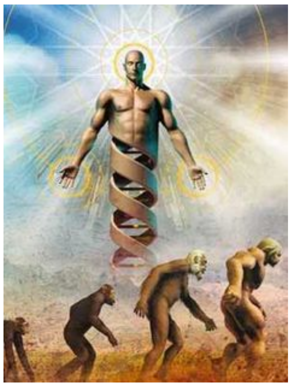
Figures 7.7.1 and 7.7.2 depict the two opposing cultural philosophies of divine creation and biological evolution. Figure 7.7.1 draws on Leonardo da Vinci's famous mural *Creation of Adam* (1508-12), and figure 7.7.2 replays the many versions of Zallinger's (1965) iconic illustration *The Road to Homo Sapiens*, better known as the *March of Progress*. The almost-touch between God's and Adam's hands in the *Creation of Adam* icon visually crystalised the cultural ideas of origination and creation, and the *March of Progress* viscerally encapsulated the ideology of progression as continual improvement (Gould, 1981; Frommherz, 2013). Both visual themes are stellar icons of Western cultural history, and both icons have been adapted and replicated myriad times in popular culture imagery.

7.7.1: *The Coming Singularity*, unknown artist (n.d.)

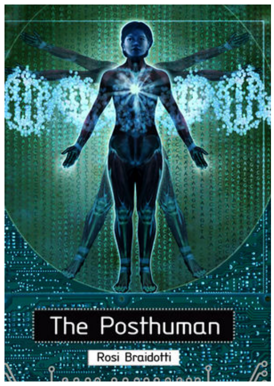


7.7.2: *Transhuman Evolution*, adapted from *Stages in Human Evolution* by David Gifford (n.d.)

7.7.3: *Transhuman Making*, Dave Seeley (2009)



7.7.4: *Intelligent Evolution*, unknown artist (n.d.)



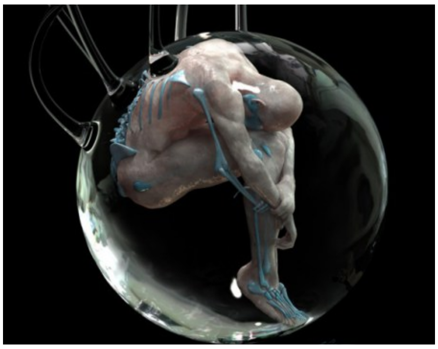
7.7.5: *The Posthuman* by Rosy Braidotti (2013)

7.7.6: *Recreating Humanity*, Jeremiah Films (2014)

7.7.7: *To the Light*, P. Sharpe (n.d.)

7.7.8: *Water Girl*, unknown artist (c. 2005)

7.7.9: *Spiritual Awakening*, unknown artist (c. 2008)



7.7.10: *Poser Pro*, Smith Micro Software (n.d.)

7.7.11: *Robot Hand with Glass Bowl*, Van Maninblack (n.d.)

7.7.12: *Posthuman*, unknown artist (c. 2008)

Figure 7.7: Transhumanist creationism.

Despite their philosophical antagonisms, in the visuals of transhumanist influence, the two icons of creation and of continual progression seemingly co-exist in frictionless harmony. Evolution and creation seem to converge in the technological visions of the singularity, which in this sense constitutes an "evolutionary God-event". In one example, the originating spark of *The Coming Singularity* in figure

7.7.1 and the emergence of robotic life as the pinnacle of human evolution in figure 7.7.2 unite in the image of *Intelligent Evolution* in figure 7.7.4. In this image, the path of evolutionary progression literally passes by the intelligent design of a significantly improved being that emerges from the superior knowledge of genetics rather than from slow and random natural selection. In the foreground of the image a crooked human evolution drags along in unaware procession, truncated of their feet, as they have nowhere to go. In the background of the image, however, human self-design through higher knowledge and advanced engineering skills has meanwhile produced *perfect man* situated in the heavenly expanse of the image's depth – radiant with divine light and ready to ascend into the cosmos. The creation of the posthuman through God technologies, suggests the image, is a direct achievement and a logical outcome of participant evolution. In other words, a human-driven accelerated evolution, promise the technological dreams of transhumanism, will lead to the original powers of creation. Kurzweil (2005) summarised the flow from evolution to creation as, "evolution moves toward greater complexity, greater elegance, greater knowledge, greater intelligence, greater beauty, greater creativity, greater love. And God has been called all these things" (p. 476). Technology, he affirmed, would be "another form of evolution [that] enabled the persistence of the accelerating pace that started with biological evolution. It will continue until the entire universe is at our fingertips" (p. 487). Kurzweil's statement illuminates that in transhumanist thinking, whatever might account as God resides at the *end* of an evolutionary chain of self-improvement. God, in this view, is not a primary force and is not primary to creation. Instead, in Kurzweil's rationale, creation is ultimately a human achievement. In this understanding, transhumanism's call for the self-design of human evolution is a quest for what may be best described as *designer techno-creationism*.

7.2.4. Secret knowledge and hidden agendas

The interleafing of a rhetoric of scientific rationalism with an elitist programme of self-perfection and with mystical iconographies of knowledge and power has earned transhumanism the suspicion of hidden agendas. Some critics have likened transhumanism to the coming of the Antichrist and to Luciferian activities (Hart, 2005; Horn, 2010), others see transhumanism as the modern version of alchemy (Farrell & de Hart, 2011), and yet others criticise the ideological proximity of transhumanism to neo-eugenics that they interpret as a drift back into the "dark ages" of racial cleansing and the production of a supremacist superhuman (Kass, 2002; Gardner, 2011; Peterson, 2013; Salter, 2015). The moral subversion of society (Noble, 1999; Voss, 2000; Sorenson, 2014; B. Beck, 2015), the resurgence of old secret societies (Still, 1990; Marrs, 2001; Dice, 2014), a grand conspiracy of US military and bio-capitalism (Haven, 2014; Isen, 2014; Dowbenko, 2015), *Zero State* anarchy (Hughes, 2002a, 2004a; Twyman, 2014a, 2014b), and the implementation of a *New World Order*[123] (P. D. Collins, 2006; Rothkopf, 2008; A. Jones, 2012) are only some of the charges attached to transhumanist discourse.

Mystical, enigmatic and secretive symbolisms in transhumanist visuality included the motifs of the *Tree of* (forbidden) *Knowledge* and the *Tree of Life* (figures 7.8.1-3), the serpent that signifies transformation (figures 7.8.2-5), Hermes' wings of perpetual motion and timeless wisdom (figures 7.8.4-6), the *Eye of Providence* that sees and knows all (figures 7.8.7-9; figure 7.6), and the alchemical production of man[124] and the *Elixir of Life* (figures 7.8.11-12). The poster of the 2012 Conference of the Mormon Transhumanist Association (MTA) (figure 7.8.1), for example, shows a photo of a tree in a way that recalls the *World Tree*. In ancient mythology and in the world creation stories of various religions[125], the *World Tree* appeared as a symbol of the centre of the cosmos, of divine knowledge, and of eternity through perpetual regeneration (Eliade, 1958a; Yogananda, 1999). The tree in figure 7.8.1 is silhouetted against a churning sky with a glistening sun beaming through its skeletal canopy. The photo is taken at a low angle, emphasising the sublimity of the tree and the inferiority of the spectator. The viewer's gaze is directed upward; however, the top of the tree is out of view: humanity seeks

[123]The concept of a *New World Order* is generally attributed to various conspiracy theories that sometimes focus on new age movements and at other times include long-standing secret societies such as the Freemasons and the Illuminati. The *New World Order* is thought to aim for a totalitarian system of global power that covertly seeks to assume world (and/or cosmic) domination. Some theories identify money dynasties (e.g., the Rockefeller empire, the Du Pont estate or the Rothschild family) or international organisations (e.g., World Bank, the International Monetary Fund, NATO) as pursuing *New World Order* interests, while others suspect occult forces (e.g., Satanist cults) or extraterrestrial interests (e.g., UFO cult) as overtaking world power.
[124] Note that the ancient alchemical objective to artificially create man (in form of what was named the Homunculus or "little man") aimed at the production of a *whole* human being (figure 7.8.10). In contrast, the modern biotechnological production of human matter is thought of as the artificial creation of human *parts* (figure 7.8.11). Although the dream of creating man might have been the same in alchemy and modern sciences, the underlying worldview has significantly changed since the alchemical era. Today's dominant sciences tend to be reductionist and conceive of all matter and life in reducible structures and principles.
[125] The *World Tree* or *Cosmic Tree* appears in "innumerable […] traditions" (Eliade, 1958a, p. 265) including the myth of the Scandinavian *Yggdrasil*, the *Asvattha* tree in the Indian Upanishads, the *Secret Tree* of Mesopotamia, the *Kishanu* of Babylonia, the *Irminsul* of the Saxons, the *Oak* of the Teutons, *Kien-Mou* in China, and so on. In these many traditions, the tree stood for an image of the cosmos, as the centre of the world, as a symbol of life and regeneration, a metaphor for eternity and for perfect knowledge (e.g. Eliade, 1958a, 1991).

knowledge and “life undying” (Eliade, 1958a, p. 267) but has not yet achieved such. Mormons believe “that we have been and are progressing toward becoming like God” (Hyena, 2010, para 4). Lincoln Cannon, MTA co-founder, director and president of the Mormon Transhumanists, commented: “We consider Mormonism to be a religious transhumanism. […] Mormon scripture asserts the work of God to be that of bringing about immortality and eternal life, and invites us all to participate in that work” (Hyena, 2010, para 4)[126]. The MTA (2006) website elaborates: “Mormonism and Transhumanism advocate remarkably similar views of human nature and potential: material beings organized according to law, rapidly advancing knowledge and power, imminent fundamental changes to anatomy and environment, and eventual transcendence of present limitations”. In order to attain immortality and eternal life, the tree in the MTA poster has fused the *Tree of Knowledge* with the *Tree of Life* (*cf.* Cole-Turner, 2011), the former that in a modern context denotes the secret knowledge of the new sciences and the brave new skills of genetics, nanotechnology and artificial intelligence, which are thought to literally transform man into a higher being and to instil eternal life.

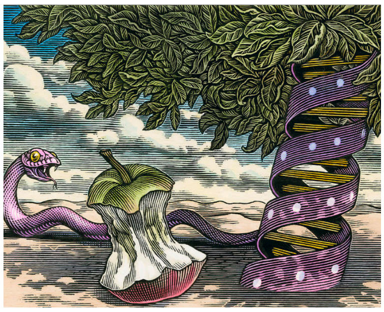
The symbolism of genetics as secret knowledge is clearly evident in figure 7.8.2 that presents the *Tree of Knowledge*, traditionally depicted with an apple. The trunk of the tree in form of a DNA helix spirals up towards a dramatic sky. Sanderson’s illustration expresses promise and temptation but also, through the presence of the snake of deception, risk of genetic knowledge. The image was created for the *New Scientist* magazine in March 1987, a time of euphoria about genetic discovery fuelled by the Human Genome Project (1986-2003). The DNA tree stands erect and central in the image, signalling stability of faith in the benevolence of genetic science. A later version of the genetic *Tree of Knowledge* (figure 7.8.3) has lost much of this confidence in genetic research as an undisputed boon; the tree has moved off centre in the composition and is leaning over, has lost it sturdy and central position. The viewer finds themselves at the bottom of the tree rather than in the lofty heights of scientific discovery as before. The apple of

[126] The Mormon Transhumanist Affirmation reads: “1. We seek the spiritual and physical exaltation of individuals and their anatomies, as well as communities and their environments, according to their wills, desires and laws, to the extent they are not oppressive. 2. We believe that scientific knowledge and technological power are among the means ordained of God to enable such exaltation, including realization of diverse prophetic visions of transfiguration, immortality, resurrection, renewal of this world, and the discovery and creation of worlds without end. 3. We feel a duty to use science and technology according to wisdom and inspiration, to identify and prepare for risks and responsibilities associated with future advances, and to persuade others to do likewise” (MTA, 2006).

divine knowledge has been eaten already, only the core remains. The snake of deception has done her work and slithers off seemingly laughing. What was a lush garden in the older image is now a barren desert in the later illustration. Between the two images, hopes of genetic salvation have turned into fears of rogue genetic powers.

7.8.1: *Conference Poster,* Mormon Transhumanist Association (2012)


7.8.2: *Cover New Scientist,* Bill Sanderson (1987)

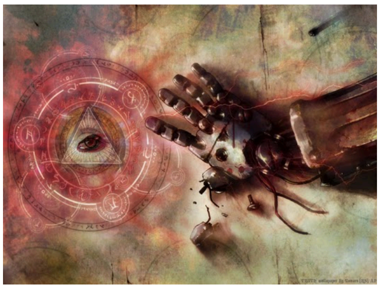

7.8.3: *Fear of Genetic Research*, Bill Sanderson (2013)

7.8.4: *Victory of Transhumanism*, unknown artist (n.d.)


7.8.5: *DNA Hermes,* Dan Platt (2000)

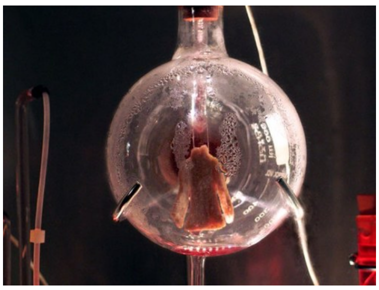
7.8.6: *Winged Wheel*, logo of the MTA (2006)


7.8.7: *Parabola*, Alex Grey (2007)


7.8.8: *The Transhuman Agenda*, H+/Schwann Cybershaman (2011)


7.8.9: *Artificial Intelligence Eye*, stock image (n.d.)


7.8.10: Alchemy of *Homunculus;* illustration for Goethe's *Faust II,* unknown artist (19th century)


7.8.11: *Victimless Leather*, Oron Catts (2004)


7.8.12: *Artificial Womb*, Mondo Art (n.d.)

Figure 7.8: Iconographies of forbidden knowledge, hidden agendas, and secret societies.

In various cultures around the world, the icon of the cosmic serpent recurrently served as a symbol of fertility and of fundamental connectedness with nature (the serpent, in this context, representing the umbilical cord). The serpent has been used to signify rebirth, immortality and transformation (Campbell, 1965) – but it was also used to express lure and deceit, especially in her appearance in the Garden of Eden. Narby (1998) described the cosmic serpent as a literal image of the structure of DNA. "Such ancient images as the caduceus, the entwined serpents, ladders to heaven, are the encoded science of the DNA double helix, which shares all life" (pp. 56-57). The double serpent of the *Caduceus* (figure 7.9.1 centre), the snake-staff of the messenger god Hermes in Greek mythology, spirals up from ground to heaven. Henderson (1964, p. 155) described the *Caduceus* as Hermes' "full power of transcendence, whereby the lower transcendence from underworld snake-consciousness, passing through the medium of earthly reality, finally attains transcendence to superhuman or transpersonal reality in its winged flight". In ancient Hermeticism[127], the *Caduceus* represented a symbol of wisdom and transcendence and was associated with the elemental metal mercury, a key ingredient in the alchemical processes of creating the *Philosopher's Stone* and the *Elixir of Life*. In figure 7.8.5, ascent to a superhuman condition was symbolised by upwards spiralling DNA strands that formed the design of the *Caduceus*. The transformation that the *Caduceus* signifies occurred in this image through the new knowledge of the genome; DNA symbolises the modern realisation of the *Elixir of Life*. The *Caduceus* is also winged; it is metaphorically connected with speed, mobility and creative flexibility. Unlike the *Rod of Asclepius* (figure 7.9.1, right) that is here-worldly and remedial (Comfort, 1984; Wilcox & Whitham, 2003), the winged *Caduceus* communicates between earth and heaven, man and God, between high and low, base matter and omniscient spirit (Friedlander, 1992; Farrell & de Hart, 2011). In order to signify its aspirations of becoming godlike, the MTA has adopted Hermes' wings in its logo of the winged wheel (figure 7.8.6).

[127] Hermeticism describes an ancient spiritual-magical tradition, taking its name from the God Hermês Trismegistos (Greek: "Thrice-Greatest Hermes"). It is an esoteric Western philosophy that combines magical and scientific elements. Hermeticism is monotheistic theological and believes in the one transcendent God independent of the material universe. Humanity is considered on a journey towards reunion with the divine. In the Middle Ages, Hermeticism became a keen inquirer into alchemical activities with the goal to transform forces of nature in order to acquire lost perfect knowledge and ageless wisdom.

Against the background of the deep symbolism of the *Caduceus*, it appears significant that the transhuman in figure 7.8.4 challenges death with help of the *Caduceus* – not through plain medical knowledge symbolised with the *Rod of Asclepius*. Human transcendence and superiority, suggests the use of the *Caduceus* in this image, is not as much enabled by medical knowledge of healing but more so by the divine knowledge of genetics, i.e., the knowledge of creating new life over remedying existing fault. Indeed both the icons of the *Rod of Asclepius* and the DNA helix, in contemporary images of technological progression, are often absorbed into the symbolism of the *Caduceus*. The image in figure 7.8.4 puts forth that death is not merely to be mitigated and postponed – but done away with altogether. The power of Hermes, the association of the *Caduceus* with the alchemical secret of the *Elixir of Life*, fully transcends death. By use of hermetic symbols, the defeat of death and the *Victory of Transhumanism* can be read as a contemporary replay of the alchemical conquest for immortality.

The symbolism of the all-seeing eye in figures 7.8.7-9, which in its incarnation of the *Eye of Providence* has been commonly associated with Freemasonry, appeared across a range of transhumanist visuals. The discourses revolving around the Freemasonic movement, its alleged roots in occultism, its historic entanglement with alchemy, Hermeticism, the Illuminati[128] and other covert societies, as well as its embedding in the *Great Seal of America*[129], has earned the symbol a flavour of secrecy, hidden agendas, and conspiracy (M. P. Hall, 2003; Farrell & de Hart, 2011). The appearance of modern versions of the *Eye of Providence* in a number of US and global media conglomerates (figure 7.9) has further fuelled the suspicion that the symbol of the all-seeing eye serves the secret agenda for a *New World Order* (*cf.* Schwarz, 2012). Transhumanism's ready adoption of the *Eye of Providence* in its logos and icons (figures 7.9.3-4) and the iconographies of occult symbols in its advocatory images have helped to mark the movement as esoteric, chauvinist,

[128] The Illuminati is a secret society reaching back to the Enlightenment. Historically, the Illuminati sought to check state power in its abusive excesses; its members strongly supported the values of the Enlightenment. Modern Illuminati are regularly associated with various conspiracy theories and with a push toward a *New World Order*. Today's Illuminati are believed to account for not more than about 6,000 members worldwide, albeit several prominent figures are thought to support the movement (Barkun, 2003; Burkett, 2004). Illuminati and Freemasonry are sometimes confused in public debates, but the two organisations are believed to work together in some instances. The Illuminati use the *Eye of Providence* as one of its identifying symbols.

[129] The *Eye of Providence* is famously incorporated into the *Great Seal of the United States* (of America), which is also depicted on all American one-dollar notes since the mid-1930s. The symbolism of God seeing everything (including the foundation of the US) was taken as reassurance of God's approval of this undertaking and his blessing of the creation of the American union. Indirectly, the symbolism of the *eye of providence*, God as creator and preserver, arguably suggests that God ought to be regarded the originator of America, its people and its undertakings (Barrett, n.d.; Ovason, 2000; Hieronimus, 2005; Hodapp, 2006).

supremacist and cabbalistic (*cf.* Jordan, 2006; Preston, 2007; Healey & Rayner, 2009; Farrell & de Hart, 2011; Kievsky, 2010; Carrico, 2012; Asprem, 2013; Livingstone, 2015).

7.9.1: *Rod of Asclepius*, *Caduceus*, and *DNA Double Helix*
7.9.2: *Wadjet* or *Eye of Horus*
7.9.3: *Humanity+* icon
7.9.4: *Humanity+* icon

7.9.5: *Great Seal of America*, displayed on One Dollar Bill (1935)
7.9.6: *CBS* logo
7.9.7: *America Online* logo
7.9.8: *The Time Warner Cable* logo
7.9.9: *Information Awareness Office*, DARPA († 2003)

Figure 7.9: Various adaptations of the Eye of Horus/Eye of Providence.

In Alex Grey's *Parabola* video clip (see still image in figure 7.8.7)[130], the *Eye of Providence* literally forms the architecture of a new world in which man arises to godlike existence. As the camera in the video clip moves upward following an unravelling DNA spiral, the increasingly enlightened human figure gradually dissolves its form and first merges with the omniscient eye and then with the white void of blissful nothingness. Grey (n.d., para 1) commented: "As our art historical eye glances over world culture, one of the primary functions of visual art has been the iconic linking together of transcendental and worldly realms". His art, he affirmed, seeks to highlight the power of scientific knowledge for realising "the inspired divinity found within all of us" (Devin, 2007). The radical Prometheism movement, a religious subgrouping under the transhumanism umbrella, summarised their perceived need for interweaving spiritual with technological aspirations:

> Technology is the bridge between truth and transcendence; knowledge alone can't eliminate our many mental and physical shortcomings, but technology *can*. Without it, our lives would be as short, bleak, and miserable as those of our primitive ancestors. With it, we can become like our finest imaginary gods: eternal, omniscient, omnipotent. The difference is like night and day, and literally a matter of life and death. The human condition

[130] Available at https://www.youtube.com/watch?v=Dv9e57qhFlg (Tool – PARABOLA excerpt with Alex Grey visuals, 00:01:23).

> is a fatal disease, and technology is the cure. (Transtopian Principles 5.1, 2000, item II; emphasis in original)

However, the omnipresent, omniscient eye that always sees *everything at once* and hence cannot differentiate might also have some blind spots. Maybe it is blind to the grey shades of human existence between desire for immortality and truth of finitude, blind to the shadows of uninhibited technologisation of life, blind to less reductionist pathways towards human fulfilment, blind to what might be lost to the bright glare of a universal, distant vision (*cf.* Romanyshyn, 1989; Hayles, 1999). Maybe, the *Humanity+* eye (figures 7.9.3-4) is as blind to human erasures as it is visionary of technological salvation.

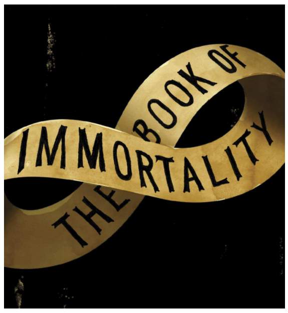
7.2.5. Immortality

Images of technological immortality in cyborg visuals presented three common themes: depictions of chromosomes, DNA or helix bands to denote *genetic immortality* (figures 7.10.1-2), visualisations of digital patterns, wireframes or infinity loops to describe *cybernetic immortality* (figures 7.10.3-6), and images of cryonic preservation to suggest *biological immortality* (figures 7.10.7-9). Sometimes interlaced into these three visual themes were the symbolisms of light rays, cosmic patterns or religious icons, i.e., an astral iconography that suggested a vague notion of spiritual immortality. Cole-Turner (2007, cited in Hughes, 2007) spoke of an "uncanny likeness" between the Christian interpretation of the resurrection and the transhumanist proposal for immortality. Both approaches, he observed, have variations that see eternal life continuing as either physical embodiment or as spiritual existence. In theology, these concepts were expressed in the ideas of Christ's resurrection to one effect and the notion of an eternal soul to the other effect. In transhumanism, the difference between carnal longevity and eternal personhood appeared in the desire for an ageless body and in the speculative science of mind uploading respectively.

In the immortality iconography of transhumanism, the image of the chromosome (figure 7.10.1) and the figure of the DNA helix (figure 7.10.2) merged into a symbol of infinity (figures 7.10.3-5). Chromosome and DNA that generally were used to signify life itself became symbols of eternity in transhumanist images of immortality. However, *life* as humanity has known it since the dawn of existence and *eternity* are essentially opposing aspects: biological life implies change and ending whereas eternity suggests constancy and timelessness. To illustrate this point, *The Book of Immortality* (Gollner, 2013) for which the illustration in figure 7.7.3 was commissioned, opened with an acknowledgement that "immortality means nonmortality, undeath, never-ending existence in this world or some other" (p. 5).

7.10.1: *Decoding Immortality*, Smithsonian Channel (2014)

7.10.2: *Do You Want to Live Forever?* University of Utah (2013)



7.10.3: *The Book of Immortality*, Scribner (2013)

7.10.4: *A Technological God*, Meme Center (n.d.)

7.10.5: *Immortal Memes*, Giovanni Ranzo (2013)

7.10.6: *Masthead for The Immortality Project*, University of California at Riverside (2012)

7.10.7: *Cryonics Catacomb*, Christopher Barnatt (2011)

7.10.8: *Frozen*, unknown artist (n.d.)

7.10.9: *Cryonic Head*, unknown artist (n.d.)

Figure 7.10: Iconography of immortality.

Never-ending existence and the absence of death, however, do not automatically imply life (DeLashmutt, 2006). Nevertheless, where religious iconography was used to underwrite the transhumanist aspiration for immortality, visualisations of a technological *undeath* were commonly used to signify *eternal life*; and the Christian promise for a life *after* death was commonly taken as a reassurance of technology's power to extend life *before* dying. Gollner (2013) has pointed out that the Christian concept of salvation relies on death as a passage between physical existence and spiritual afterlife. Undeath by scientific means and technological immortality, he argued, would effectively undermine the possibility of salvation and would forfeit any hope of eternal existence. Despite such profoundly different concepts of spiritual and technological immortalities, futuristic images of human longevity prominently deploy a "divine iconography" in order to endorse the idea of an eternal here and now. DeLashmutt (2006) argued that the deliberate link between human spiritual desire and longevity technologies aims to validate trans-humanism's "hubris and an obsession with the present" (p. 285) as a higher, divine quest. DeLashmutt (2006) summarised: "The techno-theological eschatology of posthuman speculative science transforms eschatology itself into a technology that is controllable, controlling, and demystified" (pp. 280-281).

In the opening space between speculative *cybernetic immortality* (Pickering, 2007), after-worldly spiritual immortality, and the genetic promise to postpone death indefinitely, practical interim solutions take place wherever there is a market for it. Cryonics, for example, aims at preserving human bodies until more advanced technologies may reinstate these as revived sentient beings – either by means of advanced medicine in their own bodies or by advanced nano-cybernetics as biosynthetic embodiments. Consequently, two variants of cryonic preservation are currently available: full body cryonics and head-only preservation. Body cryonics proposes the resurrection of the deceased body, and head cryonics plans a later transferral of the brain's neurological data to alternative forms of embodiment (Ettinger, 1962; Stromeyer, 1996; Perry, 2000; Romain, 2010).

Figure 7.10.8 depicts an image composite of a cryopreserved body blissfully immersed in an icy bubble. The image is a gross abstraction of the concept of cryonics that, as a present technology, is based on vitrification and not freezing.

The process of freezing body tissue would likely damage cells through ice formation whereas vitrification slows down molecular movement and halts chemical processes in body cells, thus effectively suspending decay (Best, 2008, 2012). Either way, the actual cryonic body would be unlikely resting in a peaceful slumber as suggested in figures 7.10.8-9. Before cryopreservation, the deceased body has to be pathologically prepared, i.e., emptied of body fluids and perfused with cell protective coolants. This procedure leaves the body perforated and aesthetically in a very different spot. Instead of the wholesome and sterile visions of cryopreservation in figures 7.10.7-9, the cryobody might more accurately be associated with images of a clinical mummy rather than a sleeping corpse. Indeed, James Yount (2008), president of the American Cryonics Society, likened cryonics to the ancient Egyptian concept of body preservation for life after death. In the olden practice of mummification, deceased pharaohs were given material goods on their journey to afterlife. Fittingly, the cryopatient in figure 7.10.9 keeps a MP3 player for the long wait to resurrection. The face of the *Cryonic Head* is pale and uncomfortably rested on its icy bed. The mouth is half opened; eyes are tightly shut leaving a slight frown on the forehead. The hyperrealism of the image highlights stubbly facial hair that – in spite of the biological stasis of cryopreservation – indicates passing of time. The interior of the storage container is spatial but worn; ice shards look aged and stained. Some stains may be dried blood reminiscent of the perfusion process. From the worn look of the interior, the cryopatient might be resting there for a long time already. Maybe the MP3 player has stopped playing long back. There is stillness and emptiness. Immortality seems a lonely place.

Barnatt's (2011) *Cryonics Catacomb* illustrates a storage facility for cryonic containers that look like human-size thermo flasks (figure 7.10.7). Stacked in neat rows, each container carries a uniform sign that reads "Human in Suspension". The application and colours of the sign is reminiscent of the radioactivity icon. The image is composed in strict linear perspective with the central point-of-view somewhat below the imaginary horizon line, a geometric depth iconography typical of Renaissance paintings of divine subject matter[131]. This style of composition centralises the significance of the image's subject matter, elevates the impact of the image, and places the beholder at an inferior level while still laying

[131] Well-known examples of linear perspective in divine paintings of the Renaissance include *Tribute Money* by Masaccio (1425), *The Last Supper* by Leonardo da Vinci (1498) and Raphael's *School of Athens* (1510).

the entire scenario out in front of a scrutinising and psychologically detached gaze (Egerton, 1975). The central fleeting point in this image invites the beholder to enter into the scenario, to walk down the aisle of suspended life. Still, the beholder maintains a universal point of view, can discern the image's entire scenario. As long as the beholder does not cross the invisible line between their own position and the picture plane, they remain uninvolved. Yet the infinite fleeting point beckons; a single row of ceiling lights guides along the central aisle, and the door at the far end lures as an entrance to eternal life. The door is yet closed; in trans-humanism's material conceptualisation of immortality, one has to pass through the suspended time of the flasks first. In the catacombs of timeless solitude, the eternity of the suspended body has already arrived but immortality is yet unattained.

Notwithstanding their hopeful promise of human immortality, the images in figure 7.10 also carry a flavour of desolation. The eternal life in these images seems empty and lonesome. M. C. Stevenson (2007) noted that the visions of posthuman existence often "offer poignant depictions of loneliness" (p. 87). Certainly, there are no human lives in these images – only the instrumentalism of undeath. Graham (2002) argued that the technological triumph over death does not necessarily concern itself with eternal life. Instead, he contended, transhumanism's agenda for immortality was more an expression of their "fear of contingency and finitude" (p. 17) and not a genuine proposal for longevity. As the images in figure 7.10 indicate, the pursuit of immortality might after all lead not toward a continuation of life but to an absence of the ending of *here and now*; suspension of death, suggest these images, might produce a timeless state of ever repeating data loops and flickering signals (Hayles, 1999).

7.2.6. Self-deification: superhumans, cyborg angels, and posthuman gods

As the "divine iconographies" in the cyborg image have shown, proposed technologisation of the human body was often imbibed with a flair of divine glory, superhuman aptitude, and transcendence of humanity's earthly condition. Images of the *technological sublime* (Graham, 2002) that openly and unmistakably depicted the technohuman as a deific being have increasingly appeared in cyborg visuals over the past few years. Zimmerman (2008) observed that transhumanism “draws upon and extends a long-standing theme in Western philosophy and theology, according to which humans have the capacity to become virtually divine” (p. 348). Correspondingly, the images of the divine cyborg portrayed the posthuman *literally* – and not merely allegorically – as gods. A most common characteristic of transhumanist godliness was the depiction of androgyny. In addition, posthuman gods commonly displayed attributes of eternal youth (figures 7.11.1-5, 10), enlightenment and wisdom, and omnipotence through higher consciousness (figures 7.11.1-4, 6-9, 11).

Androgyny in the sublime group of transhumanist imagery rated roughly double than overall, with 61.4% androgynous image subjects compared with 30.3% in the total data set. Over two thirds of androgynous subjects in the sublime group of images fell toward the male variant (42.5%). Where female divinity was portrayed, they commonly leaned towards female androgyny (26.6%). This left a mere 7.1% of gendered female images in the group of technological divinity – in contrast to 23.7% gendered females overall plus 13.0% female androgynies (see figure 7.1: Gender). These figures suggested that male divinity was clearly hegemonic in transhumanist visuality, and that female divinity, as and where it appeared, was considerably neutralised (figures 7.11.1-4, 6).

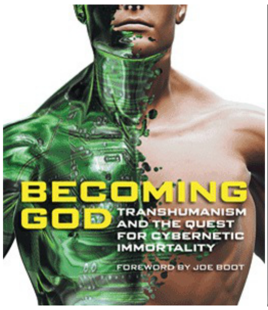
Androgyny as a religious symbol has variously been thought to signify transcendence (Clark, 2003), primordial unity (Eliade, 1958a), perfect knowledge (Eliade, 1991), or immortality (Schwarz, 1980). Clark (2003) contended: “Androgyny or gender transgression may be seen as a mode and a symbol of transcendence […] the representation of sexual duality, asexuality, and androgynization […] implies a cosmological significance” (p. 320). Eliade (1958b) interpreted androgyny “as the desire to recover a primordial situation of totality and perfection” (p. 26), and Meeks (1974) suggested “the extent to which the unification of opposites, and especially the opposite sexes, served in early Christianity as a prime symbol of salvation” (pp. 165-166). The symbolism of salvation, primordial unity, and androgyny, affirmed Schwarz (1980), also implied immortality in monotheistic religions: “In all mythologies, gods are immortal and androgynous. As a matter of fact, gods are immortal *because* they are androgynous” (p. 57; emphasis in original).

7.11.1: *Becoming God* by David Herbert, unknown artist (2014)

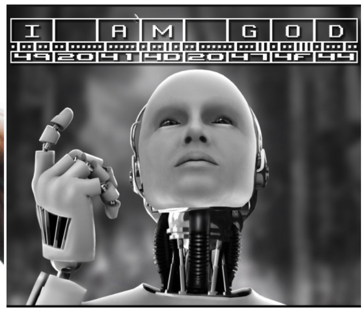
7.11.2: *Naked Faces*, Oleg Dou (2008)

7.11.3: *Transhuman*, cover art for Believer, unknown artist (2011)

7.11.4: *Posthuman*, unknown artist (n.d.)

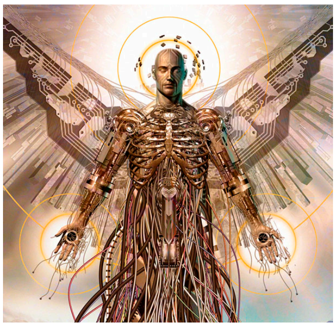


7.11.5: *Becoming God*, cover design: Janice Van Eck (2014)



7.11.6: *I am God*, unknown artist (n.d.)

7.11.7: *Cyborg Angel*, Rayvon (2013)



7.11.8: *Intelligent Design 2.0*, Kenn Brown (2009)

7.11.9: *Superhuman,* David Szakaly (2014)

7.11.10: *PRIMO 3M+,* Natasha Vita-More (1998)

7.11.11: *Ray Kurzweil – Transcendent Man,* photo: Ptolemaic Productions (2011)

Figure 7.11: Becoming God.

Figures 7.11.1-6 show androgynous godlike posthumans who were visibly reduced in their lived gendered characteristics. While the idea of gender remained generally visible in the physiognomies of the image subjects, their body surfaces were commonly cleared of fleshiness, cleaned of hairiness and other organic particulars. The heavenly cyborg bodies were neutralised and compressed into gender archetypes whereby gendered traits were abstracted and "purged" of their human carnality. It appeared that the androgynous posthuman in these images did not aim to describe future beings of dual sexual traits or omnisexuality. Instead, they signified subjects that were asexual, i.e., emptied of gender, stripped of a sexual identity, and cleaned of the fallacies of the flesh. As the analysis of gender in the transhumanist subject (see chapter 5) has shown, transhumanism's *de facto* gender identity was decisively male and "straight". Hence, androgyny in the divine cyborg might not be as much about new gender roles and inclusive models of sexuality as about carnal neutrality and aesthetic purity. In this sense, the androgynous divine cyborg projects an image of posthuman embodiment that is unsullied and universal. The suggested divinity in these images and the androgyny of posthuman godliness, instead of symbolising divine unity seem to express contempt for the disorderly and disobedient animal body. If so, the latent message of these god-making images would be transhumanism's desire for the eradication of the unruly, smelly, hairy and intuitive flesh. This stance implies that the underlying motivation of the transhumanist dream to become godlike results primarily from the perception of an imperfect human body. The "divine iconography" of the theological trope of redeeming the body (through Christ's resurrection and transformation) is appropriated in transhumanist visuals as a code of forsaking the body. Transhumanism's concept of technological transcendence, as vague as it is, seems to channel through the gospel of theological salvation in order to validate their desired abandoning of the "fallen" (and supposedly unredeemable) body. Transhumanism's self-deification, in this sense, is not a replay of ancient spiritual aims in a modern technological arena but a profound rejection of the theological conceptualisation of *man made in the image of God* – or of anybody or anything else but himself. In other words, the mythological-religious colouring of the "divine cyborg" image does not seem to aim at salvation from an earthly-material existence but, contrarily, at a total control over exactly this earthly-material condition, over body, nature and the physical world.

Transhumanist real-world self-deification appears in figures 7.11.10 and 11, where Natasha Vita-More promotes her posthuman alter ego and a transcendent *Ray Kurzweil* speaks his technological insights to the masses. Both transhumanists use their very own selves to illustrate their idea of godliness of the coming posthuman; both believe that they will truly arise to higher (material) existence if they continue their path of technological self-enhancement. Surrounded by cosmic light, Kurzweil addresses the beholder frontally the way a prophet would address his audience. He is seated centrally in the image composition, and a classic linear perspective guides the beholder's view into the glory and infinite depth of transhumanist wisdom. Kurzweil in this image is a prophet of transhumanism by self-display and a posthuman god by aspiration.

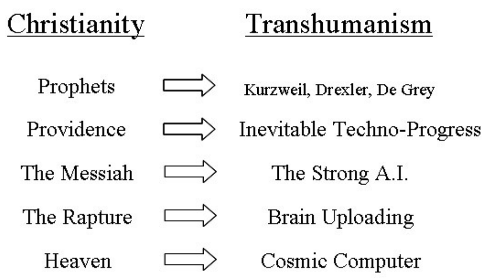
In figure 7.11.10, Vita-More presents the *Primo 3M+*, a conceptual prototype of the posthuman, offered by the fictitious developer/distributer *Ageless*. A newly improved posthuman body of "more comfort, better performance, lower price" (Vita-More, 2005) crouches on all fours "in anticipation – ready to be jettisoned into the future" (Du Preez, 2004, para 7). The advert-style promo reads: "The days of worry about mileage are gone forever. Our odometer measures years of experience not depreciation". Her toned physique in a condom-tight body suit is reminiscent of poses not unfamiliar to pornography or teasing celebrity photos. However, the idealised body of blonde femininity also brings to mind Venus imagery, of icons that portray eternal beauty and love. The "powerful", "durable" and aestheticised female in the *Primo 3M+* advert is a god of her own making, a Venus by virtue of technological advancement. She is a godchild born of the union of technology and mythology. Notwithstanding her godlike perfection, Vita-More's Venus is also a creation arising from a "shopping mentality towards embodiment" (Du Preez, 2004; para 6). Divinity, in this image, does no longer belong to gods and angels but is a commodity and a designer option in modern enhancement society.

Godification as a choice of self-design is also visible in figure 7.11.2. The image caption reads: "They told me I could be anything I wanted. So I became a god". There is no longer God but gods of one's own making. Serres (1993) argued that today's advanced information technologies replace the angelology of the ancients: winged flight, instant messaging and global orientation (GPS) are now every-man technologies and no longer reserved for angels (figures 7.11.7-9). Self-deification in these images is a gospel of human enhancement technologies. In this way, the posthuman gods in figure 7.8 are not the gods of human transcendence but they are gods of self-design, self-display and vanity.

7.3. Discussion

Led by the question, "Did God Make People or will People Make God?" (Brighter Brains, 2014), the 2014 *Transhuman Visions* Conference on Religion and Transhumanism invited participants to ponder the difference between scientific immortality and biblical heaven. The historian of technology David F. Noble (1999) argued that Western cultures increasingly, albeit often unconsciously, participate in a religion of technology that strives towards the fulfilment of a "millenarian promise of restoring mankind to its original God-like perfection" (p. 201). Farrell and de Hart (2011) generally consider transhumanism as the modern version of ancient alchemy with an "agenda for the complete transformation of mankind" (p. 8), and the science fiction writer Arthur C. Clarke (1973) famously noted that "[a]ny sufficiently advanced technology is indistinguishable from magic" (p. 36). More recently, Ihde (2008) has observed that contemporary "technofantasy hype is the current code for magic" (p. 126), and the transhumanist cosmologist-physicist Frank Tipler (1994) has consistently argued that God is but a mathematical calculation by physics. With regard to their respective eschatology, i.e., final human purpose, analogies between religion and transhumanist desire for self-transformation, immortality and eternal bliss are easy to see (e.g., figure 7.12): both worldviews seek to overcome human limitations (either spiritual or physical or both), aspire toward eternal life (either as actual worldly existence or in after-life), and both domains define human existence as not necessarily restricted to an accidental place on earth (Amarasingam, 2008; Manoj, 2008; Caputo, 2012).

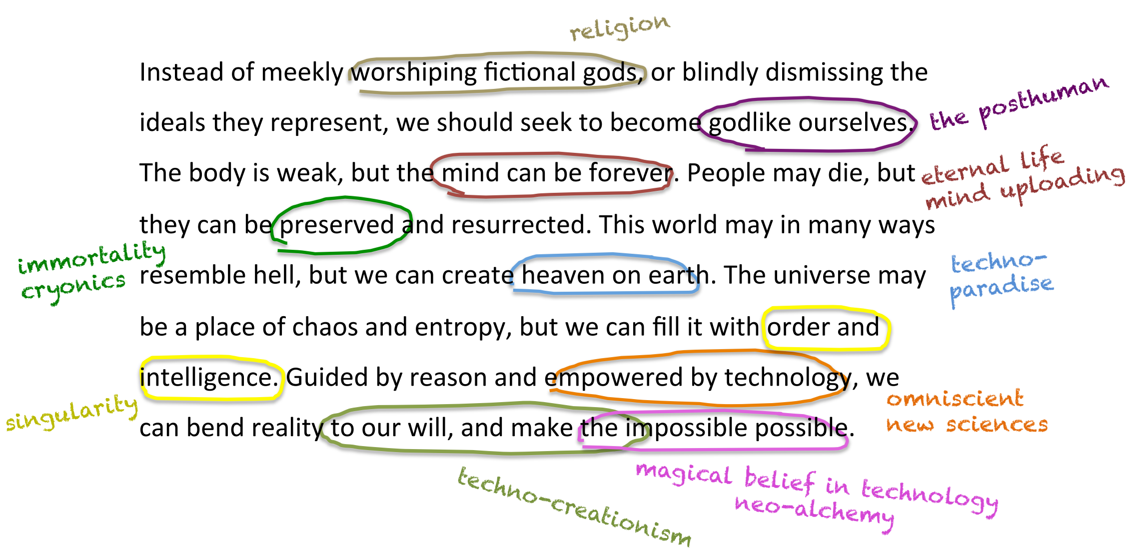
Notwithstanding superficial or profound similarities between theological perspectives and transhumanist philosophy, the analysis of cyborg imagery has demonstrated how a "divine iconography" serves transhumanist ideology to create a broad desirability of their agenda for material self-transformation. In these images, posthuman fulfilment was portrayed as both a cosmic condition and a technological probability, and the singularity was likewise depicted as sublime by technological imperative. Much of transhumanist discourse deploys a rhetoric that wants to be both scientific and spiritual (see example in figure 7.12.3). Commenting on the deep entanglement of scientific arguments and religious beliefs, Zimmerman (2008) noted that the "scientists currently engaged in the research needed to make transhumans and subsequently posthumans possible, frequently use religious imagery" (p. 351) for demonstrating scientific possibility. Likewise, C. Smith (2011) observed that transhumanism "attempts to be all inclusive, embracing Darwinism, Intelligent Design, spirituality, science, belief in ET etc. wrapped up in a self-guided salvation message" (para 16). DeLashmutt (2006) reasoned that, "both signs and technologies can become conveyances for the symbolic when their unambiguous meanings become obscured by their ambiguous applications" (p. 268). In the case of "divine cyborg" imagery, the original contexts of eschatological meaning in religious symbols become exchanged with new technological perspectives, which produce indistinct double-meanings that can be used to validate either worldview.



7.12.1: *Christianity and Transhumanism*, unknown artist (n.d.)

Features of heaven	Judaism	Christianity	Islam	Buddhism	Hinduism	Taoism	Trans-humanism
Tests to enter	✔	✔	✔	✔	✔	✔	
Life after death	✔	✔	✔		✔	✔	✔
Infinite wisdom				✔			✔
No suffering	✔	✔	✔	✔			✔
Meeting the dead	✔	✔	✔				✔

7.12.2: *Transhumanism's Promise of Heaven*, Ivan Raszi (2013)



7.12.3: *Transtopian Principles* (2000, Item IV). Source: G. Frommherz

Figure 7.12: Transhumanism as religion.

From this point of view, transhumanism's acclaimed inclusiveness might not as much signify openness and broad appeal as it suggests deceitful vagueness. The ambiguity of transhumanist visuality with respect to its future promises and its depiction of technology as human destiny is likely to appeal to a broad range of audiences including those who seek to integrate their appreciation of technology with spiritual needs, those who want to hold on to religious interpretations of life and the world, and those who indeed would like to see a new world order in which technological rationality guides all of human existence.

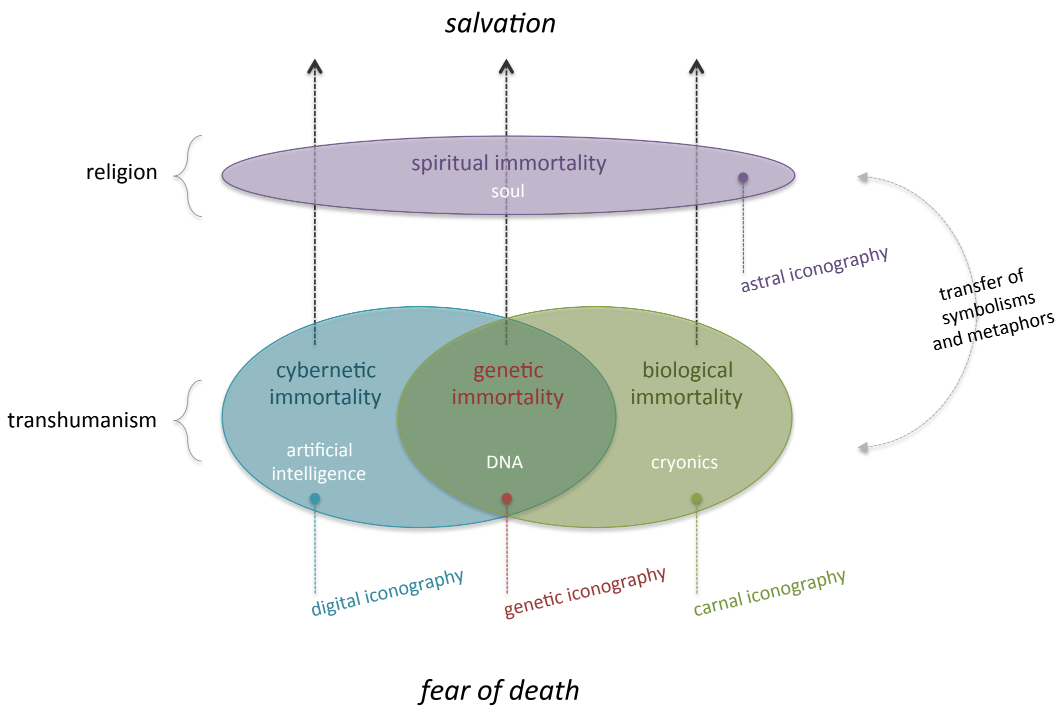
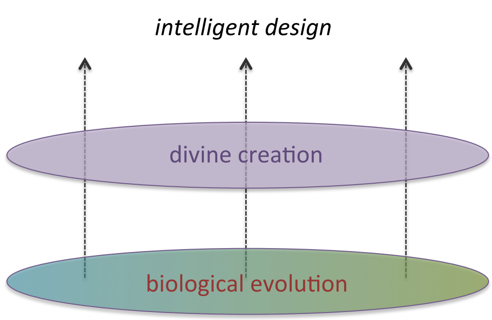
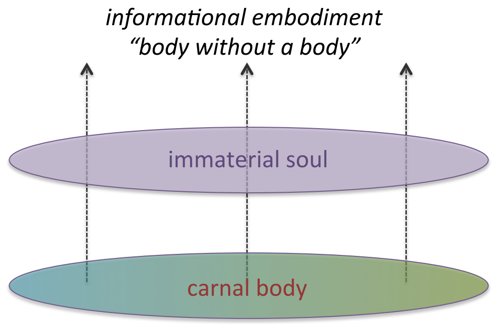


Figure 7.13: Iconographic strategies of the transhumanist salvation promise. Source: G. Frommherz.

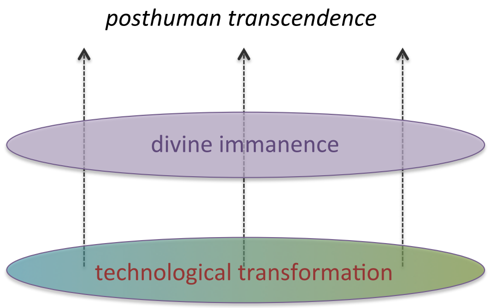
The visual entanglement of scientific, pseudoscientific, mystical and theological iconographies in transhumanist visuality seems to recontextualise a spiritual symbolism in order to mask the movement's here-worldly, material agenda, and to turn elitist, self-centred interests into a message of universal absolution. As an example of semiotic transfer between religious and technological contexts in cyborg images, figure 7.13 schematises how transhumanism's general disapproval of finitude and its fear of death passes through a mystical-spiritual iconographic layer that serves as a "aesthetic filter" for promoting ideologically narrow or self-centred interests. Passing through this filter, the original *fear of death* impulse emerges as a divine *salvation* message. In a similar mechanism, the digital, genetic and carnal iconographies of transhumanism's three main concepts of immortality were "enriched" by the astral iconography of the divine cyborg. These divine iconographies transferred the transhumanist aspiration of technological undeath into a message of posthuman eternal life. The aesthetic filter of spiritual immortality in the afterlife created a vision of technological immortality to realise longevity in the present.



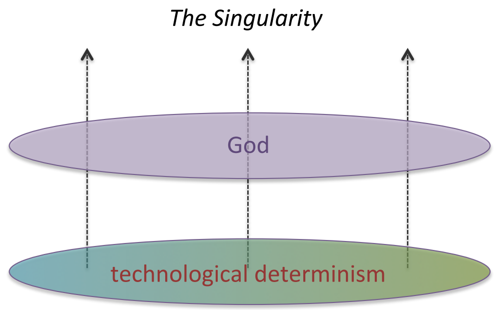
7.14.1: Intelligent Design.



7.14.2: Non-carnal embodiment.



7.14.3: Technological Transcendence.



7.14.4: The Singularity.

Figure 7.14: The divinisation pattern in transhumanist discourse. Source: G. Frommherz.

Similarly, deification of material-earthly desires and the aesthetic neutralisation of the “beastly body” occurs in the transhumanist agenda of non-carnal embodiment (figure 7.14.2), where the organic-physical body – routed through the Christian notion of the immaterial soul – is allegorically transformed into an abstract, non-fleshly info-body, an aesthetic “body without a body” (see chapter 6.3). Likewise, the transhuman enhancement programme filtered through a philosophy of divine immanence converts into an argument for posthuman transcendence (figure 7.14.3). By the same mechanism, the cultural tension between evolution and creation resolves into what is known as *intelligent design* (figure 7.14.1), a cultural view that advocates the presence of an intelligent agent within the evolution of the world (Dembski, 1998, 1999). Intelligent design sought to resist a materialistic and atheistic view on human existence, and in doing so it conversely introduced a material-evolutionary paradigm into theological creation concepts. Its proponent Dembski (1998) affirmed that intelligent design absorbs immanence and transcendence, bridging mythical beliefs and spiritual needs with a wholesale scientific view. The images of intelligent designs (e.g., figure 7.11.8), in this way, helped to scientifically validate a spiritual iconography, while at the same time seemingly spiritualised a grossly materialistic worldview.

In broad terms, the deification of transhumanism's technological ideology in its visual communications translates age-old spiritual human needs and the historic God image into a brave new vision of a technological singularity where divinity (or cosmic intelligence) is man-made (figure 7.14.4). By fostering analogies between technological transformation and divine immanence, the otherwise vague concept of posthuman transcendence is rendered plausible and palpable to public consumption. The absorption of mythological, spiritual and religious languages and iconographies into transhumanist discourse serves to create a novel "grand narrative" of the co-evolution of humans and technology, and of technological progression as a natural and certain human telos. What greatly distinguishes this narrative from religious eschatology is that posthuman fulfilment fully resides with human activity and the achievements of technology. In this sense, the spiritualisation of transhumanist discourse serves to systematically move control over the human condition and human destiny from theological to technological powers. The spiritualisation of the posthuman seeks to mask what DeLashmutt (2006) termed a "cybernetic totalism in the[…] techno-theologies" (p. 267) of transhumanism in which "cybernetics would become the sole purveyor of knowledge about world, God, and self" (p. 271).

7.4. Summary

The prevalence of "divine cyborgs" in transhumanist visuality suggests a purpose-ful confluence of the transhumanist concept of self-transcendence with pre-existing religious sentiments in a way that absorbs – but not confronts – general spiritual tendencies in humans. The aim of technological transcendence as expressed in the concepts of radical self-enhancement, and the singularity "piggybacks" on religious ideas of salvation in a way that relieves transhumanist argumentation from the burden of plausibly describing and justifying their ideal of the technohuman. In their lack of profound scientific argument, transhumanist discourses of self-actualisation, immortality, and cosmic intelligence often border on religious belief. Images of a divine iconography further support a superficial attractiveness of transhumanism's "salvation" messages to spiritual or ideologically undecided audiences. Although mostly built on still speculative sciences, hypothetical future inventions, and tentative dreams of a bright post-human future, an all-inclusive iconography of pseudo-science, fiction, speculation, hopes and beliefs produces visuals that seem captivating and convincing to a variety of otherwise conflicting views. In this sense, transhumanist visuality is less of a rational-visual argument for a better future but more of an *iconography of belief*.

Chapter 8: **Mimesis: Representation, Imitation and Repetition in the Cyborg Image**

8.1. Introduction

The previous three chapters focused on the transhuman subject in cyborg imagery – its personhood, the cyborg body, and transhumanist notions of transcendence. This present chapter looks at the cyborg *image* itself, its forms of representation, its pictorial strategies, and historic references. As a main tool of investigating the pictoriality of the cyborg image, concepts of mimesis, i.e., imitation, *re*-presentation and idealisation, are deployed. Mimesis deals with the depiction of reality in art, i.e., perceptual veracity or the appearance of truth in works of art. The ways in which transhumanist visuality readily draws on a history of representational art – above non-illusionistic imagery, abstract art, or visual innovation – is of interest to this study that asks the question of how popular transhumanist visuality establishes a plausible truth claim of its proposal for technological embodiment.

8.2. Figurative transvisions

A prominent finding from the data analysis was a very high level of figurative illusionism in transhumanist visuality. All images in the data collection included figurative elements in one way or the other, and about three quarters of data was primarily illusionistic in their visual expressions. Figurativism relates to the feature in the visual arts to represent subject matter in the way that humans perceptually experience them in the real world, i.e., as a phenomenological illusion of form and space. Notable of the cyborg image is an absence of visual codes that would portray technohuman futures in disarranged, plenitudinous, textural, abstract, multi-perspectival or expressionist forms in the traditions of the pictorial languages in Abstract Art, Cubism, Futurism or Expressionism, for instance. Instead, transhumanist visuality, notwithstanding its idealising, non-spatial and non-temporal tendencies, remained representational-illusionistic with the revered human figure fully honoured as the primary and central subject matter.

Walton (1990) pointed out that in order for imagination to necessarily generate a sense of truth, or suspension of disbelief, visuals would need to be *sufficiently rich and vivid*. Only then would the mind generate detailed visual experiences along with mental acceptance of the veracity of the image's claim. Mimetically rich and vivid visuals have the effect to render believable the fictional truths of the depicted not only as possible visual worlds but also as probable real-world actuality; they "seduce the viewer into an imaginary space of visually believable events, objects and characters" (Gonzáles, 1995, p. 271). In this view, "[i]magining is understood as an act […] of experiencing something as possible (rather than actual or necessary)" (Jansen, 2013, pp. 1-2). It is this *possibility* that is relevant in the illusionistic imagery of the transhuman subject, i.e., the perceptual *plausibility* of subject matter to potentially exist (whether in the real world or fictionally). This means that as long as an image's subject matter is mimetically plausible, it is "real" to the visual experience in the beholder[132]. In this way, the hyperreal cyborg image, in its excess of pictorial reality, not only constructs belief in the *imaginary* reality of the image but also belief in its likely *actuality*, i.e., its real-world probability.

8.2.1. Separation of subject and world

Conventional to illusionistic art, veristic mimesis of an image's subject matter permeates the image as a whole i.e., subject matter *and* setting together form a cohesive pictorial environment. Unlike conventional representationalism, mimesis in transhumanist visuality frequently separated the image subject from its visual environment. In such instances, the subject appeared in a figurative resolution and backgrounds were non-illusionistic, i.e., graphically reduced, abstracted, or altogether absent. Almost 65% of images displayed a non-illusionistic background as either flat colours or two-dimensional graphical patterns. Only 15.7% of image backgrounds indicated a genuine representational setting, and a further 19.7% of images presented 3D modelled environments or 3D components integrated into flat backgrounds (see figure 4.39). A comparison between subject resolution and background setting revealed that the transhumanist image most commonly produced subjects that were figurative and illusionistic but were composited over backgrounds that were abstract and flat (figure 8.1).

[132] Jansen (2013, p. 10) uses the example of a square circle as impossible to imagine because it cannot be perceived (although it can be entertained as a thought). In contrast, a unicorn, though equally non-actual, can be imagined because it would be perceptually possible if it existed.

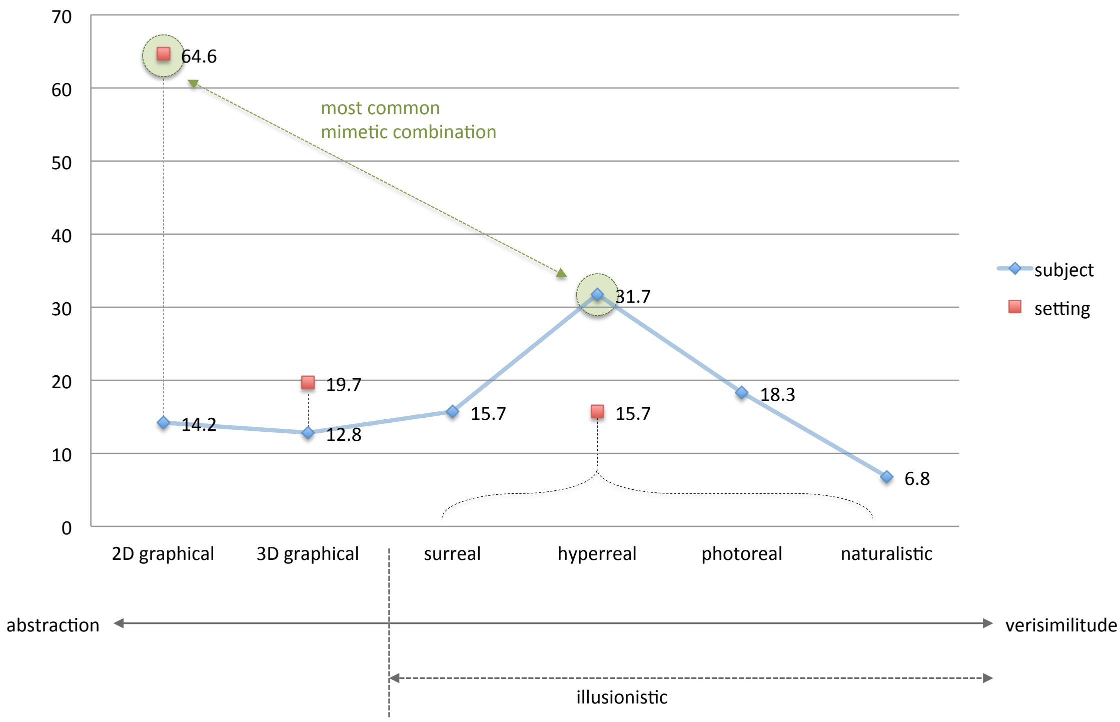


Figure 8.1: Mimesis in subject and image background. Source: G. Frommherz.

Spatial illusion in figurative visualisation typically includes depth geometry, perspectival continuity and spatial congruency of colour and light values. However, veracity of illusionary space in the cyborg image, in contrast to conventional pictorial depth, was often significantly compromised or even fully omitted. Instead of attempting illusion of continuous depth of space, backgrounds were frequently flattened onto one or several discrete image planes and composited in multiple flat layers over each other.

A layered approach to constructing depth illusion in figurative art is no invention of contemporary visual culture but reaches back to at least Neoclassicism[133] (mid 17th to late 18th century). Schematic reduction of background scenes to backdrops was also common in pre-Renaissance painting (Mather, 2014), for example in Gothic paintings of the Florentine school[134]. However, with the emergence of modern imaging tools (such as Photoshop), layered image compositing became a new visual standard (Brinkmann, 1999). In digital compositing, images tend to be constructed of various content layers that amalgamate diverse pictorial elements

[133] Several of Jacques Louis David's paintings (*cf. Oath of the Horatii*, 1784; *Death of Marat*, 1793) are notable examples of the conceptualisation of illusionary depth as shallow layers parallel to the picture plane (Gardner, 1959, pp. 652-653).

[134] See Giotto di Bondone's (1266-1337) *Lamentation* (1305) and *Death and Apotheosis of St. Francis* (c. 1300-1307) as prime examples of limited spatiality in the Florentine fresco of early 14th century (Gardner, 1959, pp. 276-278).

into flattened depth layers (figure 8.2). Commonly, digital depth illusion involves a foreground and single flattened background, a style that is also typical to contemporary advertising visuals (figure 8.5). Alternatively, a stacked arrangement of multiple fore, middle and back planes appears in some motion graphics works and 3D animations. In these visualisations, continuous depth geometry is replaced by discrete image topologies (see examples in figure 8.3).

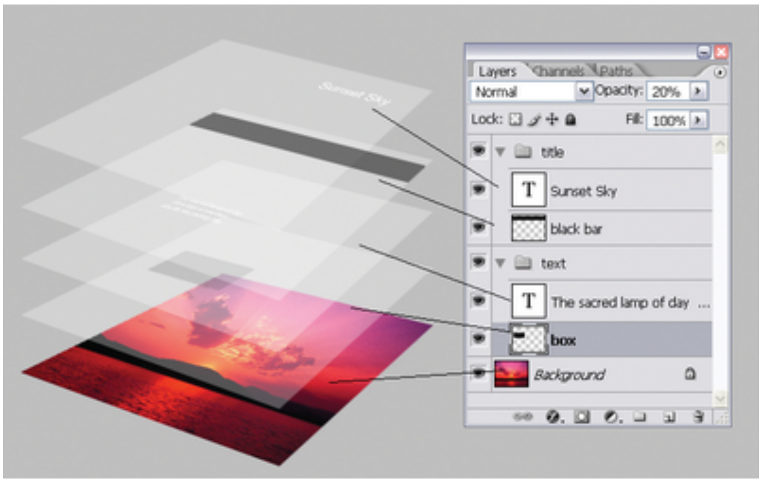


Figure 8.2: *Layer compositing in Photoshop: image layers (left) and Layer Palette (right).* Source: Design Contest (2011).

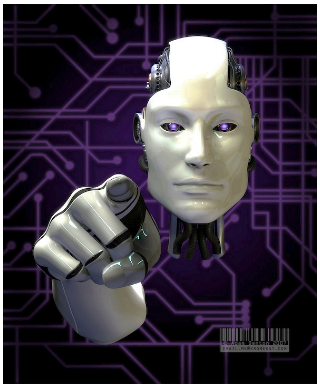
Over half of all images in the data set (51.2%) evidenced the use of a layered flat architecture to construct reduced depth illusion, and merely 12.3% of images produced classic depth geometry through vanishing lines (e.g., figure 8.3.1). Distance blur, an aerial perspective technique to gradually reduce visual clarity toward the depth of the image, was present in 18.8% of images. However, distance blur often presented a single blurry layer (vis-à-vis gradual blur space) as shown in figure 8.3.9. In this image, the subject was rendered in hyperreal resolution and was composited over a single flat, out-of-focus background. The crisp outline of the image subject was separated from its pictorial environment like a cut out silhouette over a distant backdrop. Subject and backdrop did not integrate – neither thematically nor stylistically; they were held together merely by similar colours. The shared colour scheme only superficially suggests a mutual relationship; instead, the subject's "context mostly disappears into a blur" (Virilio, 1994, p. 14) – and literally so. The indistinctiveness and contextual irrelevance of the background do not produce a *distance blur* that would describe a fore and a rear by creating visual depth. Instead of aiming for spatial distance, the blurry surface of the back layer constitutes what could be called a *severance blur* that disconnects and isolates the subject from the visual space of the image. In the image example, subject and background became two separate visual domains of which one was figurative-representational and the other abstract-decorative. The thus discretely delineated transhuman was portrayed as a subject disassociated from a world of relations, relevancies and responsibilities, a subject that is estranged from interdependencies and focussed on itself as the only relevant subject matter.


8.3.1: Classic linear perspective. *Kreator: Enemy of God*, Joachim Luetke (2005)


8.3.2: Reduced linear perspective. *Shape Shifter*, unknown artist (n.d.)


8.3.3: Removable background. *Cyborg Arm*, Dmitry Bairachnyi (n.d.)

8.3.4: Classic foreshortening. *Your Country Needs YOU*, Alfred Leete (1914)


8.3.5: Truncated foreshortening. *You*, Adam Benton (2007)


8.3.6: Dissolution of depth layers. *Technology Education,* unknown artist (n.d.)


8.3.7: Backdrop environment. *Transhuman*, artist unknown (n.d.)


8.3.8: Backdrop environment. *Project S-Fantasy (Cyborg)*, Robert Franckowiak (2008)


8.3.9: Blur separation of fore and background. *Tortured Soul*, Valentina Kallias (n.d.)

Figure 8.3: Visual layering replaces classic depth illusion.

An uncoupling of the image subject from a congruent pictorial environment also occurred in many other images in the data set, often with respect to both mimetic image resolution and thematic context (e.g., figures 8.3.3, 7-9). This means that the separation of image subject and visual space in the image did not only result from stylistic differences between primary subject matter and image background, but also from a disconnect between the semantics of the fore and the background (e.g., figures 8.3.7-9). In such images, backgrounds functioned as unrelated decoration rather than contextual visual space. Indeed, some images almost completely lost their visual space and served as mere frames of subject presentation (e.g., figures 8.3.3; 8.4.1-5). In these images, the subject no longer maintained a formal relationship with a visual environment and, by extension, a contextual relationship with an actual world to live in. Thus, the depthless cyborg image tended to depict a context-less being in an empty world. In the same way that the transhumanist worldview did little to conceptualise a tangible future lifeworld – things to do and places to go – transhumanist images mostly imagined future beings that existed outside and independent of future places. The digital planes in the cyborg image seemed to produce irrelevant visual spaces, *non-places* (Augé, 1995) that resisted focus and attention and that precluded awareness and involvement.

In one example (figure 8.3.7), the grainy photographic subject in the foreground, decorated with hyperreal technological gear, hardly integrates with the cloudy, nature-inspired backdrop of the image. The drama of cloud formations to the rear competes with the spectacle of the transhuman semi-skull in the foreground. The pseudo-illusionistic environment of the image appears arbitrary, and a disconnect between image and setting reduces the outer world of the transhuman subject into the *non-place* of a backdrop – a flat surface where repetitive grey tones condense cloud formations into an almost abstract pattern. The *Transhuman* does not seem to live in a "real" world (whether actual or fictitious) but in an empty realm of visual noise, a virtual un-reality.

Similarly, the hyperreal image subject in figure 8.3.8 is composited over a mixed-mimetic background that is made up of low-resolution photography and over-exposed graphical elements. Circular graphical patterns, perhaps of occult meaning, spiral out from the planet above the mountain range and envelope the cyborg's technological head. The semantic contexts between the female cyborg, the aerial photography of a mountain range, and the illuminated circles are unclear and could invite various interpretations: extra-terrestrial communication between cyborg and remote planet, the cyborg as a descendent of that planet sent to earth, or cyborg technology as part of a cosmic interchange. The ambiguous composition of the image leaves ample space for the beholder's own interpretations; the image instils a sense of the importance of human enhancement technologies without committing to any one specific iconological meaning.

In some cases, the pictorial background in cyborg images was entirely inconclusive and devoid of a narrative purpose. In figure 8.3.3, an irregular photographic pattern of lens flares and light blurs contrasts with the photo manipulation of a male cyborg. In this composition, the backdrop seemed to serve merely as a visual filler, as white noise of irrelevant image space. With three light sources for shooting the source photograph (back, upper left and middle right), the cyborg's silhouette was purposefully modelled to visually separate from the surrounding space. This style of chromakey photography allows easy separation of subject matter from its pictorial background, a technique that is common for image content that is deemed to be transferrable between various settings. This implies that the image subject was produced from its very inception *out of context*, and pictorial settings were deliberately designed as easily exchangeable variables. *Cyborg Arm*, hence, was never meant to live in a contextual visual world. Instead, *Cyborg Arm* solely points to himself and to the splendour of his technologically enhanced body. The only context of the image is the wondrous self.

In the absence of a cohesive visual space in many cyborg images, dimensionality of image subjects themselves seemed to vanish at instances. In the *Lord Kitchener* (Alfred Leete, 1914) remake in figure 8.3.5, a 3D-modelled robotic cyborg appoints its viewers to join the cause. Unlike its famous predecessor (figure 8.3.4), the Benton image misconceived of the foreshortened index finger, which resulted in a truncated oval instead of a perspectival indication of full finger length. Worse, the tip of the index finger visually locates within the silhouette of the hand – a visual effect that erases much of the illusion of depth that foreshortening actually wants to create (see in comparison the correctly foreshortened index finger in figure

8.3.4). Notwithstanding the image's citation of classic visual depth techniques, the perspectival awkwardness of the foreshortened hand flattens the dimensionality of its subject matter rather than creating volume and depth. The artist's carelessness in achieving an isometric perspective of the protruding index finger suggests a relative unimportance of volume and perspective to the image subject – and as such to the communicative message of the image. The image thus is less of a scene that invites into its narrative space but an abstract message – a *pictorial text* (Mitchell, 1994) or a *visual inscription* (Latour, 1987) – that uses a well-known icon as communicative shorthand. The image is more concerned with constructing a historicised validation of technological enhancement than with proposing viable embodiment.

The original *Lord Kitchener* poster drew on a sentiment of patriotism and responsibility for kin and nation, which was embedded in a historic situation known to all at the time. In contrast, the immediate context of the Benton appeal is not as obvious and instantaneous. The "background picture" in the original *Lord Kitchener* poster was Britain's experience of World War I; there was no need to display this context, as it was widely understood. The Benton image however delivers a less recognised rationale for the subject's appeal and hence this needed to be explicitly supplied. Consequently, the background graphic in the Benton remake became central to meaning making. Whereas the image subject serves as a mere eye catcher, the background graphic delivers the image's key message. The critical role of the background is further emphasised by the use of the only colour in the image, which literally penetrates into the fore and "looks" at the beholder through the hollow eyes of the 3D model. The pictorial strategy of the Benton image reverses the traditional foreground-background relationship: the pictorial backdrop supplies the primary message while the image subject serves as art historic background. Semantically, it is computing technology (visually encoded as a logic board pattern) that motivates the visual and that seeks agreement in the beholder, whereas the famous *YOU* icon functions as a visual anchor that serves to endow an otherwise vague message with the intensity and urgency of the original. In this interpretation, the cyborg subject in the image's fore acts as the embodied messenger of technology, while computing technology itself is the actual source of the messaging and, in the given case, the image's active agent (*cf.* Kelly, 2010). The image example demonstrates how layered compositing can allow for a visual communication strategy that facilitates a layered reading of complex messages. At the same time, however, layered compositing might also rearrange the traditional order of the image, as it is no longer bound to the illusion of space. In this sense, the image – as it is the case of the *YOU* icon – presents a complex *pictorial text* in which historic citation no longer refers back to its original context but deceives the beholder of the image's historicity. The *YOU* image is not a quotation of the historical Kitchener image but a de-contextualised iconographic eye catcher that suggests believability because of its familiarity and its historical "validity".

Several writers in the fields of visual studies and media theory have noted that the effect of content layering on pictorial depth illusion in digital compositing is nontrivial. Ihde (1991, 1998), Manovich (2002), Goode (2004), and Lister *et al.* (2009), for example, have commented on the new media paradigm of a flattening image in the visuality of contemporary culture. Ihde (1998) and N. Rose (2007) argued that the flattened technical image of the body constructs new linear body images and perceptions of an increasingly one-dimensional self[135]. N. Rose (2007) reasoned that the "deep interior psychological space" of the self that prevailed in the first half of the 20th century is now "flattening out, to be displaced by a direct mapping of personhood" (p. 26). Ihde (1998) observed that infomedical visualisation, albeit promising "deep visions" into and of the body, in fact produces flat slices and discrete pictorial planes, a "slicing logic" that reconfigures the broader cultural understanding of the body and of human identity. Imaging technologies that simulate the lived body as abstract depthless space – zoomed in on details and blind to its larger interworking – thus construct an understanding of the body made up of discrete signals instead of relational contexts. In these visions, details become universals, specifics become specimen, and the individual self becomes man in general (*cf.* Romanyshyn, 1989). The cultural vision of a one-dimensional self that lives in a dimensionless world allows the one-dimensional desires of individuals to emerge as a universal worldview – a flattened *Weltbild* or world picture (Heidegger, 1977b) – as seems to be the case for transhumanist visuals. Oscar Wilde (2003, p. 2) once noted: "It is the spectator, and not life, that art really mirrors". If so, the flattened, context-less cyborg image, void of human

[135] See Herbert Marcuse's (1964) *One Dimensional Man* for a discussion of the ideological flattening of post-industrial society.

interactions and living spaces, portrays a humanity that has severed its ecological relationships to the world, moved into itself, and lives in a depthless virtual realm of perpetual self-simulation (e.g., figure 8.3.6).

8.2.2. Absence of temporality

The data in this study suggests that the *transhumanist Weltbild* is not only empty of real-world contexts and interactions but also of human activities and temporality. Andreadis (2009) described transhumanist visions of the world as bleak and impoverished of active relationships and variation. He wrote: "Their worlds contain little color or sound, few scents, hardly any plants or animals. Food and sex come as pills, electric stimuli or IV drips; almost all arts and any sciences not related to individual enhancement have atrophied, along with most human activities that don't involve VR" (para 2).

With the exception of a small minority of images that included multiple subjects and social interactions (e.g., figure 5.13), the cyborg image generally lacked the interactional codes of spatial behaviour and bodily contact (*cf.* Argyle, 1983). The predominantly static composition of the cyborg image (i.e., symmetry, central subject position, inanimate backgrounds) established the cyborg as a posed subject in a balanced and tranquil display. Dynamic movement and visual conflict seemed largely removed from the static image compositions of the transhuman. The high number of still poses (46.3%), straight frontal subject orientation (26.5%), even shots at eye level (47.5%), lack of active motion in the image subject (1.7%), and an often static image composition confirmed a vision of the transhuman as an inactive, motionless and non-temporal being. Over 80% of images in the data set displayed only a single subject suggesting an absence of human relationships (only 2.5% of subjects interacted with another subject), and activities by the subject, where they occurred at all, were predominantly posed (32.5%) instead of performed (see figures 4.30 and 4.31). Neiva (1999) affirmed that the contemporary image of the cyborg does not aspire to capture reality but projects the impression "that we do not live, we pose" (p. 82).

Unlike other future-oriented art historic genres that visually constructed kinesis and velocity such as Futurism, or a dynamic multiplicity of perspective such as

Cubism, the cyborg image maintains equilibrium of stasis. Like transhumanism in the early 21st century, the Futurism movement in the early the 20th century celebrated the powers of innovation, change and progress and was fascinated by youth, speed, and the repetitive precision of the machine. Also like contemporary transhumanism, Futurism believed in the human mandate to actively drive the technologisation of the body, to control evolution, and "to create a mechanical son, the fruit of pure will, a synthesis of all the laws that science is on the brink of discovering", as F. T. Marinetti (1991, p. 83), the founder of the Italian Futurist movement and author of the *Futurist Manifesto* (1909) wrote. The iconography of visual dynamics in the Futuristic image, i.e., repetition of lines, disruption of form, motion blur and reverberation of colour, that together expressed movement and speed, however barely appear in the cyborg image. Instead, stable form, intact figurativism, and sleek surfaces define the contemporary aesthetic of trans-humanist visuality.

As previously mentioned, the image of the cyborg was predominantly harmonious and "still" across the data set; it did not display activity, movement or time passing. However, unlike the photographic image that arrests time for the moment, the cyborg image seems to abolish time altogether. By omission of a space in which to engage and to relate, lack of doing, absence of social interactions, and deficiency in iconographic movement, the cyborg image was stripped of temporality. Rahimi (2000) called this a *shrinking of time* in the posthuman condition. Where temporality is curtailed, he argued, traditional references to self-identity are equally curbed. Because of the lack of references or markers of identity, the cyborg subject cannot but fold back onto itself as the only remaining point of orientation. Jameson (2003) described the *end of temporality* in contemporary aesthetics as, "when you have nothing left but your temporal present, it follows that you have nothing left but your own body" (p. 712). The image of the inanimate cyborg body, in this sense, becomes the only possible identity of the posthuman.

However, this image of the cyborg will ultimately become bodiless if all motion is removed. From the anthropocentric perspective that guides the worldview of transhumanism, where the human body provides the measurement to scaling, defining and understanding the living world, where all "motion occurs in correspondence with the body's movement" (Mathijs & Mosselmans, 2000, p. 71), body and motion are inseparable, if not undistinguishable (Mirowski, 1989). In this sense, the absence of movement in the cyborg image, the display of a static, context-less, and uninvolved subject suggests the abandonment of the material body itself, its dissolution and undoing. Jameson (2003) speculated that in posthuman existence, "some new nonchronological and nontemporal pattern of immediacies comes into being" (p. 707). The non-temporal cyborg body that cannot change, age and conclude evokes both death and eternity at the same time. Jameson (2003) argued,

> whenever one attempts to escape a situatedness in the past and the future or in other words escape our being-in-time as such, the temporal present […] comes to be thickened and solidified, […] which is none other than the idea of eternity itself. (p. 712)

By removing temporality from the images of transhumanism, finitude in post-human experience is allegorically removed. Absence of time in the cyborg image creates the illusion of eternity of the body. Death that in informational thinking happens to the body only (*cf*. J. I. Bailey, 2014) has been conquered in the non-temporal cyborg image, and the self that has become independent of external references, forever endures in the undefined non-space of cybernetic existence.

8.3. Hyperrealism: synthetic fiction and the sanitised image

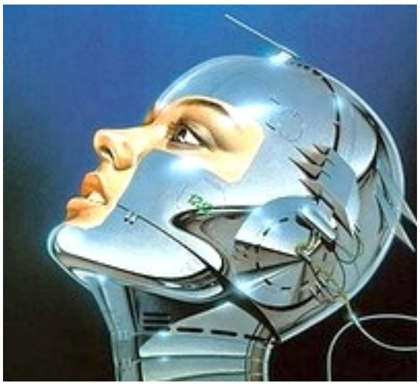
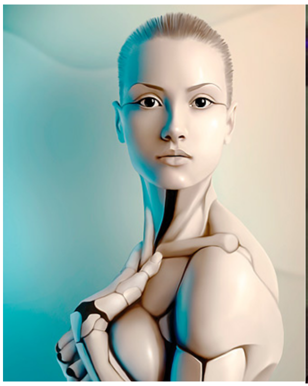
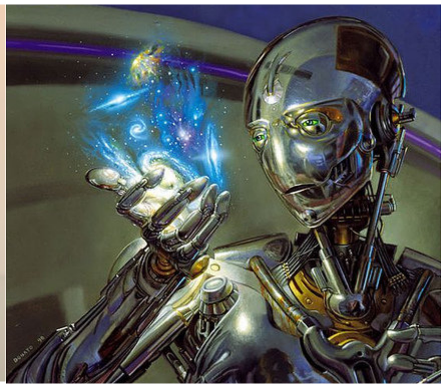
The large majority of images in the data collection were resolved at a high level of realism that moved pictorial representation beyond perceptual clarity. Over three quarters of images in the data displayed *more real than real* (Baudrillard, 1994) compositions. Pictorial hyperrealism arose in the late 20th century and has been connected to the emergence of digital simulation technologies (Druckrey, 1996; Manovich, 1996; Darley, 2000; Lister *et al*., 2009). In its idealised representation of naturally occurring objects in the world, hyperrealism can be understood as an intensification of the idealised realism of the Classic period. Both approaches to representing a phenomenological world, i.e., idealised and extreme realism, amplify what they seek to highlight and conversely "retouch" what is not of immediate consideration; they push an image beyond the perception of the natural world. In contrast to idealised realism however, hyperrealism aims at radically crisp surfaces that render the visual resolution of objects closer, cleaner, sharper,



8.4.1: *Libertiy in Mind and Body International (LIMB)*, Hidrico (n.d.)

8.4.2: *Greasy Spoon*, Brian Walker (2012)

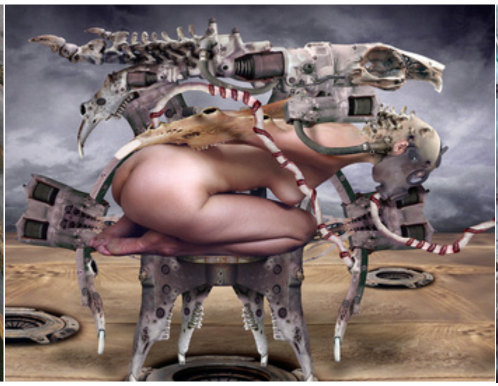
8.4.3: *Posthuman,* Benedict Campbell (2011)

8.4.4: *Gynoid*, Hajime Sorayama (n.d.)

8.4.5: *AmalgaMATE*, Michael Oswald (2009)

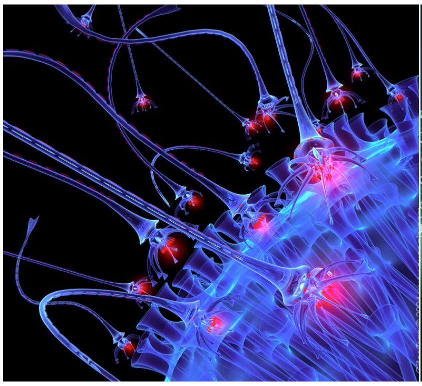
8.4.6: *3D Render*, unknown artist (2008)


8.4.7: *Cyborg Warrior*, unknown artist (n.d.)

8.4.8: *Johnny's Industrial Breeder*, Demetrios Vakra (2004)

8.4.9: *Singularity 2.0*, Soufiane Idrassi (n.d.)




8.4.10: *Reproduction*, Tran Gilles (2005)

8.4.11: *Genetics*, stock image, unknown artist (n.d.)

Figure 8.4: Examples of variation in hyperrealism. Top row: *photographic hyerrealism*; second row: *CGI hyperrealism*; third row: *fantastic hyperrealism*; bottom row: *"scientific" hyperrealism.*

brisker and more precise than the normal eye discerns. Artist Hajime Sorayama (figure 8.4.4) once commented that, "superrealism deals with the technical issue of how close one can get to one's object" (Sorayama, 2001, *inlet*).

Hyperreal imaging produces visions that are always *one step beyond* observable reality (Bredekamp & Staffold, 2006). This one step beyond may occur in various stylistic expressions. Figures 8.4.1-3 for example show images that may be summarised as *photographic hyperrealism*. In this style, initial photographs are digitally enhanced and visually integrated to create a sense of heightened representational veracity. Photographic hyperrealism tends to produce images that, albeit augmented, remain fairly plausible as probable life worlds. In contrast, *CGI hyperrealism* (figures 8.4.4-6) fully generates its images digitally, commonly as 3D models or digital paintings, and often betrays a comparatively technical aesthetic. Because of their simulated realism, CGI hyperreal images are not bound to a real-world phenomenology, but may blur the boundaries between reality and imagination.

Unlike the technical flavour of CGI hyperrealism, *fantastic hyperrealism* (figures 8.4.7-9) utilises a number of production techniques from analogue painting, photography, digital painting, 3D modelling, or compositing any mix of these visualisation techniques. Fantastic hyperreality tends to produce very high levels of hyperreal aesthetics while, at the same time, indulging in imaginary themes, often science fiction, fantasy, or dream visions. It is through these techniques that fantastic hyperrealism seeks to balance its fantastic themes with an intense level of detail and visual clarity – as if visual realism were to mitigate otherwise doubtful image content and render the implausible plausible.

Possibly in a class of its own, *"scientific" hyperrealism* (figures 8.4.10-11) depicts real or imagined objects, processes or scenarios in extreme hyperreal resolution. In the given context, scientific realism refers to the artificial construction of mimetically probable imaginations based on scientific data (see chapter 6.5). Scientific hyperreality is a prime example of technological simulation of otherwise invisible or non-visual phenomena; it suggests actuality of a visual reality that as such does not exist in the phenomenological world. The deception of a scientific veracity in the simulated technical image arises from an extreme level of visual fidelity. Scientific hyperrealism, because it looks so very real, creates the impression of a literal reality despite the fact that visuals are computed renderings and not optical representations.

Typical of hyperreal expressions is their mimetic tendency to be "something which is artificially intensified, and forced to become more than it was when it existed in the real world" (Bredekamp & Staffold, 2006, p. 1). Hyperreal imaging does this by suggesting aesthetic perfection of what it wants to show and by literally glossing over what it seeks to hide. Hyperrealism has the capacity to augment what is common, refine what is raw, and elevate the mundane. In this sense, hyperrealism is notably idealistic and fictitious in essence, and ideological in application (Eco, 1983; Jameson, 1990; Virilio, 1991; Baudrillard, 1994; Betancourt, 2013; Bridle, 2013). If mimesis "is the process of depicting cultural realities […] according to a certain point of view" (Mathijs & Mosselmans, 2000, p. 81), hyperrealism is the process of *forcing* these cultural realities into actuality by an overpowering visual intensity from which there is no escape. Goodman (1976) referred to the reality-creating powers of mimesis as "the making of the world" (p. 6).

The virtual reality pioneer Jaron Lanier (2000) pointed out that the world was made to appear more real when its images were mediated through, or represented by, visual technology. Thus visualisation technology produces its own reality and a technical aesthetic that goes along with it. James Bridle (2011) and Bruce Sterling (2012) termed this the *New Aesthetics* of the virtual age, a visuality that is defined by its underlying digital technologies. Baudrillard (1994) understood the reality-transcending effect of simulation more radically. He proposed that it has become impossible to rediscover an absolute level of the real the same way as it has become impossible to create illusions: "Illusion is no longer possible, because the real is no longer possible" (p. 38). This view is illuminating of the high occurrence of hyperreal mimesis in transhumanist visuality, a visual dimension that pretends to be grounded in phenomenological reality but no longer seeks justification in the real world. The extreme realism of the cyborg image seems to help mitigate a sense of loss of reality that its curious visions might instil – a deep *legimitisation of fiction* as reality (Gombrich, 1961), "the possibility of fiction becoming 'real'" (Mathijs & Mosselmans, 2000, p. 86).

Both aspects, real-world probability and simulation of fantasy, seem true for the transhumanist image: a large number of images in the data set dealt with visual elements that were fictional in one way or the other, and three quarters of images presented their fiction in an aesthetic resolution that reached beyond the real. The excessive level of realism in the hyperreal cyborg image highlights the clean aesthetic of an idealised reality and omits doubt and questions about human technological transformation. A surplus of visual reality drowns the unreality of the technological human in a deception of its real-world plausibility. The sanitised hyper-crisp cyborg image simulates a visual reality that appears rational and controlled, friendly and desirable. It suggests the probability of a cleaner, better and more powerful reality and, in this way, entices the beholder into a belief in the pictures' promises: the more aesthetically real the image, the more captivating, the more plausible and the more likely its real-world actualisation – despite the simulative unreality of its visions.

8.3.1. Advertising aesthetics

The hyperreal mimesis in the cyborg image was often artfully resolved with simple visual hierarchies, centralised eye flow, clear focal elements, indexical background, and reduced spatial depth. Image resolution tended to be radically crisp with highly polished surfaces, brilliant hues, carefully matched colour schemes, and vibrant lighting. In no instance in the data collection was the cyborg image a spontaneous or incidental visual; transhumanist visuals were generally designed, executed and presented in a planned manner.

Figure 8.5 presents examples of cyborg imagery in the aesthetic of contemporary advertising. The images demonstrated carefully orchestrated compositions and purposefully staged subject matter. The visual focus in these images was strictly on the subject in her entanglement with technology. It was common that supporting image objects were either fictional or removed from functional purpose, and their relative sizes could be disproportional to each other and/or to image space (figure 8.5.1-2). Photographic image sources were skilfully retouched and fully integrated with enhanced light and colour regimes. Colour schemes tended to be homochromatic rather than naturalistic (figures 8.5.1-5). Where a broader colour scheme was applied, hues were carefully harmonised, and colours were graded to match in brightness, luminance and saturation. Visual interest was augmented by colourful fantasy lighting that emphasised surface glow, deep hue luminance and hyperreal brilliance. Basic conventional rules of composition, e.g., rule of thirds (figures 8.4.1-3; 8.5.1-2, 4-5), ideal (figures 8.4.9; 8.5.3) or balanced symmetry (figures 8.4.3, 8; 8.5.1), diagonal rule (figures 8.5.1-2, 5-6), and clear foreground-to-background separation, were strictly followed. In contemporary visual communication practice, all of these composition standards are long-standing visual conventions that intend to harmonise image arrangement while adding dynamic interest (*cf*. Arnheim, 1974, 1988; Raskin, 1986). In all of the images in figure 8.5, eye flow was systematically guided and image content was optimised for "easy viewing" (Fisher, 1997).


8.5.1: *Sample Culture*, Conzpiracy (2011)


8.5.2: *Cyborg Girl*, unknown artist (2001); adapted as *Lethal's Sexy Cyborg 2.0* by Lethal NFS (2010)


8.5.3: *Retro Bar*, Conzpiracy (2010)


8.5.4: *Prosthetic Limp*, Daihan (n.d.)

8.5.5: *Adidas Symbiosis*, LEAD Technologies Inc. (2009)

8.5.6: *H+ Magazine, Issue 3, Summer 2009*, design: Infoswell Media Inc.

Figure 8.5: Advertising aesthetics in cyborg imagery.

It is widely accepted that advertising imagery can take on the power to tease yearning while at the same time promising instant gratification (e.g., Ewen & Ewen, 1982; Baudrillard, 1998; Miles, 1998; Holden, 1999; Bauman, 2000; Bennett, 2001; Dichter, 2002; Jaarsma, 2010; Asaker, 2013). Because of their effect to instil want and promise fulfilment, the stylised cyborg images in figure 8.5 are fundamentally promotional; they hold ambition, stir desire, and utilise a visual language of persuasion in order to push their messages. The hyperaesthetic cyborg image encourages and validates desire, and pledges immediate remedies for real or perceived faults in appearance, ability, performance, subjectivity, sensuality, romance, age, status etc. Each image comes with a profound promise, the assurance that technology will provide the means of rectifying any shortcoming and fulfil the deepest want.

In the example of figure 8.5.4, a promotional image by Daihan Prosthetics and Orthotics Institute Korea, a blonde female displays dexterity in spite of a missing limb that has been replaced by a prosthesis. The woman demonstrates her ease with performing common daily tasks such as using a car – while radiating appeal and enjoyment. Her remedial cyborg body guarantees full restoration of gross motor mobility by means of prosthetic technology. However, it also promises beauty, success and a high living standard along with – and perhaps due to – technological correction of her body's shortcomings. By transferring the woman's appeal from her persona to the mechanical limp, the image not only renders prosthetic technology sexy, but also suggests the deployment of such technology to further enhance the model's original attractiveness. Exchange between feminine appeal and technological gain in this image creates an ambiguous relationship that leaves the beholder pondering whether it is technology that is safeguarding femininity or female sex appeal that is endorsing technology.

The advertising-style of the harmonised cyborg image creates an *aesthetic of desire* (Woodward, 2011) that suggests cyborgism as appealing as well as necessary. By displaying technological transformation as aesthetic ideal, human enhancement technologies appear unquestionably as improvement to the self. Eco (1983) noted that the simulative power of hyperreality not only produces illusion, but also "stimulates demand for it" (p. 44). Similarly, Deleuze and Guattari (1983) recognised the desiring effect of hyperreality as "a productive force that renders into reality the fantasy" (Oberly, 2003, para 9) of the visions it produces. The authors termed hyperreality a "group fantasy" reified by *desiring machines*, for "desire produces reality, or stated another way, desiring-production is one and the same thing as social production" (Deleuze & Guattari, 1983, p. 30). The hyper-aesthetic cyborg image, in this sense, facilitates the social production of the transhumanist ideology of the optimised body living in a sanitised, orderly world in which clean technologies wondrously dissolve the arbitrary miseries of nature.

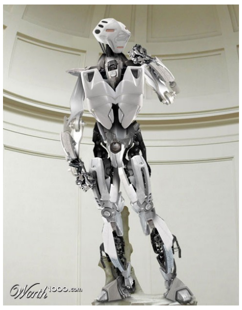
8.4. Mimetic historicism

As noted above, the cyborg image demonstrated a broad underrepresentation of contextual relationships in transhuman existence, i.e., an absence of scenes of social interactions, interpersonal relationships and cultural embedding, a lack of concerns for ecological links between man and world, and missing imaginings of posthuman activities and of a posthuman lifeworld. At the same time, the trans-human subject was depicted as singular, self-focused and was almost exclusively modelled after the humanistic ideals of beauty, perfect proportions, and congruous pictorial balance that reached back to the classic period of the Antiquity. With an emphasis on classic ideals, the technological condition of the posthuman was placed in historic context to humanism that emphasised the self as independent, autonomous and universal.

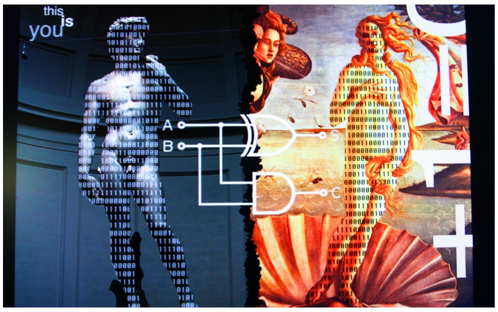
Although Haraway (1991) has argued that the cyborg would have no origin, no history, and no genesis, the data in this study suggests that the cyborg image is a historicised image, an image that not only betrays embedding in temporal streams that came before it, but also significantly relies on the narratives of cultural history – in the given case the stories of humanism from early Greek thought to the Renaissance, Enlightenment and Modernity – for constructing a plausibility of the cyborg as an image of future humanity. Gonzáles (1995) called this the *hyper-historicity* of the cyborg image and she conceptualised the cyborg body as a "historical record of changes in human perception" (p. 270). It is these changes in perceptions that, in transhumanist imagery, seem to frolic with visions of the technologically enhanced body and of biological transcendence. At the same time, however, traditional perceptions of gender, race, age and ageing, beauty and social status seem to endure in a retrograde homeostasis. Gonzáles (1995) observed that "the traditional, gendered roles of Euro-American culture are rarely challenged in the visual representations of cyborgs – a concept which itself arises from an industrially 'privileged' Euro-American perspective" (p. 270). Ihde (2002) traced the technologically transformed body even further back to the ageless idea of metamorphoses: "Devils inhabiting human bodies, human witches taking on animal shapes, the possibilities of monsters, prodigies, and freaks – all were pre-modern morphs" (p. 12) that today find ample expression in the cyborg image. Transhumanists themselves were conscious of the historicity of posthuman aesthetics whenever they referred to the cultural-historic embedding of trans-humanism in the ideals of the Antiquity and the Renaissance. In particular the "aesthetic voices" of transhumanism, i.e., Anders Sandberg (2000), Natasha Vita-More (2000, 2007, 2009b), and Andy Miah (2003), explicitly stated that the new sentiments of the posthuman need to connect with existing and historic aesthetics.

Figure 8.6 presents cyborg examples that draw on historic antecedents that they cite (e.g., figures 8.6.2-4), imitate (e.g., figure 8.6.1) or re-enact under a different condition (e.g., figure 8.6.5, 16). The idea of eternal beauty and love, iconised in the image of *Venus* (figures 8.6.2-9), divinity of man in Michelangelo's *Creation of Adam* (figures 8.6.25-27) and perfect human proportions in Da Vinci's *Vitruvian Man* (figures 8.6.21-24) appeared in innumerable variations throughout cyborg visuality. In all of the technologised citations of the classic values from Antiquity and the Renaissance in contemporary cyborg imagery, it appeared that the focus had shifted from ethical values and the *heterocosm* (Baumgarten, 1735), i.e., the inner world of the image, to an emphasis of appearance and outer form.

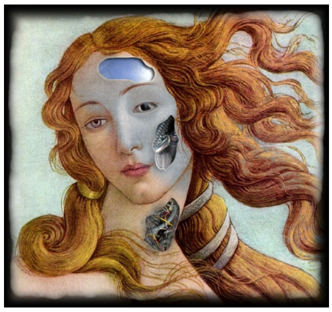
A comparison between Michelangelo's *David* (1501-04; figure 8.6.2 left) and the robotic remake in figure 8.6.1 clearly demonstrates the shift from inner ideals to a mechanical reproduction of the body conceived as a functional structure. Michelangelo's idealised form and proportion in his *David* celebrated human striving toward appreciation – and veneration – of higher ideals (Gombrich 1950; Panofsky, 1962; K. Clark, 1983). In contrast to displaying the human body in its essential "simple unity" (Hegel, 1905, II.2a), *Th3 D4v1d* in figure 8.6.1 fails to achieve the physical statics of the classic contrapposto. Whereas Michelangelo's



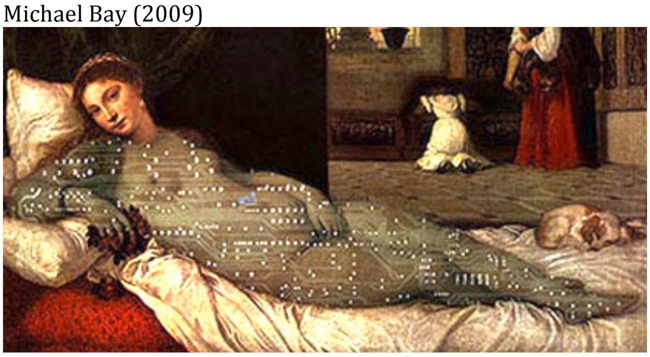
8.6.1: *Th3 D4v1d*, Michael Bay (2009)



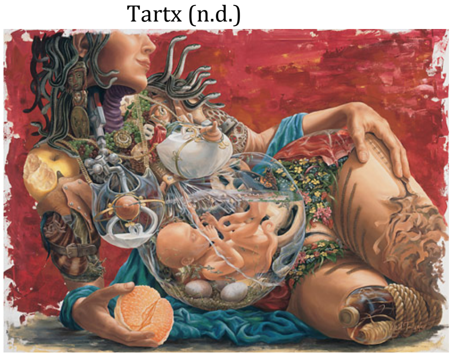
8.6.2: *This is You*, Avik K. Maitra (2010)



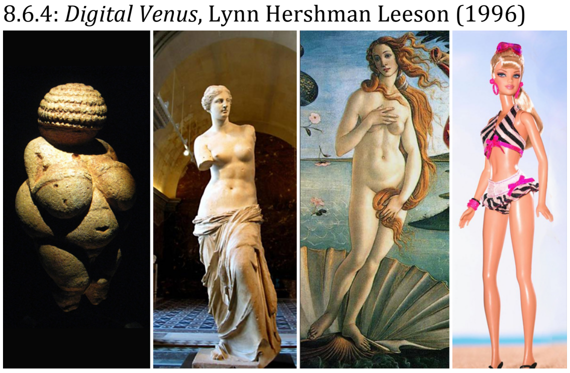
8.6.3: *The Re-Birth of Venus*, Tartx (n.d.)



8.6.4: *Digital Venus*, Lynn Hershman Leeson (1996)

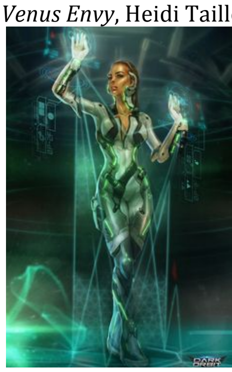


8.6.5: *Venus Envy*, Heidi Tailleifer (1999)



8.6.6: *Venus Evolution*, Javier Hidalgo (2013)

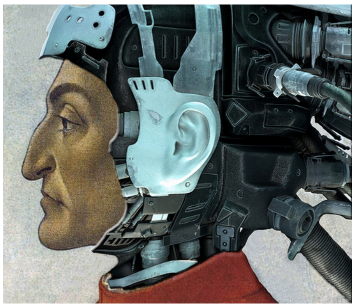
8.6.7: *Robot Venus*, Andrew Crawshaw (n.d.)



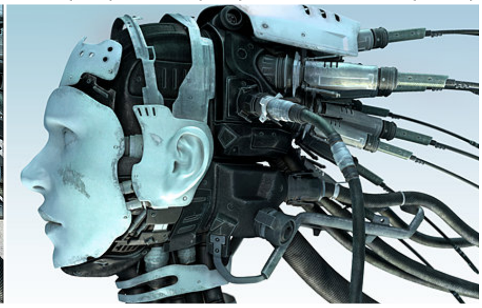
8.6.8: *Dark Orbit Venus*, Youg-il Shim (n.d.)

8.6.9: *Beyonce Robot Venus*, Reuters (2007)

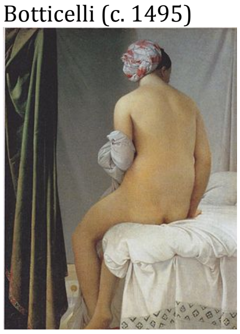
8.6.10: *Portrait of Dante*, Botticelli (c. 1495)



8.6.11: *Dante Cyborg*, Roberto Rizzato (2009)



8.6.12: *Cyber Girl*, Fausto De Martini (2008)



8.6.13: *La Grande Baigneuse,* Jean Auguste Dominique Ingres (1808)

8.6.14: *Le Violon d'Ingres*, Man Ray (1924)

8.6.15: *Woman once a Bird*, Joel Peter Witkin (1990)

8.6.16: *Bodies of Tomorrow*, book jacket: Burke & Triolo (2007)

Figure 8.6: Historicism in cyborg imagery.

sculpture engages a perfect contrapposto that displays harmony of posture and rhythm of form, Bay's robotic errs in the critical hip tilt that shifts weight balance between upper and lower body, and incorrectly slants the upper torso beyond weight bearing of the engaged leg. A rigid corporal structure arising from unbalanced proportions and a mechanical posture frustrates the ideals of flawless bearing, grace of composure, and a high mind.

The careless negligence of achieving a balanced pose suggests that *Th3 D4v1d* was not concerned with form, proportion or balance. Instead of inner strength, dignity and humility, *Th3 D4v1d* concerns technical surface and the spectacle of technological embodiment. This aspect is further evidenced by the image's title that spells in a password-style mixing of letters and numerals typical of present-day computer culture. It seems that *Th3 D4v1d* did not draw on the humanistic ideals of its original but used *David's* perfect forms to justify its own bodily design. By associating the robot model with *David*, the remake claimed to hold the same high values as the original without itself producing any one of these ideals. The blueprint of *David* served the robot as an attempt to *make believe* (Walton, 1990) in its physical perfection and ethical virtues.

A similar transfer of classic ideals from art history to cyborg imagery can be seen in the example of the many Venus remakes in digital imaging. *The Re-Birth of Venus* in figure 8.6.3 is a patched-up version of Botticelli's *The Birth of Venus* (1483-1485; excerpt in figure 8.6.2 right), cropped to a close-up and truncated of full figure and surrounding scene. *The Birth of Venus* is a legendary painting from the Italian Renaissance that is thought to represent human beauty as a symbol of divinity. In the classical myth of *Venus*, the goddess was regarded a symbol of love, patron saint of all forces of creation and female source of life – a theme reiterated by Heidi Talleifer in *Venus Envy* (figure 8.6.5). In contrast to the original painting, *The Re-Birth of Venus* almost brutally disrupts the flowing features of the goddess; instead of offering a scene of re-birth as its title hints, technological production of a mechanical cyborg is suggested. Also in this example, it appears that the art historic reference to the Renaissance and its ideals of beauty, grace and perfect form were utilised to endorse a new technical humanity that in itself might not hold such values. Instead, the icon of Venus seems to stand in to elevate and aestheticise the technologisation and commodification of the cyborg body (figures 8.6.7-9).

In Leeson's *Digital Venus* (figure 8.6.4), Titian's original *Venus of Urbino* (1538) was digitally manipulated to replace flesh with digital code. Voluptuous form and human fleshliness were reduced to a flat surface of computing instructions. In this way, Venus' body was negated and the ideals that she personifies were disembodied and made transferrable from its original divine form to a derivate of dimensionless technology. The image might be read as an attempt to "extract" the humanistic values of beauty, grace and perfection from the embodied goddess and recontextualise these in the transhumanist ideas of the technologically modified body. If so, the image of a *Digital Venus* validates technological embodiment as absolute and divine, and endows the abstract technical body with ethical significance.

A transfer of ethical standards and aesthetic appreciation from art historic icons to the cyborg image also occurs in figures 8.6.13-14 and 8.6.16 where Man Ray's *Le Violon d'Ingres* (1924) set the scene for the book jacket illustration of *Bodies of Tomorrow* (Vint, 2007). Ray's composition itself commented on a series of female nude paintings by Jean Auguste Dominique Ingres, particularly *La Grande Baigneuse* (*The Valpinçon Bather*, 1808), shown in figure 8.6.13. Man Ray altered Ingres' conceptualisation of the classical female nude by recomposing and photographing a human model overexposed with the *f*-holes of a stringed instrument. It is thought that Ray attempted a commentary on Ingres' obsession with the nude bather by suggesting the model Kiki de Montparnasse was his own passion or hobby (*le violon d'Ingres* is a French idiom that means "hobby"). Whatever the motivation for the artwork, Ingres' and Ray's images tell personal stories of their respective creators; they are manifestations of individual lives with their particular preoccupations: Ingres' fascination with languorous female nudity and Ray's appreciation of Ingres' paintings and his own passion for Kiki's forms. Both images speak of an intimate involvement of the artist with his artistic subject. In contrast, the Burke and Triolo image in figure 8.6.16 recalls Ingres' and Ray's compositions but is unaware of the deep appreciation of female form typical of the two former artworks.

In contrast to these antecedents, the female nude on Vint's book jacket is mimetically reduced, objectified and bare of personal narrative. The *Body of Tomorrow* omits any particularisation beyond a formal yet highly abstracted appeal to the classic ideals of perfect proportion and beauty. The Burke and Triolo image lacks the delicate light modelling of its predecessors as well as the voluminous forms of living flesh. Instead, the physical body appears flattened and merely serving as a canvas for the projection of coarse technological gear. The overexposed machinery on the model's back hardly integrates with her forms, which themselves depart from the delicate shapes of the former artworks by subscribing to a female hourglass[136] figure popular in Western mid-to-late 20th century fashion, rather than to a pear shaped Kiki or to the full forms of Ingres' bather. Pear shape and full female forms are not beauty standards in contemporary fashion and advertising culture. Notwithstanding dissimilar body images between the three paintings, the Burke and Triolo image draws on Neoclassical aesthetic ideals of simple eminence of form and in this way claims the ideal of perfect female beauty, which it however does not achieve in the flattened, disembodied and noisy *Body of Tomorrow*. The *Body of Tomorrow* has become a canvas of the technological vision of the cyborg where the spectacle of mechanised humanity seems more relevant than commendation of subtle form.

Figure 8.6.11 depicts a composite of a cyborg head made of mechanical gear and a portrait of the medieval poet Dante Alighieri (c. 1265-1321). Dante is best known for this epic poem *Divine Comedy* that brought him the recognition as father of the modern Italian language (Haller, 2012). Botticelli's *Portrait of Dante* (1495; figure 8.6.10) depicts the poet in noble simplicity, and the painting radiates Botticelli's characteristic style of linear beauty, gracefulness and poetic sensibility. In comparison, the mechanical head design of the *Cyber Girl* image (figure 8.6.12) that provided the blueprint for the composite of *Dante Cyborg* lacks the simple dignity of the *Portrait of Dante* in its noisy spectacle of technological display. The technical head of the *Cyber Girl* envelops the face of Dante like a technological leviathan swallowing the noble grace of the poet. Transhumanism has enlisted Dante as one of its conceptual forefathers (*cf*. Vita-More, 2000), and the composite in figure

[136] The female hourglass body was also popular during the Victorian era (1837-1901), afforded by the corset, yet with a much stronger emphasis on wide hips and accentuated buttocks. During the 1950s, Marilyn Monroe's hourglass figure revived a taste for dramatic curves and slim waist.

8.6.11 appears to lay a claim to the high moral and dignified learnedness associated with the poet.

It seems that in the historicised imaginings of the cyborg, citation of classic ideals and humanist values seeks to locate transhumanism in the continuing evolution of humanism (Vita-More, 2000; Bostrom, 2005; More, 2009). The humanist ideals of rationality, agency and individual freedom, a striving for self-actualisation and universal human progress, independence from social hierarchies, and a disregard for the material body as locus of subjectivity, seems to find in new science technologies the tools and processes to fulfil the promises of universal man. Transhumanism's references to Renaissance humanism and Enlightenment, polymathic knowledge, and the discovery of the human body as a universal mechanism, attest the movement to be drawing on a generalised notion of a rational humanism – enriched with radical libertarian and capitalist ideologies. Vint (2007) contended that contemporary transhumanism is "in fact a covert return to a simplified version of liberal humanism" (p. 177). By recalling the iconographies of classical Antiquity, the Renaissance and Neoclassicism, the cyborg image seeks to anchor its visual discourses of human enhancement in the liberal, self-actualising ethics of humanism (*cf*. Hayles, 1999, 2011; Wolfe, 2010). In this way, the popular cyborg image points to a past that defines the perceptual field of the singularity: the cyborg body that is an extension of the universal body of humanism, and the apparent impossibility of imagining beyond anthropomorphic embodiment that, in its humanistic roots, described the pinnacle of what it meant to be human. The image of the cyborg, reproducing and re-enacting the idealised values of the Renaissance, folds humanism's aesthetics and ethics back on itself and projects in new hyperaesthetic incarnations a vision of the posthuman condition that appears as a *technological intensification* of liberal humanism.

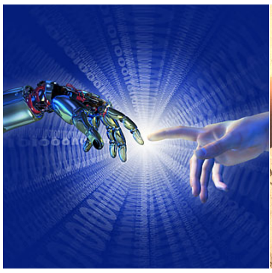
8.5. Iconographic repetition

As the data in this study demonstrated, the reiteration of historical themes in the cyborg image sometimes created image sets of self-similar iconographies (e.g., figures 8.6 and 8.7). Amongst several repetitive pictorial themes in transhumanist visuality, three visual tropes seemed particularly persistent: iterations on Michelangelo's *Creation of Adam* (1508-1512; figures 8.7.1-3), variations on Da Vinci's

Vitruvian Man (c. 1490; figures 8.7.4-7), and adaptations of Zallinger's *March of Progress* (1965; figures 8.7.8-9). Iconologically, these three visual icons epitomise the transhumanist agendas for 1) the (biocybernetic) creation of man, 2) the (technological) perfectibility of man, and 3) the (co-)evolution of the human condition. These three premises stand at the very heart of the transhumanist worldview.

A most striking feature in Michelangelo's *Creation of Adam* was not only the graceful beauty in which humanity was conceived, but also an unconventional order of the depictions of God and of Adam. The focus of the image was on the moment of near-touch between the extending hand of God and Adam's receiving hand, whereby both hands, and especially their almost connecting index fingers, were located at the same horizontal level. The horizontal composition of God and his even placement opposite man suggests the hierarchical relationship of humanity's creation was placed at an equal level with the divine, a message that contested a strict separation between God and humanity, and which befitted the philosophically renegotiating of the human condition during the Renaissance (Wallace, 1995). In some interpretations of the *Creation of Adam*, it has been speculated that Michelangelo proposed reasoning and creative intellect to be God's gift to humanity and not life as such as advised in the biblical Genesis (Mershberger, 1990; Emison, 2004; Varghese, 2005). Others emphasised a reading of the painting as *spiritual creator*, i.e., God endowing the yet inanimate flesh of Adam with divine spirit in order to make him human, quite literally, in His image and likeness (Barolsky, 2001). Yet other interpretations referred to the dynamic, forward pressing composition of God in contrast to a languidly reclining Adam to signify humanity's mandate "to come to God", i.e. to actively seek and receive divine knowledge (Sheridan, 2009). In this latter understanding, the *Creation of Adam* became a warning against human lassitude and a call for active agency for higher knowledge and human self-realisation (N. Collins, 2013).

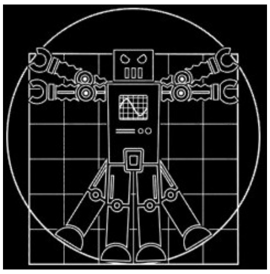
Whatever the preferred reading of the *Creation of Adam* at any time or in any context might have been, it was the dazzling tension of the almost-touch, the electrified moment of origination and beginning, the spark of human purpose, which defined the painting beyond religious, cultural or political interpretations.



8.7.1: *Creation of Adam*, stock image (n.d.)

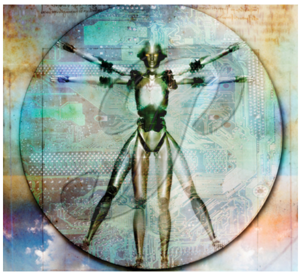
8.7.2: *Creation of Adam in the 21st Century*, Sebastian Fisher (2012)

8.7.3: *Creation of Adam*, Si Hands (2010)

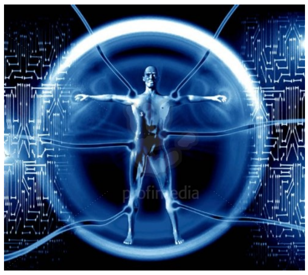


8.7.4: *Vitruvian Robot*, unknown artist (n.d.)

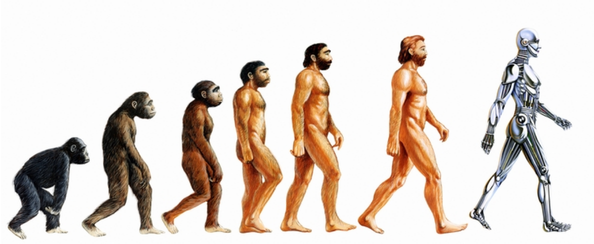
8.7.5: *Mechanical Vitruvian*, Ashkip (n.d.)



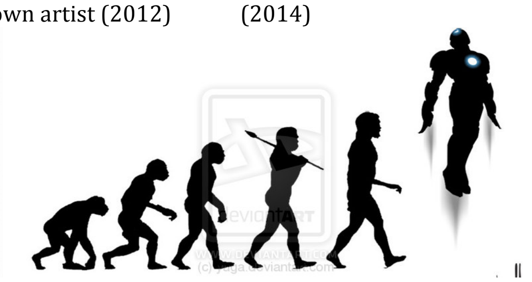
8.7.6: *Transhuman Da Vinci*, unknown artist (2012)



8.7.7: *Untitled*, North Seven (?) (2014)



8.7.8: *Stages in Human Evolution*, adaptation of David Glifford's image by unknown artist (c. 2008)



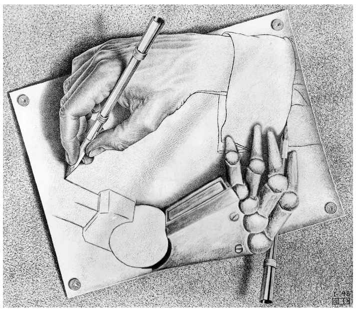
8.7.9: *The True Evolution of Man*, Yuga (2010-2014)

8.7.10: *ESET Nod 32*, Franz Steiner (n.d.)

8.7.11: *Contemplating Robot,* stock image (n.d.)

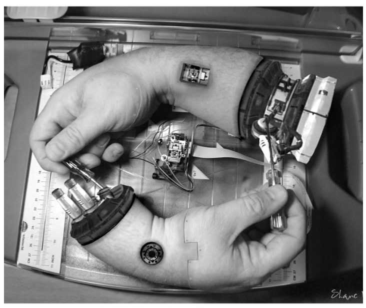
8.7.12: *Thinking Brain*, Jeff C. Collingwood (n.d.)

8.7.13: *Android Thinker*, MIRO3D (n.d.)



8.7.14: *Robotic Hand*, Graham Robson (n.d.)

8.7.15: *Recreation of Escher's Hands*, Morgan Rockhill (2007)



8.7.16: *Hands Fixing Hands*, Shane Willis (2013)

Figure 8.7: Repetition and variation in transhumanist visuality.

Thus, the icon of the *Creation of Adam* lies with the unspeakable power of *creating* (as compared to the creation itself), with the exhilarating ability to originate and to form will from disarticulated nothingness. In the transhumanist view, the *Creation of Adam* validates the agenda for self-creation, the origination of new living organisms, and the construction of a world that serves the purpose of a technologically superior posthuman. In other words, the *Creation of Adam*, from a transhumanist perspective, reads like a mandate for humanity's *will to create* (Vita-More, 1992, 1997). The calls for a creative production of the future in the Extropic, Transhumanist and Visionary Arts statements confirm as much (see chapter 7.2.2).

Variations on the *Creation of Adam* theme sometimes depicted Adam as a technological subject of creation (e.g., figure 8.7.1) and at other times, God himself appeared as a technological being (e.g., figure 8.7.2). In the manifold repetitions of the *Creation* icon in transhumanist visuality, both versions seemed to occur at par. Likewise, the directionality of creation (i.e., God creates man versus man creates God) and the origin of the technological (i.e., technology is creator versus technology as creation) appeared indiscriminately in either form. The blurring between creation and creator, and the general opacity of the genesis of technology in the *Creation* theme, vouches for a worldview in which humanity is both creator and creation, is both human and technology. Consequently, man creates himself in his own vain self-image as shown in figure 8.7.3 – which is the very aspiration of transhumanism.

Manifold replication of *Vitruvian Man* as robot, cyborg or bionic organism is rampant in contemporary popular visuality (e.g., figures 8.7.4-7). Da Vinci's drawing of *Vitruvian Man* is generally considered the definite canon of human geometric proportions, and at the time of its creation, it encapsulated the belief of Antiquity in man as a mirror of nature, i.e., a microcosm within the macrocosm of the universe (Vitruvius, 1914; Keele, 1983; Pacioli, 2008). While not the first proportional description of the human body, Da Vinci's grasp of the human body was unique in its finer observation of a shifting bodily centre in relationship to normative geometric references, in this case the earthly square and the cosmic circle (Lester, 2012). The natural centre of the body, as understood in ancient cosmogonies (*cf*. Eliade, 1937, 1985, 1991) and early treatises on perfect form (*cf*.

Vitruvius, 1914; Di Giorgio Martini, 1979; Alberti, 1988), was assumed to be the naval – signifying not only the centre of the body but also its connectedness with the creative powers of the divine. The navel as topological centre of the body however holds true only for a human figure with outstretched arms and legs such describing the space of a circle. If contrarily the body is placed in standing position with closed legs and even extended arms, the centre of the body with respect to the resulting encompassing square moves lower to the pubic area (figure 8.8). Effectively, Da Vinci refuted the idea of a single absolute centre of the human body and advised of two bodily centres instead – depending on their geometric reference. He called the centre of the human body within the earthly square *centre of gravity* and the centre of the human body within the infinite circle *centre of magnitude* (Keele, 1983). The latter expression possibly echoes Vitruvius' (1914) description of the human body reflecting and defining architectural unity, its "symmetrical relations of the different parts to the general *magnitude* of the whole" (pp. 72-73; emphasis added).

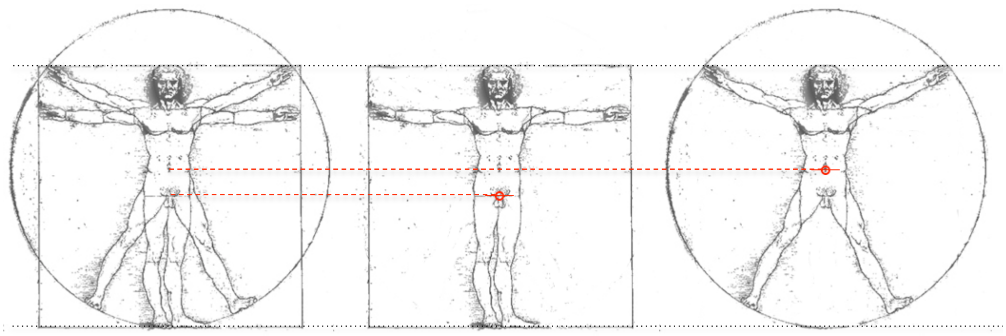


Figure 8.8: Da Vinci's proportional instruction on the centres of the human body. Source: G. Frommherz based on Da Vinci's *Vitruvian Man*.

With this differentiation of the relative centres of the human body, man became a creature of both heaven and earth – man no longer was solely an image of God but also a being in its own right. With this new understanding of human autonomy, man could begin to reflect on, investigate and ultimately manipulate his earthly condition. The immanent godly image of man became a "divine mechanism" that was henceforth open to human scrutiny and intervention (Heydenreich, 1943; McLanathan, 1966; Keele, 1983; Galluzzi, 1987). For his inquisitive, imaginative and inventive mind, Da Vinci has been thought a *Renaissance futurist* (The Futurist, 1997) and is respected by transhumanists as their *patron saint* (Sandberg, 2000). And for his cosmic universality, Da Vinci's *Vitruvian Man* finds ample reflection and manifold adaptation in futuristic and transhumanist visuals.

While Da Vinci aimed to anchor the image of man in both its cosmic and earthly significance, contemporary reiterations of the *Vitruvian* icon seem to lose more and more of their earthly relevance. The sequence in figures 8.7.4-7 illustrates a gradual disappearance of the earthy orientation of universal man, a vanishing of the topological reference to the square that symbolises a here-worldly existence. In figure 8.7.7, universal man no longer affords an earthly reference and fully extends into the universe. This new being of man is contextual only to the cosmic circle and stands in his newly expanded universe in a pose that is neither closed to the square nor fully open to the circle – reflecting the standing pose of the universal and divine transhuman (see chapter 7.2). This new universal man is not only universal on earth but also omnipresent in his cosmic transcendence: a modern version of the *Cosmogonic Egg* that is born of a technological universe and spawns a novel technohuman species. Coming "full circle", the transhuman universal man that originated in God (man made in the image of God), subsequently separated as an autonomous image of man himself thus defining his own sovereignty, and through the new technologies of self-actualisation reinstating himself as a divine being, no longer made in the image of a central creator but a creator himself (man and God made in the image of man). The technohuman *Vitruvian Man* who does no longer recognise the grounding square of earth but reaches out into the unbound cosmos, is the ultimate image of a technological God – while technology itself is the transcending, God-making principle, rightfully acquired by man in his self-directed evolution toward his celestial destiny.

The emergence of the superior technohuman is also perpetuated in the iconic evolutionary march (figures 8.7.8-9). The original *March of Progress* (Zallinger, 1965) represented human evolution as moving from lesser primate to higher Homo sapiens in an even movement from left towards right that in Western reading direction suggests advancement (*cf.* Frommherz, 2013). The unfolding of bodily posture from crouched to upright, and the increase in physical height, all connote evolution as advancement, as perpetual improvement from prior stages. "*Placement in time*", so Gould (1989), together with iconographic positioning along a horizontal reading direction, "*is conflated with judgement of worth*" (p. 39; emphasis in original). Thus, the *March of Progress* is a tale of gradually intensifying excellence, increasing complexity and expanding diversity *against* better scientific knowledge and biological records of evolution as branching, removals, spurts, dead ends and consolidations, a tale that is "directed […] toward reinforcing a comfortable view of human inevitability and superiority" (Gould, 1989, p. 28).

Transhumanism's call for ever-increasing complexity of human capacity and continual differentiation in technological capability (Kurzweil, 2005) seems to re-enact the progressionist trope of the evolutionary march. The concept of progressionism suggests that *because* something continues to develop, it automatically constitutes an improvement on prior stages. Likewise, faster developments associate excellence, and increased intensity are taken as accomplishment. Figure 8.7.8 illustrates the familiar *Stages in Human Evolution* to culminate in a bionic subject walking away from its biological origins in ever increasing strides. A widening of the spaces between each evolutionary stage in the image suggests acceleration of development toward technological man – reflecting Kurzweil's (2001, 2005) *law of accelerated returns* in which technological change occurs exponentially at ever increasing rates. The steady shift from bent to upright walk, the gradual change from hairy body to naked skin, and from dark features to Caucasian complexion, all encode the emergence of a superior posthuman as undeniably an improvement to the human race. The final stage of human progression in the image, i.e., bionic man, shows a white and grey metallic being void of human colours and perceived biological obsoletisms such as skin and flesh, animalistic hairiness, gender and age.

Figure 8.7.9 is even more explicit in its portrayal of the rise of a superhuman species as the inevitable accumulation of human evolution. In *The True Evolution of Man,* the iconic figure of superman arises from the *March of Progress* and propels upward in an all-powerful ascend. This superhuman is no longer bound to earth and to a linear path of evolution; he has mastered his own advancement and is now able to lift up towards the heavens. Apart from the general progressionist iconographies of directionality of the movement, increasing height of evolutionary stages etc., the visualisation leaves no doubt that this superman is superior: in contrast to the flat silhouettes of primate evolution, superman is rendered with volume and depicted in 2.5D[137] illusion. Figurative mimesis, suggests the rendition, is superior to abstract representation of human form. In this sense, figurative illusion itself becomes a strategy of the transhumanist ideology of perpetual human improvement.

The motif of repetition in transhumanist visuality does more than embedding transhumanism as an inevitable evolutional development into the flow of history. The utilisation of historic icons that so significantly informed the public image of cultural history in the West also delivers what functions as unquestionable models of knowing, as visual epistemology. The icons of a divine significance of man, of man's principal perfection and universality, and of an inevitable acceleration toward higher forms of being, become factual truth in public consciousness by virtue of their visual insistence, by their pervasiveness and continual reappearance in multifarious adaptations. The "dumb insistence on repeating the same message" (Mitchell, 2005, p. 27) in popular cyborg imagery produces *visual memes* (Frommherz, 2013), i.e., simplified entities of cultural content that move between images, communicative contexts, and the minds of their audiences (Dawkins, 1976; Brodie, 1996; Blackmore, 2003). Memes, according to Dawkins' (1976) original definition, are units of cultural content "leaping from brain to brain via a process which […] can be called imitation" (p. 206). In the model of memetics, memes as "the secret code of human behaviour" (Brodie, 1996, p. 4) are thought to transmit autonomously in *selfish* (Dawkins, 1976) and *blind* (Blackmore, 2000) replication from host to host (the human visual mind, in this case). In purposeful aggregation, meme constellations form *meme maps* (S. Young, 2006) or *memeplexes* (Blackmore, 2003), which are "way[s] of thinking, a worldview, or an ideology" (Frommherz, 2013, p. 149). The memes of visual transhumanism, because they are constantly replayed as a singular image of humanity's technological destiny, help to form an all encompassing yet linear picture of human future. Transhumanism's projected "*new world picture*" (S. Young, 2006, p. 17; emphasis in original) of a pervasive "technowonderland" (p. 20) suggests that "our technological relation to the world [becomes] our basic, definitive, and indeed *only* way of being" (J. I. Bailey, 2014, p. 52; emphasis in original). The visualisation and circulation of transhumanist

[137] 2.5D is a pseudo-3D visual space whereby three-dimensionality is suggested by means of perspective, volume and object position on a flat 2D plane. Technically, 2.5D illusion is two-dimensional yet projects its pictorial space as three-dimensional.

tropes in popular visuality, i.e., Vinge's (1993) *singularity*, More's (1993) *proactionary principle*, Tipler's (1994) *physics of immortality*, Moravec's (1999) robotic consciousness, Sandberg's (2001) *morphological freedom*, Bostrom's (2003c) simulated reality, Kurzweil's (2005) *law of accelerated returns*, S. Young's (2006) *meme wars*, and Goertzel's (2010) techno-cosmism are all memes of the totalised picture of a new world order that each presumes the complete re-definition of the human condition to the benefit of a self-selected few.

8.6. Discussion

The historicised figurativism in transhumanist visuality, the hyperaesthetic cyborg image, and the persistent reproduction of self-similar visual tropes in the imaginings of the posthuman betray a complex yet naïve iconography of the trans-humanist image: complex because of multi-layered pictorial, cultural and historic citations that interweave in various intricate combinations, and naïve because none of these references tend to be historically precise, distinguished or sophisticated. Purposeful or unintentional contexts between the cyborg image and broader cultural-historic events are often vague, over-generalised and/or simplistic as the frequent references to an unspecific, universal version of humanism attest. Figure 8.9 illustrates the layers of ambiguity in the cyborg image: the intra-pictorial, mimetic rupture between figurative subject and abstracted image setting (iconographic ambiguity), and the intertextual indifference in the use of historic icons for validating transhumanist interests (contextual ambiguity).

The lack of differentiation between rational humanism and, for example, Dante's medieval mysticism (e.g., Vita-More, 2000), the reduction to outer form of the perfect proportions and pose that in the Classical age and in the Renaissance were meant to express man's inner grandness and harmony (Panofsky, 1962, 1991; K. Clark, 1983, 2010), and the grouping of idealised humanism, rational humanism, spiritual humanism, secular humanism and liberal humanism into one singular image of a self-aware and self-directed humanity (e.g., More, 1990; Vita-More, 2000, 2007; Hughes, 2002a; 2007; Bostrom, 2003b), all indicate the influence of a rather populist half-knowledge of cultural history on the transhumanist imaginings of human future. The undifferentiated knowledge of cultural history in transhumanist discourse allows for the formation of *visual memes*, i.e., synoptic units of epistemological shorthand, which appear in the cyborg image as de-contextualised icons of a seemingly continuous and historically validated trans-humanist ideology of human progression.

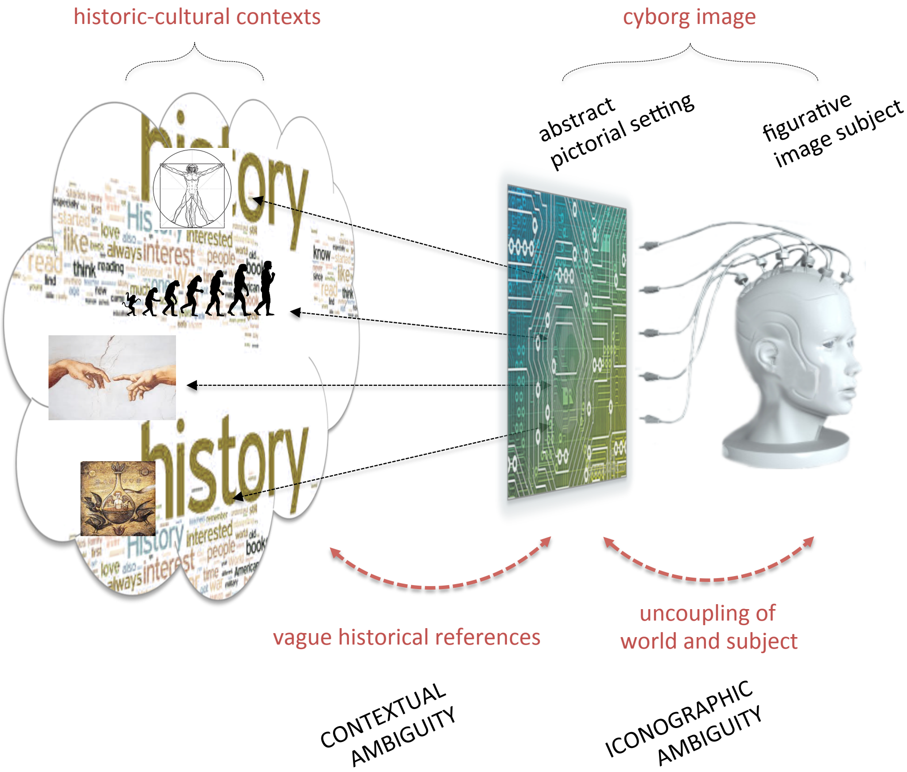


Figure 8.9: Layered ambiguity in the mimesis of the cyborg image. Source: G. Frommherz.

The interpretation of various historicised cyborg images in this chapter has shown how transhumanist visuality seeks "moral support" from a generalised notion of humanism for the construction of its ethical claim of individual self-enhancement as the fulfilment of human potential. An embedding of transhumanist visions in the ethics of historic humanism aims to mitigate the risk of the posthuman as appearing in public perception as a radical break from the concept of humanity. For example, the continuing depiction in transhumanist visuality of the posthuman as anthropomorphic being – the effective lack of non-anthropomorphic imaginings of posthuman embodiment – and its realisation as decisively figurative and excessively real human form, serves to hide the conceptual dissolution of the body and masks the fundamental revision of ethical humanism that transhumanism in fact proposes. The essential transmutation of the human body and the emergence of a "new conceptual and ontological domain" (Gonzáles, 1995, p. 271) of post-human existence that a technological singularity invariably implies, is rendered palpable, innocuous and much desirable in the beautified image of the cyborg.

The essentially fictitious cyborg image, its wild technological speculations and spectacular displays, seeks full suspension of disbelief in the unconcerned beholder by the utter intensity of its visions that is achieved through figurative illusionism and hyperreal resolution of its fantasies. The fantastic cyborg body, conceived and animated by technological imagination, seeks ontological credibility by sheer aesthetic brilliance. In this sense, the hyperaesthetic visuality of the cyborg image becomes a key driver of the plausibility of cyborg existence, creates the necessary *buy in* (Walton, 1990) to the transhumanist vision of technogenesis. In other words, the cyborg image, while superficially connecting with a history of classic values, ontologically breaks with this tradition in several aspects: by dissolution of molar embodiment, violation of physical integrity of human form, and transferal of means of salvation from moral self-realisation to external technological means. Mimetically, however, the cyborg image borrows from the art history of figurative realism that it applies to fantastic visual constructions; the visualism of the hyperreal cyborg image convinces of its actuality, the illustration of minute details implies real existing objects, and references to history vouches for the truthfulness of its narratives "*in spite of the fact that we know better*" (Ihde, 1998, p. 96; emphasis in original). This means that the attempted value transfer between the historicised visual regime of the cyborg and transhumanist ideology largely occurs on the aesthetic level: the aesthetically sophisticated image suggests authority of knowledge, issues a truth claim, and endows transhumanist ideology with the widely accepted values of humanism. The hyper-aestheticism of the cyborg image upholds "Western culture's historically carried assertion that the foundations of its thought rests upon an ethical basis" (Fry, 1993, p. 15). By moving the cyborg image into the realm of a historical aesthetic, by simulating its visions as excessively clean and real, the underlying fictional character of the technohuman and the fact of its ideological nature are effectively suppressed. Instead, the scientific plausibility of the posthuman is suggested by a mix of visceral hyperaesthetic and historical validation. In this way, hyperrealism in transhumanist visuality converts the moral idealisation of the classical tradition into a technological idealisation of the technohuman condition. In Michael Taussig's (1993) words, "The wonder of mimesis lies in the copy drawing on the character and power of the original, to the point whereby the representation may even assume that character and that power" (p. xiii). In this sense, the crisp realism of the cyborg image may be best understood as a *hyperreality of transhumanist unreality*.

The oscillation of the cyborg image between pictorial realism and fantasy of its subject matter, between historic allusions and futuristic illusions, between detailed figurative form and truncated abstract image space, and between perceptual clarity and contextual uncertainty creates a visual ambiguity that hints at much but does not commit to any one of its suggestions. Prime examples in point are figure 8.3.6 that amalgamated various layers of mimetically diverse symbols of contemporary consumer technologies in an undifferentiated patchwork of meanings, and figure 8.5.1 that wove subject matter, visual theme, mood and multiple messages into a *Sample Culture* in which everything was possible and nothing necessary. Odih (2007, p. 6) observed: “In the hyper-real world of postmodern advertising, everything mutates into everything else, all is image, appearance and simulation”. The representational indeterminacy of the cyborg image, its pictorial clarity that nevertheless invites interpretation in various and often contradicting ways (*cf.* Gombrich, 1961; Gregory, 1970; Tormey & Tormey, 1983), facilitates a semantic vagueness in the visual messages of transhumanism that, because of their broad ambiguity, project ideological inclusiveness: the multi-layered patchwork iconographies of transhumanist visuality “speak” to very different audiences; they appeal to radical libertarians the same way as to social democrats, to strictly secular technocrats, religious techno-progressives and spiritual new agers, to conservative aestheticians and anarchistic bio hackers. In the words of transhumanist Goertzel (2010), “The important thing is the emerging network of ideas and realities that all these different memes get at, in their own different ways” (p. 15).

The iconographic vagueness in transhumanist images demonstrates that transhumanism is unconcerned with intellectual argument and ideological precision as long as a general endorsement of technohuman transformation – genuinely or playfully – appears present. In this way, the representational uncertainty in the cyborg image constitutes a voluntary, consented ambiguity in transhumanist visuality that avoids pictorial conflict and ideological friction but nonetheless – or rather *because* of its smooth appearance – supports the transhumanist agenda of broad transformation of humanity and its self-image of inclusiveness and wide appeal. The combination of hyper-aestheticisation and historicisation of the cyborg image appears to have the double function of 1) validating the general idea of the technohuman condition and 2) generating a broad acceptance of transhumanist ideology that is projected as a natural continuation of human cultural evolution.

8.7. Summary

The interpretation of mimesis in transhumanist imagery showed that the cyborg image constructs its veracity in a threefold strategy: 1) it suggests narrative truth by associating its image subjects with classic forms and especially with Renaissance idealism, and in this way implicates a humanism in transhumanist ideology; 2) by utilising the extreme resolution of hyperrealism, the cyborg image aesthetically seeks to construct plausibility of subject matter by sheer supra-clarity of vision; 3) through technological simulation of a fictional reality that appears more real than real, feasibility of technological delivery of transhumanist promises is attempted. At the same time, the opening spaces between historicised references and futuristic outlook, between pictorial stasis and projected innovation, between conservative self-images and a call for perpetual advancement of the self, and between the precision of technological fantasy and absence of new models of humanity, create an iconographic ambiguity in transhumanist visuality that appears, if not intentional, then at least acquiesced. The consented ambiguity in the images of the posthuman allows a broad association of public opinion with trans-humanism's visions of a technohuman future, and a general sympathising with the ideologies of the movement as it facilitates individual readings of its visuality based on individual inclinations and interests.

Mimetic interaction between subject matter, aesthetic expression, technological realisation, and cultural-historic contexts in the cyborg image is complex and varies across transhumanist imagery. However, several tendencies of visual presentation of the posthuman emerged:

1) Images were predominantly composited from various pictorial resources that often betrayed notable differences in their respective mimetic origin, this way

assembling “patchwork iconographies” that signify the eclectic nature of a contemporary “sample culture” (figure 8.5.1).

2) The majority of images relied on digital visualisation technologies and their specific affordances and/or constraints in order to devise their visual expressions. Especially prominent was the utilisation of composite layering that divested pictorial depth and isometric perspective.
3) Image subjects tended to be resolved in a highly illusionistic and figurative fashion, this way constructing the cyborg as literal realism and anchoring transhumanism in the tradition of historic representationalism.
4) In contrast to figurative illusionism of the image subject, pictorial settings, transhuman activities and posthuman life worlds were largely neglected as visual themes.
5) The hyperreal aestheticisation of the cyborg seemed to aim at appraising human transformation and to endorse human enhancement technologies. Likewise, repeated citations of art historic antecedents seemed to seek validation of the transhumanist agenda in the idealised values of the classical epoch and in historic humanism.

Because of its widespread occurrence and its visual intensity, the cyborg image might be regarded as a sub-genre in its own right, situated along a continuum between popular hyperrealism and technological surrealism, belonging to what Robert Williams (2004) called “one of the most aggressive, vital, and overlooked art movements since Pop Art” (p. 9).

Chapter 9: **Conclusions and Recommendations**

9.1. Introduction

The preceding parts of this thesis analysed and discussed visual data with the aim of detecting and qualifying common traits in the cyborg image, and of outlining transhumanism's visual representations that posit a technological posthumanity as inescapable. Involving 1,000 images of cyborgs in public circulation, of which 600 images were systematically analysed of their iconographic regimes, this research aimed at describing how an envisioned technohuman future was imagined in contemporary public awareness. Further, the interpretation of individual images inquired into the ways in which popular transhumanist visuality sought to ascertain the believability of its often spectacular visions, and how the iconographies of the cyborg image aided the actualisation of the transhumanist agenda for a technohuman condition. The leading interpretative tool of this study employed methods and techniques from critical iconology, an approach that stands in the tradition of art history with a focus on the image as the site of inquiry. For answering the question of how transhumanist images insinuate their visions of the future, it was vital to let the images "speak" on their own behalf rather than relying on accounts of their intentions by the individual artists, or examining the various ways in which cyborg visuals were received by their audiences. Although the study considered the broader psychological effects of images as they arose from specific iconographies, the conscious reception and appraisal by spectators of these images was not part of this study. Following the framework of critical iconology, intentionality in the artist and audience reception were considered unreliable and incomplete as these tend to be influenced by other aspects than those that are inherent in an image, and which are sometimes not even known to a creator and/or consumer of a visual work (*cf.* Panofsky, 1962).

The analysis of visual data in chapter four and the interpretation of images in chapters five to eight have outlined the cyborg image as a coherent visual genus and described defining visual communication strategies of transhumanism. As a general finding of the analysis of transhumanist imagery, the visual strategies of the popular cyborg image seemed to validate the cultural vision of human future as both *emerging from* and *re-ascertaining* a technological interpretation of the lifeworld. Chapter five illuminated the representation of transhumanist identity in the cyborg image as well as in the self-portrayals of transhumanist leaders as self-important. Chapter six analysed the various forms of proposed posthuman embodiment and noted a consolidation of three leading embodiment types: the "hard body" of the mechanical cyborg, the "soft body" of malleable biology, and the "image body" of infomedicine. Chapter seven presented the mystical undercurrent associated with transhumanism, and revealed inherent linkages between ancient dreams of human pre-eminence and the contemporary promise of human fulfilment through technology. Lastly, chapter eight focussed on the mimesis of transhumanist images, which revealed a strictly figurative nature of the image of the cyborg, identified various historic antecedents of transhumanist aesthetics, and discussed how the cyborg image drew on the visual regimes of preceding cultural epochs in order to validate transhumanism's perceived mandate of furthering a humanistic ethos. Together, the four aspects of transhumanist selfhood, posthuman embodiment, a "theo-technological" iconography, and the historicised figurative mimesis of the cyborg image delivered a rounded overview of some of the defining themes in an advocatory transhumanist visuality that posits a technohuman condition as inescapable.

9.2. Key findings

Before returning to the research questions of this study, an outline of the key findings will be provided in the next sections. The following accounts present only some of the more noteworthy observations of transhumanist visuality and should not be taken as final and conclusive. However, these findings significantly characterise the transhumanist visions as they appear in the popular imaginings of contemporary cyborgism.

9.2.1. Historicity in transhumanist visuality

The analysis of transhumanist imagery has shown that the envisioned future of the human condition was strongly embedded in the expressions and values of historic humanism that conceptualised humanity as essentially independent, ethically sovereign, and endowed with a "natural" right to seek self-fulfilment (Hayles, 1999, 2011; Wolfe, 2010). The visions that transhumanist images sketched of an impending technohuman future seemed to assume the continuation of liberal humanism into the technological realities post-singularity. The future human in the cyborg image appeared to remain strictly self-determining and autonomous, and their personal agency seemed to solidify even further through the new possibilities and opportunities that technology was thought to provide. However, while the historic humanism of transhumanism's reference epochs – mainly Renaissance and the Enlightenment – was attached to ethical imperatives and social responsibilities and, at least so for Renaissance humanism, was not opposed to religious and moral obligation (Cassierer, Kristeller & Randall, 1969), the current version of transhumanist techno-humanism in cyborg imagery appeared entirely self-centred and solely focused on the individual without seeking council of the larger socioeconomic realities of past, present or future. Referring to the crossroads of humanity and technology, Yi (2010) cautioned:

> Depending on how we choose, our posthuman age will be either one that represents the humanistic age in a more technologically updated manner, or one where a reciprocal – responsive and responsible – relation is in progress between humans and the rest of the world. (p. 9)

Not considering possible alternatives to the technogenesis in transhumanist thinking, the emerging *technologies of subjectivity*, revealingly called as such, clearly aimed at radically *increasing* human subjectivism and authority – and not moderating these towards broader inclusiveness, socioeconomic equality, and global distribution of wealth and opportunities. The chances offered by emerging technologies to rethink humanity's place in the world and to prepare for a post-singularity future that allows for novel human-world relationships, were almost completely absent in the popular visions of transhumanism.

The historicity and philosophical indebtedness to humanism in transhumanist visuality was evident in various ways. For once, the technological images of transhumanism regularly cited art historic antecedents such as the work by Sandro Botticelli (c. 1445-1510), Leonardo da Vinci (1452-1519), Albrecht Dürer (1471-1528), Michelangelo (1475-1564), Titian (c. 1488/90-1576), Giorgio Vasari (1511-1574), Diego Velázquez (1599-1660) and other artists of humanist influence. Next, transhumanist imagery remained fully absorbed into the tradition of figurative art that portrayed its visual worlds as material and object-based representations. Lastly, transhumanist visuality commonly relied on *still* images that, in a time of motion and speed, staged their subject matter in inert poses. The effect of a singular framed still image of the cyborg – as opposed to an animated pictorial space – projected the technohuman as a measured and bounded vision of the future. The still picture to look at from the "safe" distance of the uninvolved ocular point did not seem to reflect the promise of animated life and independent agency that biocybernetic embodiment seems to encourage (*cf.* Mitchell, 2003). The immobile, central perspective of the cyborg image betrayed transhumanism as a worldview committed to the modernist paradigm of epistemological distance, identified it as an ideology of "overview" versus involvement, and promoted subjectivism vis-à-vis a regularised and controlled world (*cf.* Romanyshyn, 1989). This vision conceptualised the cyborg as a reflection of liberal humanism within the structured space of the world as an ordered – and deployable – system. The still image complies with this world as a topographical map, as an instruction manual to understanding and operating the lifeworld that has become a scaffold of man's knowing the world and his central place therein. The "overview" aesthetics of transhumanist visuality reconfirmed a compliance with humanistic ethics that is rooted in the human perspective as the sole and central point of vision.

This "old aesthetics" of the anthropocentric worldview stands in contrast to the "new aesthetics" (Sterling, 2012) or "speculative aesthetics" (Hayles, 2014) of an object-oriented ontology that rejects the superiority of human perspective over the various perspectives of other agents and things in the world. Object-oriented aesthetics aims at dissolving the central viewpoint of the spectator and allows for various perspectives equally from human and nonhuman positions (Harman, 2002, Bryant, 2011). Despite the emergence of these new concepts, which understand the lifeworld as a nexus of unprivileged positions, transhumanist visuality evidenced a strictly anthropocentric stance. The apparent prevalence of a central and self-defining subject in posthuman existence was also not mitigated by transhumanism's proposal for a *distributed subjectivity*. The conceptualisation of selfhood as partial, dispersed and networked would make a strong argument for an object-oriented aesthetic. Instead, the centralism of the image subject in the cyborg image, the absence of "things-in-themselves" (Harman, 2009b, para 9) that exist independent from human interest, and the negligence of contextual visual environments further emphasised the humanist premise of a self-focused, autonomous subject in a posthuman world. In this sense, the cyborg image suggests an ethical "return to the future" and not the innovation of a new humanity in a technologically advanced universe.

9.2.2. Spectacular fiction

The central and universal cyborg subject in transhumanist imagery was predominantly presented in spectacular display: it commonly overexerted aesthetic appeal, heightened a sense of reality, immediacy and import, and delivered visual scenarios that profoundly enchanted and tantalised. Depictions of technological transformation of the human body were extreme in many cases, and hyperreal mimesis only emphasised the intensity of the visions of human transmutation. The body of the transhuman, both organic and synthetic, was often violently mutilated in most extravagant ways. The cyborg image was filled with excess and overload – visually and emotionally. Seltzer (1992) summarised the spectacular visions of the cyborg as, "the miscegenation of the natural and the cultural" that "incites, at once, panic and interest" (p. 66). Mulvey (1996) saw the oscillation between fascination and anxiety in the dazzling image of bodily violation alternating "between reverence and revulsion" (p. 73), i.e., between awe of technological potency and horror of its unthinkable consequences.

The spectacle of visual excess and supra-reality in the cyborg image seemed to exert a numbing effect that on the one hand sought to mitigate the visceral intensity that human transformation implies and on the other hand functioned to familiarise with the unspeakable of the gross body mutilations that these images presented. By sheer sensory overload, the spectacular cyborg image was designed to "drown" the uncanny visions of bodily rupture in the white noise of aesthetic surfaces. In this way, the cyborg image measured the brutality of its themes with the spectacle of their display, thus escalating excess on excess.

9.2.3. Aesthetic surfaces and sanitised visions

The analysis of image data also revealed a high level of aestheticisation in transhumanist visuality. It showed the presentation of human enhancement and body transformation as hyperaesthetic and thus suggestive of broad appeal to a popular audience. Even the most spectacular and violently permeated bodies in transhumanist imagery were presented in a sanitised and aestheticised iconography.

The organic carnality of the body was most commonly rendered tidy and pure, and the abjection of raw flesh was transformed into a sterile technological site. From this site, the visible traces of injury, decay and death were removed. By way of its aesthetic façades, the cyborg image eliminated the animalist-organic carnality from the human body and turned it into "an object of mere contemplation" (Dubord, 1983, thesis 2). Human enhancement technologies were portrayed as benevolent *sunshine technologies* (Haraway, 1999) that beautified, enriched and greatly improved the body, and thus elevated the individual to better-than-human status. Images of the eternally young transhuman, frozen in an "ideal" age of young adulthood, posited transhuman subjectivity as immune to ageing and decay. The hyperaesthetic cyborg image was found to comply with transhumanism's dislike of the carnal body, and its rejection of perceived bodily design faults, limitations, and the finitude of biological existence. By reducing the future body to an aesthetic surface, the cyborg image suggested, the body could be purged of its volatile carnality and resurrected as a controlled and sanitised exterior, i.e., "a body without a body". By excessively aestheticising the brutal transmutations of human embodiment, human transformation was rendered benign, "scientific" and desirable, and the longing by transhumanists for total control over their selfhood became naturalised in the beautified cyborg image. By hiding the organic realities of bodily transformation, the invasive techniques of medical needle and scalpel, the jumbling together of flesh and metal, and the dissolution of a carnal epistemology in the patterns of information, the cyborg image betrayed a strategy of concealing, a closing of surfaces as impenetrable aesthetic exteriors that diverted away from the organic realities of the body, rather than a revealing of posthuman possibilities. In this sense, the image of the aesthetic cyborg became a mechanism of "de-frankensteining" the gruesome biological and psychological realities that human transformation implies. At the same time, J. I. Bailey (2014) warned that the aestheticised surface of the cyborg image merely "covered over, *not* eradicated or fundamentally changed" (p. 59; emphasis in original) the vulnerability and finitude of human existence. Thus, the hyperaesthetic cyborg merely *pretends* to be invincible and secure, and it invites us to forget of change, ageing and death as essential to human authenticity (*cf.* Heidegger, 1962, 1977b; Sallis, 1990; J. I. Bailey, 2014). The image of the beautified cyborg was as sterile and superficial as was transhumanism's projection of posthuman identity.

9.2.4. Surplus of reality

The closed aesthetic surfaces of the cyborg were accompanied by an abundance of realism in the cyborg image. Gonzáles (1995) defined the cyborg to “exist[…] in excess of the real” (p. 267). Very commonly, the cyborg image was enacted by a strong reliance on figurative illusionism and representational mimesis that were pushed beyond perceptual realism. The cyborg image significantly departed from a phenomenological experience of the lifeworld by simulating a hyperreality that suggested probability of its visions by sheer optical intensity. It became apparent that the surplus of mimetic reality in the cyborg image aimed to validate fantastic embodiment and implausible scenarios as thinkable futures; the power of plenitude in transhumanist visuality sought to ascertain the actuality of post-human visions.

Excess of realism in the cyborg image appeared symptomatic also of the psychological need “to picture” human future as graspable scenarios. By rendering the invisible, unbelievable and perplexing perceptible and concrete, psychological familiarisation with the technological transformation of humanity was encouraged. On the one hand, the hyperrealism of the cyborg image allowed to picture future in microscopic detail, to push beyond the visible into the realm of the invisible and to tease out unarticulated possibility. On the other hand, the excess of realism in the cyborg image concealed the speculative character of posthuman identity and posited cyborg embodiment as authentic. The heightened aestheticism of the cyborg image obscured the fact that hyperrealism itself is a technical code, i.e., a visual regime that conforms to a technological-instrumental worldview (Druckerey, 1996; Ihde, 1991, 1998). The visual realism of the cyborg image conjectured the fantasies by transhumanists as technological fact (*cf*. Gould, 1989; Ihde, 1991, 1998). By heightening this realism, the projected truthfulness of the transhumanist worldview was pressed even further: *the more real the transhumanist image appeared, the more forceful its claim of truthfulness*. Thus, the intense hyperrealism in the cyborg image served to obscure the pre-mediated technical disposition of transhumanist visions by a radical aestheticisation of surface and by a surplus of realism. The superfluity of realism in transhumanist visuality exchanged the fantasy of the cyborg with make-believe in the cyborg’s desirability, viability, and inevitability. Lister et al. (2009) prompted that, "heightened realism is sophisticated illusion" (p. 136).

9.2.5. Disappearance of space and time

A key finding from the data analysis was a disconnect between a figurative image subject and a visually reduced background. Frequently, pictorial depth in an image was absent and visual environments were most often abstracted as graphical backdrops. Further, image subjects rarely engaged in activities or were depicted in motion. Instead, the cyborg subject tended to pose in perfect self-display but did not seem to *live* (Neiva, 1999). The flat images of the cyborg suggested a post-human condition that was static, dimensionless and timeless. Fry (1993) commented that the flat, projected image "dissolves the ground upon which *there* exits a *place* of belonging, one that exits *here* as *home* […] here and there have been displaced by everywhere and anywhere" (p. 32; emphasis in original). The depthless and static image of the cyborg portrayed the posthuman as a being without a home, i.e., without a relationship to time, place and a sense of belonging.

When Gonzáles (1995) suggested that, "[e]ach cyborg implies a new spatial configuration or territory – a habitat" (p. 272), she recognised that the habitat – the new home of the cyborg – would be internal to the cyborg body and not expressed by lived relationships at a concrete place, a particular time, and with other beings. It became apparent that the non-relational cyborg dwelled only in itself. The space- and timeless cyborg image portrayed posthuman existence as lonesome (Stevenson, 2007) and one-dimensional (*cf.* Marcuse, 1964) – but also as autonomous, independent of social relationships, and unconstrained by the concreteness of a lifeworld. This cyborg, despite its figurative form and suggested physicality, was metaphysically a virtual being; its body was topological data that, because it was dimensionless, did not require a space to exist in. As a vision of posthuman existence, the cyborg image projected future humanity as perfectly non-relational and independent from anything but itself: the ultimate fulfilment of the autonomous, liberal subject in a radical version of historic humanism.

9.2.6. Memetic repetition

The appearance of transhumanist visuals in the public domain showed a persistent replication of similar cyborg themes and the reiteration of particular "iconic" images from the historic canon of humanism. Repetitive iterations of the crude mechanical cyborg head, the consistent translation of an informational characterisation of the human body into patterns of computer circuitry, the monotonous display of the luring female sexbot, and the forever upward striving divine posthuman were common examples. Within each group of repeated visual tropes, depiction of the cyborg appeared notably uniform with little substantive variation in the way these cyborg themes were depicted. As Harvey Sacks (1992) famously said, every new visual iteration would be above all "the occasion for seeing again what we can see anywhere" (p. 548).

Like the extreme hyperrealism of the cyborg image, obstinate repetition of ever-same visions in popular transhumanist visuality insisted on believability by sheer persistence of vision (Mitchell, 2005). The stubborn insistence on self-same imaginings of the human future that were presented in familiar *iconographies of expectation* (Gould, 1989), turned visual fantasy into *visual memes* (Frommherz, 2013) that suggested truth by the simplification of cultural-historic references and by their endless repetition. Because the same picture is seen everywhere, and same ideas with respect to human future are reiterated in manifold ways, these visions become a reality in the public mind (*cf*. Le Bon, 1896; Dawkins, 1976; Dennett, 1991; Blackmore, 2000). The repetition of the historicised cyborg image and its persistence as a recognisable visual icon played a significant role in the truth-generating effect of transhumanist memes. By the *besetting* effect of visual repetitions (Le Bon, 1896) otherwise improbable future scenarios became plausible because the very same visions were seen again and everywhere and alternative perceptions became increasingly impossible. Haraway (1991) warned that such repetitive "single vision produces worse illusions than double vision" (p. 154).

9.2.7. Ambiguous iconographies

Despite the high level of visual precision, excessive realism, and simplification of cultural-historic contexts in transhumanist visuality, the reading of images has been shown to be multi-layered and complex; latent meaning in images was commonly ambiguous, and possible interpretations often allowed contradictory understandings. Although perceptually crystal clear, cyborg images tended to be *representationally indeterminate* (Tormey & Tormey, 1983) in that they invited two or more possible readings that did or did not agree with each other. In the ways the semantic uncertainties in transhumanist images were created, it appeared that ambiguity of meaning, if not intended, was nevertheless consented by transhumanist ideology. As an effect of multiple meanings in transhumanist visuality, cyborg imagery may appeal to many audiences, because there is "something for everybody". Transhumanist imagery can be read and understood by diverse audiences according to their preconceived opinions, views, and ideological orientations. In this way, the cyborg as a hybrid of human and machine, organic and synthetic, nature and culture, grown and made etc. proved to be hybrid also with respect to the meanings its images produced: the very same visualisation that celebrated technological enhancement as a boon to the human condition could also, and often did, deliver shock and repulsion as part of its visual effects. Likewise, images that questioned human enhancement technologies and the transhumanist agenda for unrestricted self-actualisation, often displayed awe of technological faculty while at the same time imparting anxiety. The ambiguity in transhumanist visuality showed that it "left the backdoor open" for alternative readings, for not really meaning what a particular image nevertheless meant. By this double-effect of viscerally assaulting the spectator and at the same time pulling back by suggesting non-serious play, the imaginings of the cyborg image served as a "double-edged sword" that softened brutal vision where the effect of images was cruellest, and it mercilessly cut into the psyche of the spectator where it appeared frivolous.

Ambiguity in transhumanist visuality also resulted from a lack of ideological explicitness that appeared to purposefully invite various (philosophically incompatible) audiences. Although this study found that transhumanist visuality is notably ideological in its meta-meanings, individual ideological messages were often presented in imprecise references that allowed both supporting and disagreeing viewpoints without invalidating the overall ideological impact of an image. By drawing on age-old human fears and desires, transhumanism utilised images of eternal life, invulnerability, and superpowers for propagating its agenda for technological enhancement. DeLashmutt (2006) noted,

> Despite claims of reflecting a hope for a future improved by technology, the posthuman ideology has more to do with a drive towards technological conversion – bespeaking the acceptance of a technological worldview – than it does with actual physical transformation. (p. 285)

Because the cyborg image has been shown to be broad ranging in its possible interpretations, it circumvents conflict with the metalogical significance of trans-humanist visuality as a perpetuator of the technological worldview.

9.3. Answering the research questions

The above summaries of the main observations from the analysis of transhumanist imagery provide the base for answering the research questions of this study. Two research questions were proposed, a first one that queried the iconographies of transhumanist imagining and imaging, and a second question that connected cyborg iconography to the transhumanist agenda and inquired into the ways in which popular cyborg imagery supported the transhumanist agenda for a techno-human condition, and how it sought to ascertain the believability of its technological visions.

9.3.1. **RQ 1**: How does contemporary popular cyborg visuality imagine and depict the posthuman?

In the visions of human future that found expression in the popular cyborg image, two main trends in imagining the posthuman subject became evident. First, posthuman existence was shown as highly individualistic but not innovative, compliant with the self-image of the well educated, aesthetically sophisticated, professionally successful and libertarian citizen, and individual tendencies of self-presentation, vanity, snobbism and even narcissism. Second, the posthuman was portrayed as a superior and often godlike being, a superhuman of transcendental powers and higher purpose. Human potential was glorified and technology was projected as the holy grail of self-fulfilment. In both versions – the vain transhuman and the celestial posthuman – the sole visual focus was on the subject; imaginings of the future seemed to be interested in the technohuman individual alone. Considerations of post-singularity activities, occupations, social interactions and a lifeworld were almost entirely non-existent. Transhumanist visuality was fully absorbed in the self-reflecting concerns of what technological subjectivity may mean, and human doing, social exchanges, a living culture and a relationship to a concrete lifeworld seemed to have no relevance in a technohuman future.

The pictorial settings that cyborg images presented tended to be unspecific, and were commonly unrelated to the situation of the image subject. In contrast to vague image backgrounds, the posthuman subject appeared in extreme brilliance and with great figurative detail. Technological modification of any type – external, internal, material, informational or biological – was invariably a part of picturing the posthuman; visions of a non-technological future human did not arise. This stood in correspondence to a complete absence of nature in the conceptualisation of posthuman life that went hand in hand with what appeared to be an avoidance of all that is natural, organic and subject to entropy. The hyperaesthetic resolution of transhumanist images suggested a synthetic and superficial posthuman reality, and the self-appraising shallow cyborg subject matched a world of abstraction, outer appearance, and artifice. Fantasies of posthuman existence seemed to draw on the insubstantial hypervisuality of contemporary advertising culture.

Much of transhumanist visuality dealt with showing off norms of beauty and power associated with a perfect humanistic body. Body images were highly stylised, and human subjectivity was idealised. Nevertheless, the usually brutal disruptions of the carnal body through technological interventions also evidenced contempt for the carnal body that often appeared compromised – if not penalised – by technological intervention instead of enhanced. The images of bodily transformation showed how human enhancement technologies destroyed the lived body but failed to reinstate purposeful alternative embodiment: in many cases, technological modification did not result in productive bodies; technological adaptations were mostly decorative and void of functional purpose. Also with respect to the technical design of the posthuman body, display of technology seemed to reign over the creation of lived, social bodies.

Most notable was the complete absence of imaginings of a posthuman lifeworld despite the aspiration by transhumanists to live as long as they desire (or are able to afford). Practical questions of population management, availability and sustainability of resources, and the political economy of the future were not dealt with in contemporary transhumanist imagery. Especially the transhumanist agenda for longevity did not feature beyond visualisations of speculative immortality technologies applicable to the individual that was "frozen" at an "ideal" age of young adulthood. From the general lack of images that showed concrete scenarios of a human future, it appeared that the popular transhumanist image had no interest in – let alone answers to –envisioning the tangible realities of a "vastly conscious universe" (Kurzweil, 2005) populated with enhanced and/or transcended humans who live forever, further accelerate technological progression, and propel themselves through the depths of the cosmos. This visuality has shown to be equally unaware of what an intelligent universe would entail. Although authored by a great number of individuals around the globe and not left to narrow transhumanist imagination, the images of human future did not produce particulars of posthuman existence in a sentient universe. Instead, a singular vision of imprecise designs of the fusion of biology with technology, vague imaginings of the projected viability of the technological body, and a focus on self-actualisation of the individual above advancement of humanity overall remained normative of transhumanist visuality. It seemed that the concrete consequences of a metaphysical transformation of humanity into a technological existence seemed unthinkable. Instead, the transhumanist image, above all else, evidenced an obsession with the self.

9.3.2. **RQ 2**: In what ways do the iconographies of popular cyborg images aid transhumanism's agenda for a technohuman future?

The findings of this study have produced evidence of various iconographies in transhumanist visuality that each on its own underwrote transhumanist ideology, and taken together suggested an inescapable visual effect of the cyborg image on the public opinion about human future. The visceral hyperrealism in transhumanist visuality forced immediacy and imposed factuality by supra-resolution of image content. A technical hyper-aestheticisation of posthuman embodiment urged desirability of the synthetic surfaces of the cyborg. The technological surrealism in some transhumanist images invited dreams and fantasies of technological perfection. A genetic iconography of the infomedical cyborg portrayed humanity as programmable matter. Astral iconographies of the enlightened posthuman insisted on the divine mandate of transhumanism. Lastly, an iconography of expectation ensured that the same visions would be repeated again and again. Together, these iconographies created visual, semantic and philosophical ambiguities that seemed to support transhumanist ideology rather than problematise posthuman identity. In the vague conceptualisations of the human future in cyborg visuality, there seemed to be a place for anyone who wanted to experiment with envisioning the future. Representational indeterminacy in transhumanist images suggested inclusiveness of audiences rather than precision of visual messages.

An aestheticisation of technology occurred in both the subject matter and production of the cyborg image, relying on the art of digital simulation that produced the high-resolution images of the transhuman subject, which itself was visualised as too real to be mundanely human. The aestheticisation of the cyborg image implied superiority of its subject matter by removing vision from the realm of "natural imperfection" and placing it into a simulated reality of pure perfection. Perceptually and psychologically, the hyperaesthetic cyborg image projected an idyllic and sanitised future in which technology has erased all that displeases transhumanist aesthetic sentiment – mostly the biological realities of "wetware" and the fact of aging and death. The hyperaesthetic cyborg image was presented as eternal image – iconographically sterilised, digitally preserved, and aesthetically neutralised of anything that was reminiscent of decay. The cyborg image itself was constructed to bespeak of immortality. By removing nature from the visions of a posthuman future, unpredictability and lack of control over life were also removed. In this way, the synthetically simulated cyborg image proved to be indicative of but also symptomatic of transhumanism's *will to create*, and to master and control the erratic forces of nature for the creation of the perfect organism that is immune to wane, independent of the laws of nature, and free from the pressures of social relations. Consequently, the cyborg image emerged as a tentative realisation of transhumanism's agenda for actualising a technohuman future in "a purely technological mode of being created by humanity for humanity" (DeLashmutt, 2006, p. 275).

In addition to communicating, transporting and perpetuating the transhumanist agenda for superiority, immortality and the man-made construction of future, the deep aestheticisation of transhumanist imagery has also been shown to invite a general acceptability of the movement's proposal for a technohuman condition. The pleasant surfaces of the cyborg image sought to avoid aesthetic – and along with it ideological – conflict and suggested broad appeal of its otherwise radical aspirations. A similar effect of aestheticisation could be observed in the "divine" cyborg image that was made attractive to religious and spiritually inclined audiences by imbibing coarse technologisation of the human condition with lofty promises of cosmic purpose and destiny. A mix of technological utopianism and spiritual optimism, and the blending of technical hyperrealism and fantastic surrealism sought to create a pull on vastly diverse audiences and thus render irresistible the appeal of transhumanist visuality. In this way, a technohuman future was projected as highly desirable. The aestheticisation of the transhumanist agenda for a complete overhaul of the human condition, the divinisation of a technological telos, the projection of a technological eschatology, an iconological ambiguity that suggested philosophical inclusiveness, and the showcasing of non-confrontational ethical values, all created a visuality that supported transhumanism's central interest in increasing its visibility and in broadening the public appeal of its agenda. The tendency of the cyborg image to be perceptually precise but philosophically slippery suggests transhumanist visuality is a most vital asset in the covert *meme wars* (S. Young 2006) of the movement, i.e., the driving force for controlling a technoscientific ideology of the future.

9.4. Significance of the study and implications of findings

By analysing the ways in which transhumanism surfaced in popular culture imagery, the study revealed a largely self-centred transhumanist agenda that was commonly projected as a grand narrative of fundamentally improving the human condition. The findings of the research helped to highlight the highly speculative and fictitious character of these imaginings that nevertheless implored believability and broad acceptance. Instead of delivering concrete proposals for a human future, the findings of this study suggested that transhumanist visuality partakes in disseminating an ideology of technological instrumentalism and in appraising human future according to the self-interested visions of an elitist techno avant-garde. The seemingly innocent and playful transhuman designs that found expression in popular cyborg imagery, this study demonstrated, were not at all innocent as they consolidated complex philosophical, theological and ethical considerations into a singular narrative of humanity's mandate for self-design. More than any other mode of communication, in particular the sometimes cumbersome and at other times superficial theoretical-philosophical discourses by transhumanists, the broad acceptability of the cyborg image as supposedly non-serious play with "only" pictures has been able to gain the transhumanist movement a popularity that likely surpasses the general public's knowledge about the transhumanist worldview and agenda.

By revealing the complex ways in which popular cyborg imagery ratifies the transhumanist worldview, this study has made a contribution to pinpointing the threshold where playful visualisation of imaginary future scenarios turns into visual ideology that, instead of broadening the perspective on human future, reiterates a preconceived worldview – in the given case the cultural perception that human future is invariably on the road towards a technological conversion of the body, a fracturing of the self, and the dissolution of the need for social relationships and real-world communities. The close observation of the cyborg image and the analysis of its iconographies in this study reminds both the creators of futuristic imagery and the consumers of sci-fi fantasies that envisioning the future can never really ignore the larger implications of the metaphysical shift that broad technologisation of the human condition invariably implies and the big questions of technological ethics no matter how light-hearted specific depictions were meant to be. This study stands as a reminder to all members of contemporary visual culture that participation in the seemingly innocent fantasies of techno-futurism might imply complicity with a worldview that has taken human identity as the last frontier of a radical techno-Darwinism. This reminder is not as much a warning of a technohuman future as such but the cautioning of a blind acceptance of a singular pathway into human future without attempting a thoughtful review of what humanity might leave behind and what it might unintentionally gain when embarking on the tempting road towards technological self-fulfilment. At the very least, this study added some nuances to the black-and-white future visions of transhumanism and inserted some grey shades into the white noise of the spectacular cyborg image.

In addition to the particular findings of the research with respect to the iconology of transhumanist visuality, the study has delivered a first organisation of transhumanist images that might serve as a reasonably robust platform for further research into the visuality of the future. Although the findings in this study may be perceived as incomplete to some and as too broad to others, insights resulting from this research nevertheless provide a structured point of departure towards focused scholarship of the role of images in foreseeing, prefiguring and actualising the future. In other words, the summative description of cyborg visuality might prove valuable as a basis for a more detailed research into individual concerns of the complex interactions between future ideologies and popular culture images. For example, the aspect of the living biocybernetic image, as indicated by Mitchell (2003), although occasionally hinted at in this study, demands a focused study in its own right. Further, the complicity of popular culture in the construction of the *totalised philosophical system* of transhumanism, or what Heidegger (1977b) possibly would have called a *posthuman Weltbild*, requires – and quite urgently so – a detailed discussion that could not be included in this research. Any one of such further inquiries should be able to comfortably draw on the basic classifications and interpretations of transhumanist visuality in this study.

By revealing the superficial character of future imaginings in transhumanist visuality, it also has become apparent that a less speculative-abstract and a more applied philosophical appraisal of transhumanism from within its own ranks would be required if the movement indeed wanted to make a serious contribution to the future design of humanity. The lack of a thorough, historically well informed investigation into the metaphysical transformations that broad technologisation of the lifeworld and the universe would imply, and the ontological changes that human embodiment would undergo, are not currently addressed in the artistic-creative expressions of transhumanism. Much work is required with respect to the ontological evaluation of specific opportunities by the new sciences beyond wishful fantasies of a miraculously perfect future world through the wonders of technology. Instead, this research has shown that the transhumanist movement, albeit claiming a creative-aesthetic dimension of transhumanism, leaves the production of concrete imaginings of the technohuman condition to the manifold currents of the public domain.

9.4.1. Limitations of study and findings

The study was based on the proposition that popular cyborg visuality represents how transhumanism is perceived in broader public understanding. Thus, the study relied on the acceptability of the link between popular cultural visuals and the socio-political significance that the transhumanist movement currently exerts. It might be that not all members of the transhumanist movement would accept such a connection and would reject the cyborg image as irrelevant to transhumanist philosophy and to broadening the visibility and popularity of the movement. However, the study consistently argued for a relationship between the public visuality of the cyborg and transhumanist aspirations, and it was demonstrated on several occasions how transhumanist philosophy appeared in popular images in the public domain. This study proposed that a linkage between public imagination of future and transhumanist visions clearly exists even if transhumanist proponents would argue otherwise, as some have (e.g., Vita-More, 2009b, 2012b; More, 2011; Olson, 2013).

As indicated in several places in this thesis, this study did not lay a claim to comprehensiveness and inclusiveness and therefore all findings should be considered valid only in the context of the particular data that informed this study and also in relationship to the relatively broad perspective of the research. Findings of this research should be taken as tentative and not final.

With respect to the theoretical-methodological perspective of the research, this study did neither commit to a focused ideological inquiry into transhumanist visuality nor an ontological perspective on the image. It did not consider the psychological effects of the cyborg image beyond a few obvious ones, and also did not inquire into intentionality and reception of transhumanist visuality. Resisting a more detailed discussion of any one of the possible conceptual perspectives on the cyborg image has produced a thesis that might not conclusively answer any one of the many philosophical, social, cultural, political and theological significances of transhumanist visuality. However, the study has produced a sound introductory body of image interpretation that helps in grounding further studies. Although the contribution of this work to the in-depth understanding of the visuality of the future might be small, it is nevertheless fundamental.

9.5. Recommendations for future research

As indicated above, this study is possibly only the very beginning of research into the popular visuality of the future. Many trajectories resulting from the analysis of what was called the "cyborg image" still need to be more fully identified and followed. Three immediate trajectories that require further detailed research arise from this study. First, the consideration of the ontological transformation of the image is necessary work to be done for exposing the essential changes from the image that represents to the image that embodies. Such research might recognise – and problematise – the emergence of biocybernetic images that are semi-alive or fully alive and increasingly autonomous. Thus far, only Tom Mitchell (2003, 2005) seems to have foreseen the probability of a new class of images that arise as sovereign beings with agency. These *living images made in the image of man* could potentially rewrite the cultural history of the West that has been reliant on the conceptualisation of *man made in the image of God*. In this context it must be noted that the educated appraisal of the mythological, spiritual and religious antecedents of transhumanist philosophy still requires much work in order to evaluate the significance of transhumanism for the conceptualisation of human future.

The second immediate trajectory emerging from this study relates the technological worldview of transhumanism to Heidegger's (1977a, 1977b, 2000) earlier work on the construction of a world picture, i.e., the world conceived as and translated into an image that maps all objects, phenomena and human experience in predefined topological arrangements where all is pre-known, pre-understood and pre-figured. Both Bostrom's (2003c) *simulation argument* and S. Young's (2006) *totalised philosophy* seem to bear characteristics that steer towards a post-human version of Heidegger's *Weltbild*. Transhumanism's ideology of technological omnipotence might both further illuminate Heidegger's admonition of a totalised *Weltbild* and also prove to constitute an imminent agent in ultimately actualising this vision.

A third direct outcome of this study that invites further research is the interaction between *visual memes* in transhumanist visuality and the co-ownership of trans-humanist ideology by the public based on their co-constructing of cyborg imagery. Although this study introduced the concept of *visual memes* in transhumanism, it did not follow an inquiry into the *communicative function* of memes, i.e., the ways in which transhumanist visuality is co-constructed and hence co-owned by a larger audience. Such a study might help to refute – or at least refine – the presently prevailing theory of memes as "dumb" transmission of ideas between hosts (e.g., Dawkins, 1976; Brodie, 1996; Blackmore, 2003). In order to better understand transhumanism's present success as a cultural ideology, it would be relevant to learn more about the role of co-owning the dreams and hopes of transhumanism by broadly and creatively participating in the production of the cyborg image.

Further, a focused study into the visual ideology of transhumanism, perhaps from a critical discourse analysis perspective, could help to inquire into the many complex ways in which transhumanism's ambiguous position with respect to popular culture visuality supports their agenda and seeks to establish socio-political hegemony. The recent reorganisation of the movement into a political party in the US and worldwide urges such research. Extending from such research, the role of art proper, especially the presently occurring influence of the new sciences on art production as evidenced by the activities of bioart, biopunk and the emerging nanopunk movement, as well as the more and more visible manifestations of new-spirituality art movements such as Visionary Art, Entheo Art, and Pop Surrealism, need to be investigated in order to appraise the determination by some transhumanists of promoting transhumanism as a prime creative-artistic genre.

There are many other implications of this initial inquiry into the popular culture appearances of the transhumanist worldview. This study could confirm the self-serving narrow visions of transhumanism by following their aspirations in the imaginings of the cyborg and other future embodiments as they circulate through the public domain. Although this study is vastly incomplete for labelling transhumanist visuality as the single most important player in the public dissemination of a technological-instrumental worldview, the presented analysis of up to one thousand images from the public body of contemporary visual culture could nevertheless identify the visual dimension of transhumanism as vital to influencing public opinion about the movement, and to sketching a patently positive outlook on the proposed technohuman future.

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Appendices

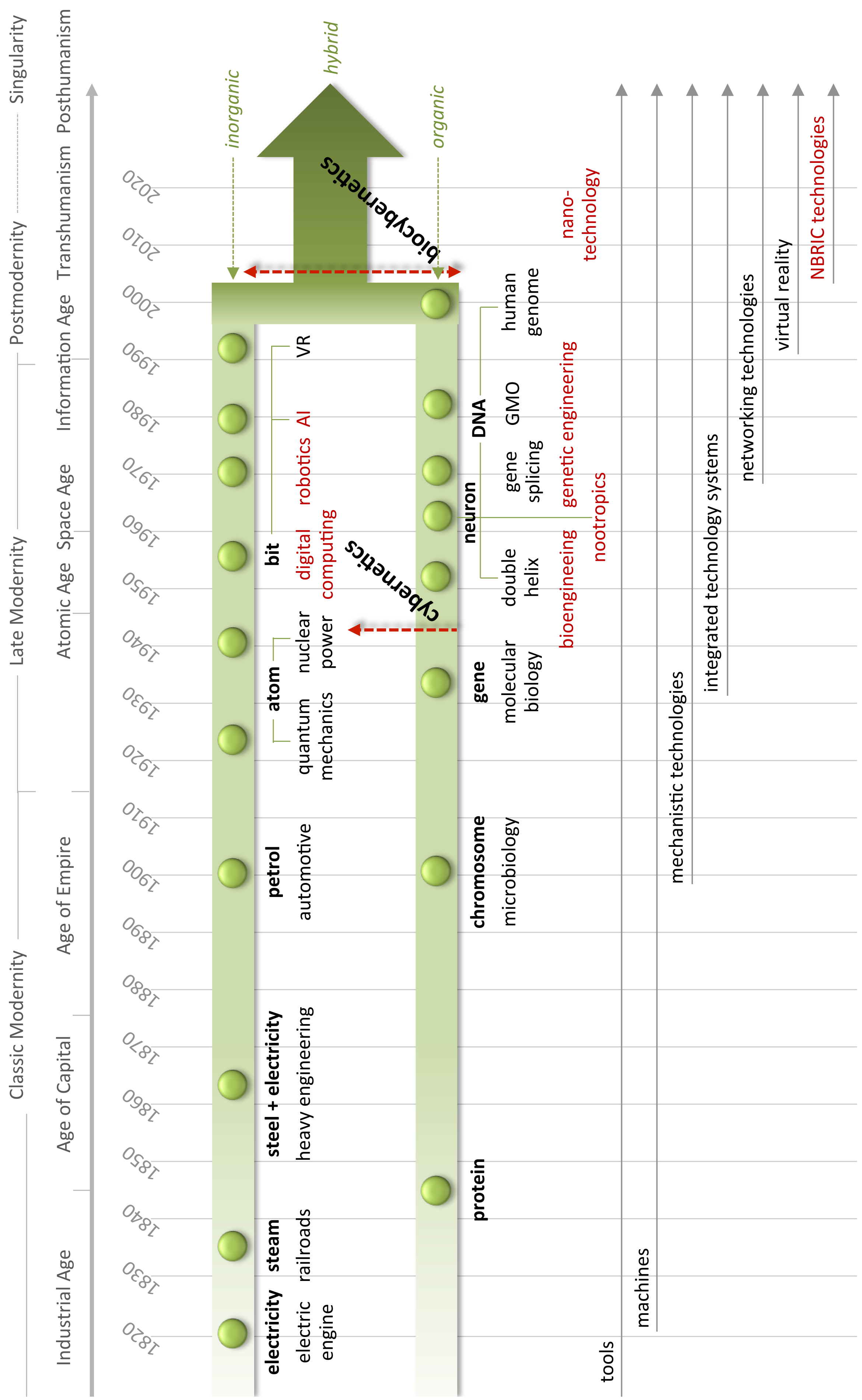
A1. Technological timeline

A2. Interpretative iteration: hermeneutic circle and spiral

A3. Transhumanist pioneers, leaders and spokespersons

A4. Image examples of female bioart and biopunk

A1. Timeline of technological developments



A2. Interpretative iteration: hermeneutic circle and spiral

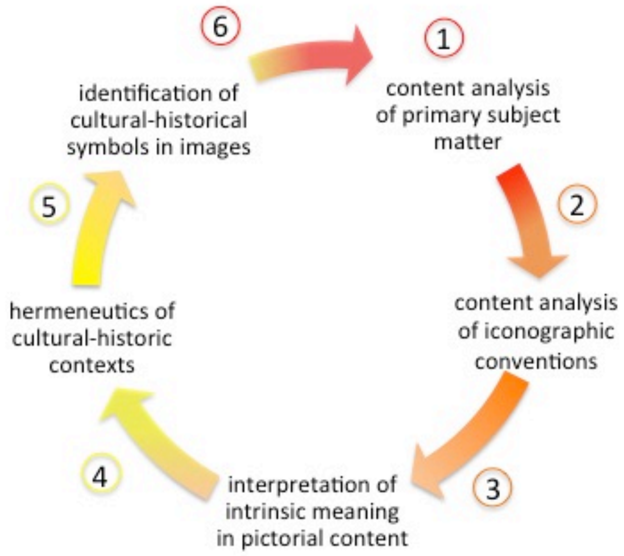


Figure A2.1: Hermeneutic circle of content analysis and image interpretation.

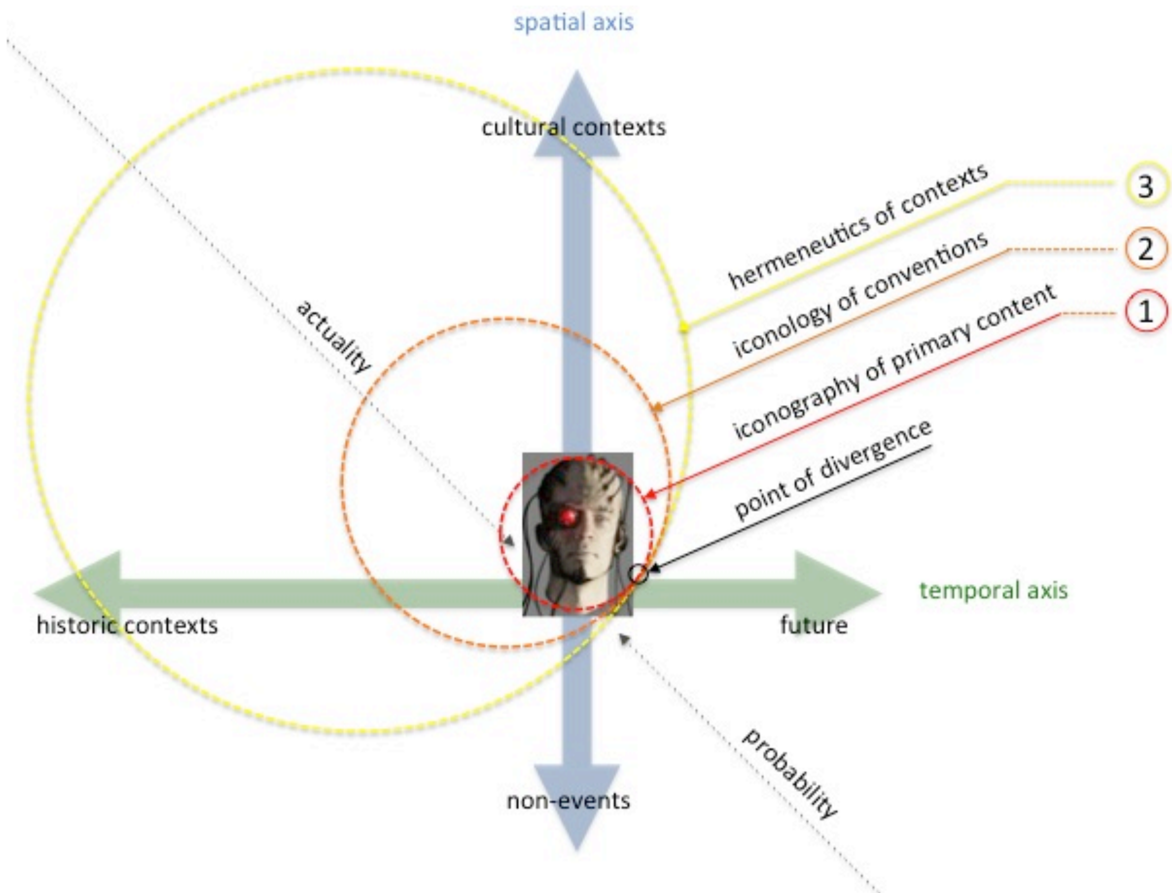


Figure A2.2: Hermeneutic spiral of historic and cultural events.

A3. Transhumanist pioneers, leaders and spokespersons


Marvin Minski (*1927); American citizen. Cognitive Scientist. *The Society of Mind* (1985).


FM-2030 (*1930, Fereidoun M. Esfandiary, †2000); Iranian origin, US permanent resident. *UpWingers: A Futurist Manifesto* (1973); *Are you a transhuman?* (1989).


Vernor Vinge (*1944); American citizen. Professor of Mathematics, Science Fiction Author. *Technological Singularity.*


Frank J. Tipler (*1947); American citizen. Theoretical Physicist, Cosmologist. *The Physics of Immortality* (1994).


Hans Moravec (*1948); Austrian origin, Canadian citizen, US permanent resident. Roboticist, Futurist. *Mind Children* (1988).


Raymond Kurzweil (*1948); American citizen. *Futurist.* Director of Engineering, Google Inc. Co-founder Singularity University.


Natasha Vita-More (*c.1950, Nancy Clark); American citizen. Chair, Humanity+; *Transhumanist Arts Manifesto.*


Gregory Stock (*c.1948-52); American citizen. Biophysicist, *Biotech Entrepreneur.* Medicine, Technology and Society, UCLA.


Eric Drexler (*1955) American citizen. *Father of Nanotechnology;* Founder Foresight Institute (1986).

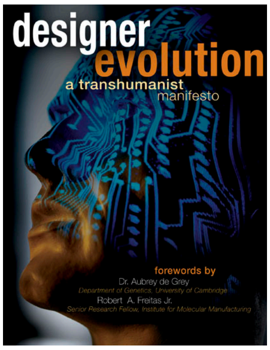

Robert A. Freitas Jr. (1952); American citizen. Senior Research Fellow, Institute for *Molecular Manufacturing.*


James Hughes (*?); American citizen. Sociologist, Bioethicist *Democratic Transhuman-ism;* Co-founder, Institute for Ethics and Emerging Technologies.


Aubrey de Grey (*1963); British citizen. Biogerontologist. *Regenerative Medicine,* Chief Science Officer, SENS Research Foundation.

Max More (*1964, Max T. O'Connor); British citizen, American permanent residency. Founder Extropy Institute. CEO & President of Alcor Life Extension Foundation. *Proactionary Principle* (2004).

David Pearce (*?) Philosopher; British citizen. Advisor Lifeboat Foundation. Co-founder of the WTA (1998). *Paradise Engineering*, *Nootropics.*



Simon Young (*1964); British citizen. Pianist & Composer. *Meme Wars.* Designer Evolution: A Transhumanist Manifesto (2006).

Ben Goertzel (*1966); Brazil-born American citizen, lives in US and Hong Kong. Chair, *Artificial General Intelligence Soc.* Chief Science Officer of Financial Prediction, Aidyia Holdings, HK.

George P. Dvorsky *1970); Canadian citizen. Bioethicist. Chair, Board of the Institute for Ethics & Emerging Technologies. *Rights of Non-Human Persons* Program.

Anders Sandberg (*1972); Swedish citizen. *Computational Neuro-sciences.* Research Fellow, Future of Humanity Institute, University of Oxford.

Nick Bostrom (*1973, Niklas Boström); Swedish citizen. *Philosopher of Transhumanism.* Director, Future of Humanity Institute, University of Oxford*.* Co-founder of the WTA (1998).

Lincoln Cannon (*?); American citizen. Director, President and CEO of the Mormon Trans-humanist Association. *The New God Argument.*

Zoltan Istvan (*1973); American citizen. Founder of the Transhumanist Party; US Presidential Candidate 2016. *The Transhumanist Wager* (2013)

Andy Miah (*1975); British citizen. Prof. in Science Communication and Digital Media, U West Scotland. Technoethics, technoaesthetics.

Eliezer Yudkowsky (*1979); American citizen. Artificial Intelligence Research; *Friendly Artificial Intelligence.*

Michel Anissimov (*1984); American citizen. Founding Director of Immortality Institute.

Figure A3: Leading transhumanists (in chronological order by date of birth where known).

A4. Image examples of female bioart and biopunk

Ebola Is Beautiful! From: *The Art of Death: Viruses Are Beautiful*, Dr Hunter Cole (2001)

Reattachment, Vesna Javanovic (2008)

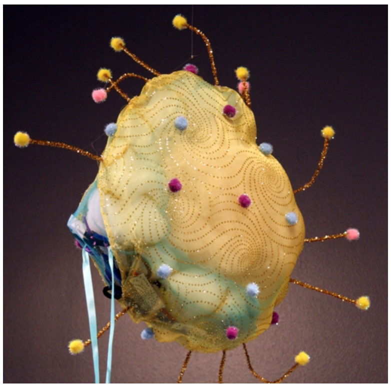
Vanitas, Suzanne Anker (n.d.)

Evolution, Lucy McRae (2010)

Opération Omniprésence 3, Orlan (1993)

The Student, Patricia Piccinini (2012)

Pandrogyne, Genesis Breyer P-Orridge (n.d.)



SARS, Elena Jordan (2011)

I Wanna Deliver a Shark, Ai Hasegawa (2011)

Figure A4: Bioart and body art by female artists.